GENERAL DESCRIPTION

THE COLUMBIA COUNTY DETENTION FACILITY PROJECT IS A NEW, HOUSING POD ADDITION TO AN EXISTING JAIL FACILITY LOCATED IN LAKE CITY, FLORIDA. THE PROJECT FALLS UNDER THE REQUIREMENTS OF THE 2017 FLORIDA BUILDING CODE (FBC). THE SMOKE CONTROL SYSTEM SHALL BE FURNISHED, INSTALLED, TESTED AND INSPECTED IN ACCORDANCE WITH THE PROVISIONS OF FBC SECTION 909.

1. PROVIDE ALL LOGIC FOR THE EMERGENCY SMOKE CONTROL SYSTEM AS PART OF THE BUILDING AUTOMATIC FIRE ALARM SYSTEM.
2. ALL COMPONENTS SHALL BE UL APPROVED FOR FIRE/SMOKE OPERATION.
3. PROVIDE POSITIVE FAN AND DAMPER POSITION/STATUS VERIFICATION.
4. THE FIRE ALARM CONTRACTOR SHALL PROVIDE THE FIREFIGHTERS' SMOKE CONTROL PANEL AS PART OF THE SMOKE CONTROL SYSTEM.

BASIS OF DESIGN :
AS AN INSTITUTIONAL FACILITY, FBC 408.9 REQUIRES SMOKE CONTROL IN ACCORDANCE WITH FBC SECTION 909.

THE INTENT OF "SMOKE CONTROL" IS TO LIMIT THE MIGRATION OF HAZARDOUS AMOUNTS OF SMOKE BEYOND THE ZONE OF ORIGIN, THEREBY PROVIDING AN ACCEPTABLE ENVIRONMENT FOR THE EVACUATION OR RELOCATION OF OCCUPANTS. AS CONFIRMED BY FBC 909.1, THESE PROVISIONS ARE NOT INTENDED TO PRESERVE BUILDING CONTENTS, AID IN BUILDING RESTORATION, OR ASSIST IN FIRE SUPPRESSION OR FIRE DEPARTMENT ACTIVITIES. THE SMOKE CONTROL SYSTEM WILL UTILIZE THE EXHAUST METHODOLOGY. IN THIS METHOD, AIR IS EXHAUSTED FROM THE BUILDING TO MAINTAIN A SMOKE LATER INTERFACE THAT IS NOT LESS THAN 6 FEET ABOVE THE HIGHEST WALKING SURFACE THAT FORMS A PORTION OF THE REQUIRED EGRESS SYSTEM WITHIN THE SMOKE ZONE.

PASSIVE HVAC EQUIPMENT: THE BUILDING IS SERVED BY TWO (2) AHUS AND SEVERAL GENERAL EXHAUST FANS. THESE AHUS AND EXHAUST FANS ARE NOT ASSOCIATED WITH THE SMOKE CONTROL SYSTEM AND SHALL NOT OPERATE IN SMOKE CONTROL MODE. THESE SYSTEMS SHALL SHUTDOWN UPON ACTIVATION OF THE BUILDING FIRE ALARM SYSTEM. THESE SYSTEMS SHALL NOT BE CAPABLE OF RESTARTING UNTIL THE ALARM HAS BEEN CLEARED. ALL PASSIVE SMOKE AND COMBINATION FIRE/SMOKE DAMPERS SHALL ALSO CLOSE UPON SHUTDOWN OF THESE SYSTEMS AFTER ACTIVATION OF THE FIRE ALARM SYSTEM.

PASSIVE BARRIERS: PASSIVE SMOKE CONSTRUCTION SHALL BE USED IN ADDITION TO ACTIVE MECHANICAL SYSTEMS IN THE BUILDING TO DIVIDE THE BUILDING INTO MULTIPLE SMOKE ZONES AND TO LIMIT SMOKE MIGRATION. THESE BARRIERS SHALL BE CONSTRUCTED AS SMOKE-TIGHT BARRIERS.

1. STRUCTURAL COMPONENTS INCLUDING FLOOR/CEILING ASSEMBLIES, CORRIDORS, AREA SEPARATION WALLS, EXIT PASSAGEWAYS, AND HORIZONTAL EXITS ARE CONSTRUCTED TO LIMIT THE SPREAD OF SMOKE AND SHALL BE SEALED TO AT LEAST THE MAXIMUM ALLOWABLE LEAKAGE AREA SPECIFICATIONS OF FBC 909.5. OPENINGS IN THESE BARRIERS SHALL BE PROTECTED BY SELF-CLOSING DEVICES OR AUTOMATIC-CLOSING DEVICES (SUCH AS SMOKE DAMPERS) ACTUATED BY THE REQUIRED CONTROLS FOR THE SMOKE CONTROL SYSTEM.
2. AUTOMATIC SPRINKLER AND ALARM/DETECTION SYSTEMS SHALL BE ZONED TO MATCH THE SMOKE CONTROL SYSTEM ZONES.
3. ALL SMOKE BARRIER DOORS SHALL BE CAPABLE OF BEING EQUIPPED WITH ADJUSTABLE DOOR SKIRTS SUCH THAT THE UNDERCUT MAY BE REDUCED TO A MINIMUM OF 0.2 INCHES.
4. SMOKE DETECTORS (DUCT-TYPE, SPOT-TYPE, OR FULL COVERAGE SYSTEM) SHALL BE PROVIDED FOR THE ACTUATION OF SMOKE DAMPERS (FBC 717.3.3.2) AND, WHERE NEEDED, THE SMOKE CONTROL SYSTEM.
5. ALL INJECTION POINTS SHALL BE PROVIDED WITH MANUAL DAMPERS TO REGULATE THE VOLUMETRIC FLOW RATE AT EACH INJECTION POINT.

SMOKE CONTROL SUPPLY/MAKE-UP FAN MATRIX

EVENT AREA	SMOKE EXHAUST FANS	SMOKE MAKE-UP FANS
	SEF-1	SSF-1
DAYROOM C104	ON	ON
DORM C110	ON	ON
DAYROOM C113	ON	ON
DORM C120	ON	ON
DAYROOM C123	ON	ON
DAYROOM C132	ON	ON
DORM C138	ON	ON
DAYROOM C141	ON	ON
DORM C148	ON	ON
DAYROOM C151	ON	ON

MATRIX ABOVE INDICATES STATUS OF SMOKE CONTROL EXHAUST & MAKE-UP FANS IN ACTIVE SMOKE CONTROL MODE ("ON" OR "AUTO") FOR EACH ZONE

GENERAL SEQUENCES

SEQUENCE OF OPERATIONS (SEE MATRIX THIS SHEET):
THERE ARE MANUAL AND AUTOMATIC METHODS OF SMOKE CONTROL SYSTEM ACTIVATION. IN AUTOMATIC ACTIVATION, THE SMOKE CONTROL SEQUENCE OF OPERATION SHALL BE INITIATED AUTOMATICALLY UPON DETECTION OF SMOKE AND/OR AUTOMATIC SPRINKLER WATER FLOW ALARMS. IN MANUAL ACTIVATION, THE SMOKE CONTROL SEQUENCE OF OPERATION SHALL BE CAPABLE OF BEING ACTIVATE AT THE FIREFIGHTER'S SMOKE CONTROL PANEL LOCATED WITHIN THE FIRE COMMAND CENTER.

ACTIVATION OF THE SMOKE CONTROL SYSTEM SHALL BE ACCOMPLISHED BY ANY OF THE FOLLOWING (FBC 909.12.3):
1. MANUALLY VIA FIREFIGHTER'S SMOKE CONTROL PANEL.
2. AUTOMATICALLY VIA PROPERLY ZONED SMOKE DETECTORS.
3. AUTOMATICALLY VIA PROPERLY ZONED SPRINKLER SYSTEM WATER FLOW (INSTALLED PER NFPA 72).

SMOKE ALARM ZONES:
1. EACH PORTION OF THE HOUSING POD IS CONSIDERED TO BE A SEPARATE SMOKE ALARM ZONE.
2. THERE SHALL BE A MINIMUM PRESSURE OF 0.10" W.G. ACROSS ALL SMOKE BARRIERS SURROUNDING THE SMOKE ALARM ZONE. CONCURRENTLY, THERE SHALL BE A MAXIMUM PRESSURE OF 0.30" W.G. AT ANY ASSOCIATED DOOR TO LIMIT REQUIRED DOOR OPENING FORCE.

MANUAL MODE ACTIVATION SEQUENCE: MANUAL MODE IS AN EVENT TRIGGERED MANUALLY AT THE SMOKE CONTROL PANEL. IF NO EVENT IS DETECTED VIA A SMOKE DETECTOR OR FLOW SWITCH AND A FIREFIGHTER TURNS A ZONE H-O-A SWITCH FROM "AUTO" TO "ON", THAT SMOKE ZONE SHALL BECOME THE ZONE OF INCIDENT. BY MANUALLY ACTIVATING AN EVENT, ALL OF THE LOW LIMIT LINKAGE TEMPERATURES ON THE ACTIVATED ZONE ARE OVERRIDDEN AND THE CONTROL PANEL SHALL HAVE TO BE MANUALLY OPERATED.
THE FOLLOWING SEQUENCES OF OPERATION SHALL ACTIVATE IN MANUAL MODE.
1. INCIDENT ZONE

AUTO MODE ACTIVATION SEQUENCE: AUTO MODE IS AN EVENT ACTIVATED BY A SMOKE DETECTOR OR A FLOW SWITCH. FOR AUTO MODE TO WORK PROPERLY, ALL H-O-A SWITCHES ON THE FIREFIGHTER'S SMOKE CONTROL PANEL SHALL BE SET TO THE "AUTO" POSITION AT ALL TIMES. IF A ZONE OTHER THAN THE ZONE OF INCIDENT IS SWITCHED FROM "AUTO" TO "ON", THEN THAT ZONE SHALL BE THE ZONE OF INCIDENT AND THE ORIGINAL ZONE SHALL NO LONGER BE THE ZONE OF INCIDENT. ALSO, THE LOWER 250°F HEAT ELEMENT SHALL BE OVERRIDDEN. THE SMOKE CONTROL PANEL SHALL NO LONGER BE IN AUTO MODE ONCE ONE H-O-A SWITCH HAS BEEN REMOVED FROM THE AUTO POSITION.
IN THE EVENT THAT A DAMPER FAILS IT SHALL BE INDICATED PER THE FAULT LIGHT AND THE FIREFIGHTER HAS THE OPTION TO MANUALLY OVERRIDE THE LOW TEMPERATURE FIRE DAMPER LINKAGE. THE LINKAGE IS OVERRIDDEN FROM THE LOW TEMPERATURE (212°F LINKAGE) TO THE HIGH TEMPERATURE (350°F LINKAGE) BY TAKING THE H-O-A SWITCH, IN THE ZONE WITH THE FAULTED DAMPER, AND TURNING IT FROM "AUTO" TO "ON". IF THE FAULT LIGHT IS STILL ILLUMINATED THEN THE DAMPER HAS FAILED FOR ANOTHER REASON. ONCE THE HIGH TEMPERATURE LINKAGE SENSES 350°F THE DAMPER SHALL BE CLOSED AND CAN ONLY BE MANUALLY RESET AT THE DEVICE.
THE FOLLOWING SEQUENCES OF OPERATION SHALL ACTIVATE IN AUTO MODE.
1. INCIDENT ZONE

SWITCH FUNCTIONS:
1. ZONE SWITCH:
   A. AUTO: SMOKE CONTROL DEVICES SHALL OPERATE ACCORDING TO THE INCIDENT ZONE SEQUENCE OF OPERATION.
   B. ON: THE ZONE OF INCIDENT SHALL ASSUME THE APPROPRIATE OPERATIONS, (PER INCIDENT LEVEL SEQUENCE OF OPERATION), AND SHALL COMPLY WITH FBC 909.16. ALL LOW TEMPERATURE LINKAGES SHALL BE OVERRIDDEN ALONG WITH ALL MOTOR STARTERS AND VFD H-O-A SWITCHES.
   C. OFF: IF ANY ZONE SWITCH IS OFF ALL ACTIVE DAMPERS SHALL BE CLOSED FOR THAT ZONE. IF NO OTHER ZONES ARE COMMANDED ON, IN AUTO MODE OR OVERRIDE MODE, THE EXHAUST AND MAKE-UP FANS SHALL BE OFF.
2. FAN SWITCH:
   A. AUTO: SMOKE CONTROL DEVICES SHALL OPERATE ACCORDING TO THE INCIDENT LEVEL SEQUENCE OF OPERATION.
   B. ON: OVERRIDES FANS TO TURN ON.
   C. OFF: OVERRIDES FANS TO TURN OFF.

INCIDENT ZONE SEQUENCE OF OPERATION:
1. NORMAL MODE (NO SMOKE EVENT ACTIVATED): ALL AHUS SHALL OPERATE AS NORMAL ACCORDING TO THE HVAC DESIGN. ALL SMOKE CONTROL EQUIPMENT AND ACTIVE DAMPERS SHALL BE OFF AND CLOSED, RESPECTIVELY.
2. SMOKE CONTROL MODE: UPON ACTIVATION OF THE SMOKE CONTROL SYSTEM (VIA SMOKE DETECTOR OR FLOW SWITCH) ALL HVAC EQUIPMENT IN THE BUILDING (NOT UTILIZED FOR SMOKE CONTROL) SHALL SHUT DOWN. ALL PASSIVE SMOKE AND COMBINATION FIRE/SMOKE DAMPERS SHALL CLOSE.

OVERRIDE MODE: OVERRIDE MODE IS AN EVENT TRIGGERED MANUALLY AT THE SMOKE CONTROL PANEL IF NO EVENT IS DETECTED VIA A SMOKE DETECTOR OR FLOW SWITCH AND A FIREFIGHTER TURNS A ZONE H-O-A SWITCH FROM "AUTO" TO "ON", THAT ZONE WILL BECOME THE ZONE OF INCIDENT. THE SMOKE CONTROL SYSTEM SHALL ACTIVATE USING THE AUTO MODE SEQUENCE TO OPERATE THE APPROPRIATE DEVICES TO CONTROL SMOKE ON THE ACTIVATED ZONE PER THE SMOKE MATRIX. EVEN THOUGH THE AUTO MODE SEQUENCE IS BEING USED THE FIREFIGHTER CONTROL PANEL IS NOT IN AUTO MODE. BY MANUALLY ACTIVATING AN EVENT ALL OF THE LOW LIMIT LINKAGE TEMPERATURES ON THE ACTIVATED ZONE ARE OVERRIDDEN AND THE CONTROL PANEL WILL HAVE TO BE MANUALLY OPERATED.

SMOKE CONTROL SYSTEM DETECTION, VERIFICATION, AND ACTIVATION REQUIREMENTS

PER FBC 909.12, FIRE DETECTION SYSTEMS PROVIDING CONTROL INPUT OR OUTPUT SIGNALS TO MECHANICAL SMOKE CONTROL SYSTEMS OR ELEMENTS THEREOF SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 907. SUCH SYSTEMS SHALL BE EQUIPPED WITH A CONTROL UNIT COMPLYING WITH UL 864 AND LISTED AS SMOKE CONTROL EQUIPMENT.

CONTROLS SYSTEMS FOR MECHANICAL SMOKE CONTROL SYSTEMS SHALL INCLUDE PROVISIONS FOR VERIFICATION. VERIFICATION SHALL INCLUDE POSITIVE CONFIRMATION OF ACTUATION, TESTING, MANUAL OVERRIDE AND THE PRESENCE OF POWER DOWNSTREAM OF ALL DISCONNECTS. A PREPROGRAMMED WEEKLY TEST SEQUENCE SHALL REPORT ABNORMAL CONDITIONS AUDIBLY, VISUALLY AND BY PRINTED REPORT. THE PREPROGRAMMED WEEKLY TEST SHALL OPERATE ALL DEVICES, EQUIPMENT AND COMPONENTS USED FOR SMOKE CONTROL.

EXCEPTION: WHERE VERIFICATION OF INDIVIDUAL COMPONENTS TESTED THROUGH THE PREPROGRAMMED WEEKLY TESTING SEQUENCE WILL INTERFERE WITH, AND PRODUCE UNWANTED EFFECTS TO NORMAL BUILDING OPERATION, SUCH INDIVIDUAL COMPONENTS ARE PERMITTED TO BE BYPASSED FROM THE PREPROGRAMMED WEEKLY TESTING WHERE APPROVED BY THE BUILDING OFFICIAL AND IN ACCORDANCE WITH BOTH OF THE FOLLOW:

1. WHERE THE OPERATION OF COMPONENTS IS BYPASSED FROM THE PREPROGRAMMED WEEKLY TEST, PRESENCE OF POWER DOWNSTREAM OF ALL DISCONNECTS SHALL BE VERIFIED WEEKLY BY A LISTED CONTROL UNIT.

2. TESTING OF ALL COMPONENTS BYPASSED FROM THE PREPROGRAMMED WEEKLY TEST SHALL BE IN ACCORDANCE WITH THE FLORIDA FIRE PREVENTION CODE.

SMOKE CONTROL SYSTEM ACTIVATION:

PER FBC 909.12.3.1, MECHANICAL SMOKE CONTROL SYSTEM SHALL HAVE COMPLETELY AUTOMATIC CONTROL. THE AUTOMATIC CONTROL SEQUENCES SHALL BE INITIATED FROM AN APPROPRIATELY ZONED AUTOMATIC SPRINKLER SYSTEM COMPLYING WITH FBC 903.3.1.1, MANUAL CONTROL THAT ARE READILY ACCESSIBLE TO THE FIRE DEPARTMENT, AND ANY AREA SMOKE DETECTORS IN THE ASSOCIATED SMOKE CONTROL ZONES.

PER FBC 909.17, SMOKE CONTROL SYSTEM ACTIVATION SHALL BE INITIATED IMMEDIATELY AFTER RECEIPT OF AN APPROPRIATE AUTOMATIC OR MANUAL ACTIVATION COMMAND. SYSTEMS SHALL ACTIVATE DAMPERS PRIOR TO ENERGIZING FANS WITH SUFFICIENT TIME FOR DAMPER TO OPEN FULLY BEFORE FAN IS ENERGIZED. FOR PURPOSES OF SMOKE CONTROL, THE FIREFIGHTER'S SMOKE CONTROL PANEL RESPONSE TIME SHALL BE THE SAME FOR AUTOMATIC OR MANUAL SMOKE CONTROL ACTION INITIATED FROM ANY OTHER BUILDING CONTROL POINT. THE TOTAL RESPONSE TIME, INCLUDING THAT NECESSARY FOR DETECTION, SHUTDOWN OF OPERATING EQUIPMENT, AND SMOKE CONTROL SYSTEM STARTUP, SHALL ALLOW FOR FULL OPERATIONAL MODE TO BE ACHIEVED BEFORE THE CONDITIONS IN THE SPACE EXCEED THE DESIGN SMOKE CONDITION.

GENERAL SMOKE CONTROL CODE COMPLIANCE NOTES

1. ANY DUCT SYSTEM THAT IS PART OF THE SMOKE CONTROL SYSTEM (SEF-1 & SSF-1) SHALL BE PROTECTED WITH THE SAME FIRE RESISTANCE RATING AS REQUIRED FOR THE SMOKE ZONE (2-HR).

2. ALL SMOKE CONTROL FANS SHALL BE PROVIDED WITH VFD'S FOR BALANCING PURPOSED DURING T&B. ONCE PRESSURES ARE WITHIN ALLOWABLE RANGE, AIRFLOW SHALL BE LOCKED IN PLACE BY THE T&B CONTRACTOR.

3. THE SMOKE CONTROL SYSTEMS SHALL BE PROVIDED WITH STANDBY POWER IN ACCORDANCE WITH FBC 2702.

4. THE SMOKE CONTROL SYSTEM SHALL BE ACTIVATED UPON ACTIVATION OF EITHER THE BUILDING FIRE ALARM SYSTEM OR ASSOCIATED AREA SMOKE DETECTORS. WHERE BOTH A BUILDING FIRE ALARM SYSTEM AND AREA SMOKE DETECTORS ARE PRESENT, EACH SHALL BE INDEPENDENTLY CAPABLE OF ACTIVATING THE SYSTEM.

5. TESTING FOR PERFORMANCE SHALL BE REQUIRED IN ACCORDANCE WITH FBC 909.18.8. SYSTEM ACCEPTANCE SHALL BE IN ACCORDANCE WITH FBC 909.19. SPECIAL INSPECTOR AND T&B CONTRACTOR SHALL PERFORM TESTING.

6. DETECTION AND CONTROL SYSTEM SHALL BE MARKED/LABELED AT ALL JUNCTIONS, ACCESS LOCATIONS AND TERMINATIONS IN ACCORDANCE WITH FBC 909.14.

7. SEE PLANS FOR CONTROL DIAGRAMS REQUIRED BY FBC 909.15. IDENTICAL CONTROL DIAGRAMS SHOWING ALL DEVICES IN EACH SMOKE CONTROL SYSTEM AND IDENTIFYING THEIR LOCATION AND FUNCTION SHALL BE MAINTAINED CURRENT AND KEPT ON FILE WITH THE FIRE CODE OFFICIAL, THE FIRE DEPARTMENT, AND IN THE FIRE COMMAND CENTER IN A FORMAL AND MANNER APPROVED BY THE FIRE CHIEF.

8. A FIREFIGHTER'S SMOKE CONTROL PANEL COMPLYING WITH FBC 909.16 SHALL BE PROVIDED BY ELECTRICAL/FIRE ALARM CONTRACTOR. SEE ADDITIONAL FIREFIGHTER'S SMOKE CONTROL PANEL NOTES/REQUIREMENTS ON THIS SHEET.

9. SYSTEM ACTIVATION SHALL BE INITIATED IMMEDIATELY AFTER RECEIPT OF AN APPROPRIATE AUTOMATIC OR MANUAL ACTIVATION COMMAND. SYSTEMS SHALL ACTIVATE DAMPERS PRIOR TO ENERGIZING FANS WITH SUFFICIENT TIME FOR DAMPER TO OPEN FULLY BEFORE FAN IS ENERGIZED. THE FIREFIGHTER'S SMOKE CONTROL PANEL RESPONSE TIME SHALL BE THE SAME FOR AUTOMATIC OR MANUAL SMOKE CONTROL ACTIVATION.

10. WHERE SCHEDULED, A SMOKE DETECTOR SHALL BE INSTALLED IN SUPPLY DUCT BEFORE DISCHARGE POINT AND SHALL STOP FAN VIA HARD-WIRED CONNECTION UPON DETECTION OF SMOKE. T&B CONTRACTOR AND SPECIAL INSPECTOR SHALL VERIFY THIS DURING TESTING.

11. PER FBC 909.12.3.1, MECHANICAL SMOKE CONTROL SYSTEM SHALL HAVE COMPLETELY AUTOMATIC CONTROL. THE AUTOMATIC CONTROL SEQUENCES SHALL BE INITIATED FROM AN APPROPRIATELY ZONED AUTOMATIC SPRINKLER SYSTEM COMPLYING WITH FBC 903.3.1.1, MANUAL CONTROL THAT ARE READILY ACCESSIBLE TO THE FIRE DEPARTMENT, AND ANY AREA SMOKE DETECTORS IN THE ASSOCIATED SMOKE CONTROL ZONES.

12. MODIFICATIONS: FUTURE BUILDING MODIFICATIONS, SUCH AS TENANT IMPROVEMENTS OR BUILDING RENOVATIONS, MAY IMPACT THE PERFORMANCE OF THE SMOKE CONTROL SYSTEM DESCRIBED HEREIN. ANY CHANGES TO THE BUILDING SHOULD BE REVIEWED FOR THE POTENTIAL IMPACT ON THE SMOKE CONTROL SYSTEM. MODIFICATIONS TO WALLS DESIGNED AS ZONE BOUNDARIES MAY REQUIRE RELOCATING THE ZONE BOUNDARIES. LOCATIONS OF FIRE DAMPERS, SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS MAY REQUIRE RELOCATION. FIRE ALARM DEVICES ASSOCIATED WITH THE SMOKE CONTROL SYSTEM MAY ALSO BE AFFECTED AND REQUIRE RELOCATION.

SMOKE CONTROL FAN REQUIREMENTS

COMPONENTS OF SMOKE CONTROL FANS (SEF-1 & SSF-1) SHALL BE RATED AND CERTIFIED BY THE MANUFACTURER FOR THE PROBABLE TEMPERATURE RISE TO WHICH THE COMPONENTS WILL BE EXPOSED PER FBC 909.10.1.

SUPPLY FANS SHALL BE USED FOR PRESSURIZATION OF THE SMOKE ZONE OF INCIDENT. THE SUPPLY AIR INTAKE SHALL BE SEPARATED FROM OTHER BUILDING EXHAUST OUTLETS THAT MIGHT EXPEL SMOKE DURING A FIRE. THESE OUTLETS INCLUDE, BUT ARE NOT LIMITED TO DRYER, KITCHEN AND SIMILAR EXHAUST OUTLET TYPES. THE SEPARATION SHALL BE AS GREAT AS IS PRACTICAL, BUT NOT LESS THAN 20 FEET.

SMOKE CONTROL SHALL BE INDEPENDENT OF OTHER BUILDING VENTILATION SYSTEMS (FBC 909.20.6.1). EQUIPMENT SHALL BE CLEARLY MARKED AT ALL JUNCTIONS, ACCESSES AND TERMINATIONS (FBC 909.14). A CONTROL DIAGRAM SHOWING ALL DEVICES AND THEIR FUNCTION SHALL BE PROVIDED (FBC 909.15).

1.5 TIMES REQUIRED NUMBER OF BELTS (MINIMUM 2) SHALL BE PROVIDED FOR BELT-DRIVEN FANS (FBC 909.10.5).

FAN MOTORS SHALL HAVE A MINIMUM SERVICE FACTOR OF 1.15 (FBC 909.10.5).

OPERATION OF FANS IN SMOKE MODE SHALL BE CONFIRMED BY POSITIVE INDICATION WITH DIFFERENTIAL PRESSURE SWITCHES OR CURRENT TRANSMITTERS WITH ADJUSTABLE HIGH AND LOW SETTINGS.

MOTORS DRIVING FANS SHALL NOT BE OPERATED BEYOND THEIR NAMEPLATE HORSEPOWER AS DETERMINED FROM MEASUREMENT OF ACTUAL CURRENT DRAW AND SHALL HAVE A MINIMUM SERVICE FACTOR OF 1.15.

SMOKE CONTROL DAMPER REQUIREMENTS

SMOKE DAMPERS AND FIRE/SMOKE DAMPERS SHALL HAVE A MINIMUM CLASS II, 250°F RATING PER FBC 909.5.2.1, AT PENETRATIONS OF:
1. AREA OR OCCUPANCY SEPARATION WALLS.
2. DUCTWORK NOT SERVING THE SMOKE CONTROL SYSTEM THAT PENETRATES AND SERVES BOTH SIDES OF SMOKE ZONE BARRIERS.
3. CORRIDORS SERVING AS A MEANS OF EGRESS SYSTEM.
4. AREAS OF REFUGE.
5. AREAS REQUIRING ISOLATION DURING AN ALARM.

SUPERVISION OF DAMPERS SHALL BE PROVIDED BY LIMIT OR PROXIMITY SWITCHES OR OTHER APPROVED METHOD.

DAMPERS LOCATED WITHIN THE EXHAUST AIR STREAM SHALL BE WIRED SO THAT THE 250°F RATING CAN BE OVERRIDDEN AT THE FIREFIGHTERS CONTROL PANEL BY SWITCHING THE ZONE IN INCIDENT FROM AUTOMATIC TO ON. A DAMPER SHALL OPEN UNTIL IT REACHES ITS MAXIMUM RATING OF 350°F. AT 350°F THE DAMPER SHALL CLOSE AND SHALL NOT HAVE THE CAPABILITY OF BEING OVERRIDDEN.

SMOKE CONTROL SYSTEM DAMPERS SHALL OPERATE AS REQUIRED TO PROVIDE THE PRESSURE DIFFERENTIALS SPECIFIED IN THIS ANALYSIS.

HVAC SYSTEMS SERVING THE ZONE IN ALARM AND NOT USED FOR SMOKE CONTROL SHALL BE SHUT DOWN PER SEQUENCE OF OPERATIONS. ALL PASSIVE DAMPERS NOT ASSOCIATED WITH THE SMOKE CONTROL SYSTEM SHALL CLOSE.

EQUIPMENT RESPONSE TIME REQUIREMENTS

SMOKE CONTROL SYSTEM ACTIVATION SHALL BE INITIATED IMMEDIATELY AFTER RECEIPT OF AN APPROPRIATE AUTOMATIC OR MANUAL ACTIVATION COMMAND. SMOKE CONTROL SYSTEMS SHALL ACTIVATE INDIVIDUAL COMPONENTS (SUCH AS DAMPERS AND FANS) IN THE SEQUENCE NECESSARY TO PREVENT PHYSICAL DAMAGE TO THE FANS, DAMPERS, DUCTS AND OTHER EQUIPMENT. THE TOTAL RESPONSE TIME FOR INDIVIDUAL COMPONENTS TO ACHIEVE THEIR DESIRED OPERATING MODE SHALL NOT EXCEED THE FOLLOWING:
1. SMOKE DAMPER CLOSING - IMMEDIATELY
2. SMOKE DAMPER OPENING - 15 SECONDS
3. FAN STARTING (ENERGIZING) - 15 SECONDS MAXIMUM
4. FAN STOPPING (DE-ENERGIZING) - 15 SECONDS MAXIMUM
5. FAN VOLUME MODULATION - IMMEDIATELY
6. PRESSURE CONTROL MODULATION - 30 SECONDS MAXIMUM
7. TEMPERATURE CONTROL SAFETY OVERRIDE -15 SECONDS MAXIMUM
8. POSITIVE INDICATION OF STATUS -IMMEDIATELY
9. FOR PURPOSES OF SMOKE CONTROL, THE FIREFIGHTER'S CONTROL PANEL RESPONSE TIME SHALL BE THE SAME FOR AUTOMATIC OR MANUAL SMOKE CONTROL ACTION INITIATED FROM ANY OTHER BUILDING CONTROL POINT.

SPECIAL INSPECTION AND TEST REQUIREMENTS

PRIOR TO CONSTRUCTION, OWNER SHALL HIRE AN APPROVED THIRD-PARTY SMOKE SYSTEM INSPECTOR TO INSPECT ALL ITEMS REQUIRED BY FBC 909.18.8.2 DURING BOTH THE ERECTION OF THE PROJECT AND DURING COMMISSIONING. INSPECTOR SHALL BE OBJECTIVE, COMPETENT AND INDEPENDENT FROM THE CONTRACTOR AND ENGINEER AND ALSO DISCLOSE TO THE AHJ AND REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE POSSIBLE CONFLICTS OF INTEREST SO THAT OBJECTIVITY CAN BE CONFIRMED. AS A FINAL PRODUCT, THE INSPECTOR SHALL PROVIDE THE REPORTS OF THE TESTING AND INSPECTION TO ALL NECESSARY PARTIES.

AS PART OF THE BASIC SCOPE FOR SPECIAL INSPECTION OF SMOKE CONTROL SYSTEM FOR THIS PROJECT, THE SPECIAL INSPECTOR SHALL PROVIDE THE FOLLOWING SERVICES:

1. PERFORM A GENERAL REVIEW OF THE SMOKE EXHAUST AND SMOKE MAKE-UP SYSTEM DESIGN DRAWINGS PRIOR TO BUILDING CONSTRUCTION TO BECOME FAMILIAR WITH THE DESIGN APPROACH. COORDINATE WITH THE DESIGN ENGINEER'S DRAWINGS TO CLARIFY QUESTIONS REGARDING THE SYSTEM OPERATION SEQUENCE, DESIGN PARAMETERS, AND OTHER FACTORS ASSOCIATED WITH THE DESIGN. IF NECESSARY, INSPECTOR SHALL MEET WITH DESIGN ENGINEER IN PERSON.

2. PARTICIPATE IN CONSTRUCTION SITE INSPECTIONS DURING THE INSTALLATION OF SMOKE CONTROL EQUIPMENT PRIOR TO SYSTEM CONCEALMENT.

3. PARTICIPATE IN DUCT PRESSURE AND SPACE PRESSURE DIFFERENTIAL TESTING, FLOW MEASUREMENTS AND DETECTION, AND CONTROL SEQUENCE VERIFICATION PRIOR TO BUILDING OCCUPANCY.

4. VERIFY OPERATION OF THE FIREFIGHTER'S SMOKE CONTROL PANEL AND THE AIR DISTRIBUTION PANEL.

THE FOLLOWING INSPECTIONS AND TESTS SHALL BE MADE FOR PROPER CONFIRMATION:

1. DETECTION DEVICES (FBC 909.18.1): SMOKE OR FIRE DETECTORS THAT ARE A PART OF A SMOKE CONTROL SYSTEM SHALL BE TESTED IN ACCORDANCE WITH CHAPTER 9 IN THEIR INSTALLED CONDITION.

2. SMOKE CONTROL DUCTWORK (FBC 909.18.2): SMOKE CONTROL DUCTWORK SHALL BE VISUALLY INSPECTED TO VERIFY NO DAMAGE HAS OCCURRED DURING INSTALLATION. SMOKE CONTROL SYSTEM DUCTWORK SHALL BE LEAKAGE TESTED TO 1.5 TIMES ITS DESIGN PRESSURE USING THE LEAKAGE TEST MANUAL PUBLISHED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA). THE TEST MUST CONCLUDE THAT THE LEAKAGE DOES NOT EXCEED 5% OF THE DESIGN AIRFLOW AT 1.5 TIMES THE FAN DESIGN STATIC PRESSURE.

3. DAMPERS (FBC 909.18.3): SMOKE CONTROL SYSTEM DAMPERS SHALL BE VISUALLY INSPECTED TO CONFIRM PROPER INSTALLATION, OPERATION, RATING, AND LISTINGS.

4. INLETS AND OUTLETS (FBC 909.18.4): INLETS AND OUTLETS SHALL BE READ USING GENERALLY ACCEPTED PRACTICES TO DETERMINE AIR QUANTITIES.

5. FANS (FBC 909.18.5): FANS SHALL BE VISUALLY EXAMINED FOR PROPER ROTATION. MEASUREMENT OF VOLTAGE, AMPERAGE, REVOLUTIONS PER MINUTE AND BELT TENSION (FOR BELT DRIVEN FANS) SHALL BE PERFORMED.

6. CONTROLS (FBC 909.18.7): THE SMOKE CONTROL SYSTEM SHALL BE ACTIVATED TO TEST ALL APPROPRIATE SMOKE CONTROL SYSTEM COMPONENTS THROUGH ALL MODES OF OPERATION.

SMOKE CONTROL DUCTWORK REQUIREMENTS

DUCT LEAKAGE SHALL BE LESS THAN 5% OF THE DESIGN FLOW WHEN TESTED TO 1.5 TIMES THE MAXIMUM DESIGN PRESSURE (FBC 909.10.2).

AIR INLETS AND EXHAUST OUTLETS SHALL BE LOCATED TO MINIMIZE THE POTENTIAL FOR INTRODUCING SMOKE OR FLAME INTO THE BUILDING.

SMOKE CONTROL CODE COMPLIANCE NOTES FOR SMOKE ZONES

SMOKE CONTROL FOR THE BUILDING IS BEING PROVIDED PER FBC 909.8, EXHAUST METHOD.

SMOKE EXHAUST SEQUENCE OF OPERATION:
1. SMOKE ZONES SZ-C1 THROUGH SZ-C10 SHALL BE PROVIDED WITH SMOKE EXHAUST AND SMOKE MAKE-UP AIR.
2. UPON DETECTION OF A FIRE EVENT FROM AN AREA DETECTOR OR SPRINKLER FLOW SWITCH WITHIN THE SMOKE CONTROL ZONE, THE FOLLOWING SHALL OCCUR:
   A. IN THE ZONE OF INCIDENCE DAMPERS SHALL OPEN OR CLOSE PER THE SMOKE CONTROL DAMPER MATRIX SHOWN BELOW.
   B. UPON PROOF OF OPENING FROM THE DAMPER AUXILIARY SWITCHES, FANS SEF-1 AND SSF-1 SHALL BE ENABLED. THE FANS SHALL OPERATE UNTIL BUILDING FIRE ALARM SYSTEM SIGNALS THAT THE SMOKE CONTROL MODE CAN TERMINATE OR IF THE FAN(S) ARE SWITCHED OFF AT THE FIRE FIGHTER'S SMOKE CONTROL PANEL.
3. UPON SIGNAL FROM THE FIRE ALARM SYSTEM TO TERMINATE THE SMOKE EXHAUST MODE THE FOLLOWING SHALL OCCUR:
   A. DAMPER POSITIONS (EXCEPT FAN ISOLATION DAMPERS) SHALL BE REVERSED FROM POSITIONS INDICATED IN SMOKE CONTROL DAMPER MATRIX BELOW.
   B. FANS SEF-1 AND SSF-1 SHALL BE DISABLED.
   C. AFTER TWO MINUTES, FAN ISOLATION DAMPERS, PER SMOKE CONTROL DAMPER MATRIX BELOW, SHALL CLOSE.

EACH SMOKE ZONE SHALL MAINTAIN A MINIMUM PRESSURE DIFFERENTIAL OF 0.10 IN. W.G. WITH RESPECT TO THE ADJACENT SMOKE ZONE. CONCURRENTLY, THERE SHALL BE A MAXIMUM PRESSURE OF 0.30 IN. W.G. IN ANY ZONE TO LIMIT REQUIRED DOOR OPENING FORCE. A DUCT-MOUNTED SMOKE DETECTOR SHALL BE PROVIDED IN THE SMOKE MAKE-UP FAN SYSTEM TO DEACTIVATE THE FAN UPON DETECTION OF SMOKE. ALL INJECTION POINTS SHALL BE PROVIDED WITH MANUAL DAMPERS TO REGULATE THE VOLUMETRIC FLOW RATE AT EACH INJECTION POINT.

SMOKE EXHAUST FAN SEF-1 AND SMOKE MAKE-UP FAN SSF-1 SHALL BE AUTOMATICALLY STARTED AND STOPPED UPON RECEIVING A SIGNAL FROM THE FIRE ALARM SYSTEM.

TAB CONTRACTOR SHALL DETERMINE MINIMUM OPERATIONAL SPEED TO MAINTAIN A MINIMUM OF +0.10 IN. W.G. AND A MAXIMUM OF +0.30 IN. W.G. IN THE SMOKE ZONE WITH RESPECT TO THE BUILDING WITH ALL DOORS CLOSED.

THE MAXIMUM PRESSURE DIFFERENCE USED TO OPEN THE DOOR SHALL NOT EXCEED 30 LBS TO START THE DOOR IN MOTION AND 15 LBS TO CONTINUE THE SWING IN COMPLIANCE WITH FBC 909.6.2. THE DOOR OPENING FORCE SHALL BE CHECKED BY THE TAB CONTRACTOR WITH THE GUESTROOM CORRIDOR SMOKE EXHAUST SYSTEM OPERATING.

ADDITIONAL NOTES/REQUIREMENTS

1. REFER TO PLAN DRAWINGS FOR DUCTWORK AND MECHANICAL EQUIPMENT LOCATIONS AND ROUTING.

2. REFER TO ELECTRICAL DRAWINGS FOR SMOKE DETECTOR LOCATION AND INFORMATION.

3. MANUAL PULL STATIONS SHALL NOT INITIATE THE SMOKE CONTROL SYSTEM.

CONTROL SYSTEM REQUIREMENTS

SUPERVISION FOR SENSING OF AIRFLOW SHALL BE BY DIFFERENTIAL PRESSURE TRANSMITTERS OR ADJUSTABLE CURRENT SENSORS. REQUIRED SUPERVISION SHALL BE INDICATED AT THE FIREFIGHTER'S CONTROL PANEL.

ALL WIRING, REGARDLESS OF VOLTAGE, SHALL BE FULLY ENCLOSED WITHIN CONTINUOUS RACEWAYS (FBC 909.12.1).

NORMAL ACTIVATION OF THE SMOKE CONTROL SYSTEM SHALL BE BY AUTOMATIC CONTROL (FBC 909.12.2.1).

PASSIVE SMOKE CONTROL OPENING PROTECTION SHALL BE ACTIVATED BY APPROVED SPOT-TYPE DETECTORS LISTED FOR RELEASING SERVICE (FBC 909.12.2.2).

THE DETECTION SYSTEM PROVIDING INPUT OR OUTPUT FOR THE SMOKE CONTROL SYSTEM SHALL BE LISTED IN ACCORDANCE WITH UL 864 (UUKL). INTEGRAL PREPROGRAMMED TESTING SHALL BE REQUIRED (FBC 909.12).

ADDITIONAL FIRE ALARM MONITORING REQUIREMENTS

FIRE ALARM SYSTEM SHALL MONITOR/CONTROL THE FOLLOWING:

1. SMOKE CONTROL FANS
   a. POWER STATUS (DOWNSTREAM OF LAST DISCONNECT)
   b. FAN STATUS (VIA DIFFERENTIAL PRESSURE SWITCH)
   c. FAN COMMAND
2. SMOKE CONTROL DAMPERS
   a. POWER STATUS
   b. COMMAND
   c. OPEN STATUS
   d. CLOSED STATUS

CONTROL ACTION AND PRIORITIES (FBC 909.16.3)

ON-OFF, OPEN-CLOSE CONTROL ACTIONS SHALL HAVE THE HIGHEST PRIORITY OF ANY CONTROL POINT WITHIN THE BUILDING. ONCE ISSUED FROM THE FIREFIGHTER'S CONTROL PANEL, NO AUTOMATIC OR MANUAL CONTROL FROM ANY OTHER CONTROL POINT WITHIN THE BUILDING SHALL CONTRADICT THE CONTROL ACTION. WHERE AUTOMATIC MEANS ARE PROVIDED TO INTERRUPT NORMAL, NONEMERGENCY EQUIPMENT OPERATION OR PRODUCE A SPECIFIC RESULT TO SAFEGUARD THE BUILDING OR EQUIPMENT (I.E., DUCT FREEZESTATS, DUCT SMOKE DETECTORS, HIGH TEMPERATURE CUTOUTS, TEMPERATURE-ACTUATED LINKAGE AND SIMILAR DEVICES), SUCH MEANS SHALL BE CAPABLE OF BEING OVERRIDDEN BY THE FIREFIGHTER'S CONTROL PANEL SWITCH POSITION SHALL PREVAIL. IN NO CASE SHALL CONTROL ACTIONS REQUIRE THE SMOKE CONTROL SYSTEM TO ASSUME MORE THAN ONE CONFIGURATION AT ANY ONE TIME.

EXCEPTION: POWER DISCONNECTS REQUIRED BY THE CHAPTER 27 OF THE FBC.

ONLY THE AUTO POSITION OF EACH THREE POSITION FIREFIGHTER'S CONTROL PANEL SWITCH SHALL ALLOW AUTOMATIC OR MANUAL CONTROL ACTION FROM OTHER CONTROL POINTS WITHIN THE BUILDING. THE AUTO POSITION SHALL BE THE NORMAL, NONEMERGENCY, BUILDING CONTROL POSITION. WHERE A FIREFIGHTER'S CONTROL PANEL IS IN THE AUTO POSITION, THE ACTUAL STATUS OF THE DEVICE (ON, OFF, OPEN, CLOSED) SHALL CONTINUE TO BE INDICATED BY THE STATUS INDICATOR DESCRIBED ABOVE. WHEN DIRECTED BY AN AUTOMATIC SIGNAL TO ASSUME AN EMERGENCY CONDITION, THE NORMAL POSITION SHALL BECOME THE EMERGENCY CONDITION FOR THAT DEVICE OR GROUP OF DEVICES WITHIN THE ZONE. IN NO CASE SHALL CONTROL ACTIONS REQUIRE THE SMOKE CONTROL SYSTEM TO ASSUME MORE THAN ONE CONFIGURATION AT ANY ONE TIME.

FIREFIGHTER'S SMOKE CONTROL PANEL REQUIREMENTS

THE ELECTRICAL/FIRE ALARM CONTRACTOR SHALL PROVIDE A PANEL PER FBC 909.16. A FIREFIGHTER'S SMOKE CONTROL PANEL FOR FIRE DEPARTMENT EMERGENCY RESPONSE PURPOSES ONLY SHALL BE PROVIDED IN THE FIRE COMMAND CENTER ROOM AND SHALL INCLUDE MANUAL CONTROL OR OVERRIDE OF AUTOMATIC CONTROL FOR MECHANICAL SMOKE CONTROL SYSTEMS. THE FIREFIGHTER'S SMOKE CONTROL PANEL SHALL COMPLY WITH SECTIONS 909.16.1 THRU 909.16.3.

HVAC EQUIPMENT REQUIRED TO BE ON THE FIREFIGHTER'S SMOKE CONTROL PANEL:
- SEF-1
- SSF-1
- ALL SMOKE CONTROL DAMPERS

SMOKE CONTROL FANS SHALL BE SHOWN ON THE FIREFIGHTER'S SMOKE CONTROL PANEL. A CLEAR INDICATION OF THE DIRECTION OF AIRFLOW AND THE RELATIONSHIP OF COMPONENTS SHALL BE DISPLAYED. STATUS INDICATORS SHALL BE PROVIDED FOR ALL SMOKE CONTROL EQUIPMENT, LABELED BY FAN AND ZONE, AND BY PILOT-TYPE INDICATORS AS FOLLOWS:

1. FANS, DAMPERS, AND OTHER OPERATING EQUIPMENT IN THEIR NORMAL STATUS - WHITE
2. FANS, DAMPERS, AND OTHER OPERATING EQUIPMENT IN THEIR OFF OR CLOSED STATUS - RED
3. FANS, DAMPERS, AND OTHER OPERATING EQUIPMENT IN THEIR ON OR OPEN STATUS - GREEN
4. FANS, DAMPERS, AND OTHER OPERATING EQUIPMENT IN A FAULT STATUS - YELLOW/AMBER

PER FBC 909.16.2, THE PANEL SHALL PROVIDE CONTROL CAPABILITY OVER THE COMPLETE SMOKE CONTROL SYSTEM EQUIPMENT WITHIN THE BUILDING AS FOLLOWS:

1. ON-AUTO-OFF CONTROL OVER EACH INDIVIDUAL PIECE OF OPERATING SMOKE CONTROL EQUIPMENT THAT CAN ALSO BE CONTROLLED FROM OTHER SOURCES WITHIN THE BUILDING. THIS INCLUDES THE SMOKE EXHAUST FAN, THE SMOKE MAKE-UP FAN, AND OTHER OPERATING EQUIPMENT USED OR INTENDED FOR SMOKE CONTROL PURPOSES (FIRE/SMOKE CONTROL DAMPERS, ETC.)

2. OPEN-AUTO-CLOSE CONTROL OVER INDIVIDUAL DAMPERS RELATING TO SMOKE CONTROL THAT ARE ALSO CONTROLLED FROM OTHER SOURCES WITHIN THE BUILDING.

3. ON-OFF OR OPEN-CLOSE CONTROL OVER SMOKE CONTROL AND OTHER CRITICAL EQUIPMENT ASSOCIATED WITH A FIRE OR SMOKE EMERGENCY AND THAT CAN ONLY BE CONTROLLED FROM THE FIREFIGHTER'S SMOKE CONTROL PANEL.

EXCEPTIONS ALLOWED PER CODE:

1. COMPLEX SYSTEMS, WHERE APPROVED, WHERE THE CONTROLS AND INDICATORS ARE COMBINED TO CONTROL AND INDICATE ALL ELEMENTS OF A SINGLE SMOKE ZONE AS A UNIT.

2. COMPLEX SYSTEMS, WHERE APPROVED, WHERE THE CONTROL IS ACCOMPLISHED BY COMPUTER INTERFACE USING APPROVED, PLAIN ENGLISH COMMANDS.

PER FBC 909.16.3, THE FIREFIGHTER'S SMOKE CONTROL PANEL ACTIONS SHALL BE AS FOLLOWS:

1. ON-OFF AND OPEN-CLOSE CONTROL ACTIONS SHALL HAVE THE HIGHEST PRIORITY OF ANY CONTROL POINT WITHIN THE BUILDING. ONCE ISSUED FROM THE FIREFIGHTER'S SMOKE CONTROL PANEL, AUTOMATIC OR MANUAL CONTROL FROM ANY OTHER CONTROL POINT WITHIN THE BUILDING SHALL NOT CONTRADICT THE CONTROL ACTION. WHERE AUTOMATIC MEANS ARE PROVIDED TO INTERRUPT NORMAL, NON-EMERGENCY EQUIPMENT OPERATION OR PRODUCE A SPECIFIC RESULT TO SAFEGUARD THE BUILDING OR EQUIPMENT, INCLUDING BUT NOT LIMITED TO, DUCT SMOKE DETECTORS, HIGH TEMPERATURE CUTOUTS, TEMPERATURE ACTIVATED LINAGE, AND SIMILAR DEVICES, SUCH MEANS SHALL BE CAPABLE OF BEING OVERRIDDEN BY THE FIREFIGHTER'S SMOKE CONTROL PANEL. THE LAST CONTROL ACTION AS INDICATED BY EACH FIREFIGHTER'S SMOKE CONTROL PANEL SWITCH POSITION SHALL PREVAIL. CONTROL ACTIONS SHALL NOT REQUIRE THE SMOKE CONTROL SYSTEM TO ASSUME MORE THAN ONE CONFIGURATION AT ANY ONE TIME.

   EXCEPTION: POWER DISCONNECTS AS REQUIRED BY NFPA 70.

2. ONLY THE "AUTO" POSITION OF EACH THREE-POSITION FIREFIGHTER'S SMOKE CONTROL PANEL SWITCH 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. WHERE A FIREFIGHTER'S SMOKE CONTROL PANEL IS IN THE "AUTO" POSITION, THE ACTUAL STATUS OF THE DEVICE (ON, OFF, OPEN, CLOSED) SHALL CONTINUE TO BE INDICATED BY THE STATUS INDICATOR DESCRIBED IN FBC 909.16.1.

WHERE DIRECTED BY AN AUTOMATIC SIGNAL TO ASSUME AN EMERGENCY CONDITION, THE NORMAL POSITION SHALL BECOME THE EMERGENCY CONDITION FOR THAT DEVICE OR GROUP OF DEVICES WITHIN THE ZONE. CONTROL ACTIONS SHALL NOT REQUIRE THE SMOKE CONTROL SYSTEM TO ASSUME MORE THAN ONE CONFIGURATION AT ANY ONE TIME.

BATTERY POWER
THE FIREFIGHTER'S SMOKE CONTROL PANEL SHALL HAVE A BATTERY BACKUP (INTERNAL POWER SOURCE) TO ENSURE THE PANEL REMAINS IN OPERATION UNTIL POWER IS SWITCHED TO THE GENERATOR DURING POWER OUTAGES.

AIR DISTRIBUTION PANEL REQUIREMENTS

HVAC/DDC CONTRACTOR SHALL PROVIDE AN AIR DISTRIBUTION CONTROL PANEL (AND SYSTEMS WIRING) PER FBC 911.1.6.5. CONTRACTOR SHALL INSTALL PANEL ON THE WALL (MOUNTED IN THE FIRE COMMAND CENTER ADJACENT TO THE FIREFIGHTER'S SMOKE CONTROL PANEL). PANEL SHALL BE ABLE TO PROVIDE CONTROLS AS FOLLOWS:

1. ON-OFF CONTROL
2. ON-OFF INDICATOR LIGHTS

AIR DISTRIBUTION DEVICES TO BE ON THE PANEL INCLUDE:

1. AHU-1
2. AHU-2
3. FAN COIL UNITS: FCU-5 & FCU-10
4. FANS: EF-1 & EF-2

THIS PANEL SHALL HAVE MANUAL OVERRIDE BUTTONS/SWITCHES AND STATUS PILOT LAMPS. THE PANEL AND SYSTEM WIRING SHALL BE CONNECTED/WIRED TO THE EQUIPMENT AND SHALL BE PROVIDED BY THE BAS SYSTEM PROVIDED.

AIR DISTRIBUTION DEVICES IN THE BUILDING THAT ARE NOT LISTED ABOVE OR LISTED TO BE ON THE FIREFIGHTER'S SMOKE CONTROL PANEL ARE DEVICES THAT ONLY SERVE ONE ROOM/SPACE THAT IS NOT IN PATHS OF EGRESS AND/OR ARE NOT CONSIDERED TO BE CRITICAL TO THE FIREFIGHTER'S OPERATION OR SAFETY.

AIR DISTRIBUTION PANEL INCLUDES ONLY THOSE DEVICES THAT ARE PROVIDE IN THE NEW TOWER PORTION OF THE BUILDING AND DOES NOT INCLUDE ANY EXISTING EQUIPMENT, REGARDLESS OF LOCATION.

SMOKE CONTROL SYSTEM POWER & WIRING REQUIREMENTS

1. IF NOT NOTED OTHERWISE, ALL CONTROL WIRING FOR FANS AND DAMPERS SHALL BE BY ELECTRICAL/FIRE ALARM CONTRACTOR.

2. PER FBC 909.12.2 IN ADDITION TO MEETING REQUIREMENTS OF NFPA 70, ALL WIRING, REGARDLESS OF VOLTAGE, SHALL BE FULLY ENCLOSED WITHIN CONTINUOUS METALLIC CONDUIT/RACEWAYS.

3. WIRING FOR OPERATION AND CONTROL OF MECHANICAL SMOKE REMOVAL SYSTEMS (SEF-1 & SSF-1, ALL ASSOCIATED MOTOR OPERATED DAMPERS, AND ALL FIRE/SMOKE DAMPERS ASSOCIATED WITH ANY OF THESE PIECES OF EQUIPMENT) SHALL BE CONNECTED AHEAD OF THE MAIN DISCONNECT IN ACCORDANCE WITH SECTION 701.12E OF NFPA 70 AND BE PROTECTED AGAINST INTERIOR FIRE EXPOSURE TO TEMPERATURES IN EXCESS OF 1000°F FOR A PERIOD OF NOT LESS THAN 15 MINUTES. PROVIDE WIRING RATED AT 1000°F.

4. CONTROL WIRING FROM THE SMOKE CONTROL FANS (SEF-1 & SSF-1) TO THE FIRE COMMAND CENTER ROOM SHALL BE 2-HOUR RATED CABLE OR CABLE SYSTEMS IN COMPLIANCE WITH FBC 909.20.6.1.

5. MECHANICAL/GENERAL CONTRACTOR SHALL COORDINATE THESE REQUIREMENTS WITH ELECTRICAL AND CONTROLS CONTRACTORS WHO ARE PROVIDING THIS WIRING.

6. THE SMOKE CONTROL SYSTEM SHALL BE SUPPLIED WITH TWO (2) SOURCES OF POWER. PRIMARY POWER SHALL BE FROM THE NORMAL BUILDING POWER SYSTEMS (FBC 909.11). SECONDARY POWER SHALL BE FROM AN APPROVED STANDBY SOURCE COMPLYING WITH THE NATIONAL ELECTRIC CODE AND FBC 403.4.8 AND CHAPTER 27.

7. ELEMENTS OF THE SMOKE CONTROL SYSTEM RELYING ON VOLATILE MEMORIES SHALL BE SUPPLIED WITH UNINTERRUPTIBLE POWER SOURCES OF SUFFICIENT DURATION TO SPAN 15-MINUTE PRIMARY POWER INTERRUPTION. ELEMENTS OF THE SMOKE CONTROL SYSTEM SUSCEPTIBLE TO POWER SURGES SHALL BE SUITABLY PROTECTED BY POWER CONDITIONERS, SUPPRESSORS OR OTHER APPROVED MEANS (FBC 909.11.1).

8. TRANSFER TO FULL STANDBY POWER SHALL BE AUTOMATIC AND OCCUR WITHIN 60 SECONDS OF FAILURE OF THE PRIMARY POWER (FBC 909.11).

9. THE STANDBY POWER SOURCE AND ITS TRANSFER SWITCHES SHALL BE IN A SEPARATE ROOM FROM THE NORMAL POWER TRANSFORMERS AND SWITCH GEAR AND SHALL BE ENCLOSED IN A ROOM CONSTRUCTED OF NOT LESS THAN 1-HOUR FIRE-RESISTANCE-RATED FIRE BARRIERS VENTILATED DIRECTLY TO AND FROM THE EXTERIOR (FBC 909.11).

T&B CONTRACTOR REQUIREMENTS

REFER TO GENERAL NOTES FOR GENERAL T&B CONTRACTOR REQUIREMENTS IN ADDITION TO THE REQUIREMENTS BELOW RELATED TO THE SMOKE CONTROL SYSTEMS

T&B CONTRACTOR SHALL PROVIDE THE FOLLOWING SERVICES FOR THE SMOKE CONTROL SYSTEM:

1. WORK UNDER THE DIRECTION OF THE SPECIAL INSPECTOR.

2. MEASURE DOOR OPEN FORCE.

3. MEASURE ALL SMOKE CONTROL FAN AIRFLOWS, PRESSURES, MOTOR OPERATING CHARACTERISTICS, OUTDOOR TEMPERATURE, WIND SPEED AND DIRECTION.

4. INITIATE/GENERATE SMOKE AT THE FANS TO OBSERVE SHUTDOWN OF SMOKE MAKE-UP FAN.

5. LEAK TEST ALL DUCTWORK ASSOCIATED WITH ALL SMOKE CONTROL SYSTEMS TO 1.5 TIMES THE MAXIMUM DESIGN PRESSURE OF EACH SYSTEM (SCHEDULED STATIC PRESSURE). MEASURED LEAKAGE SHALL NOT EXCEED 5% OF DESIGN FLOW. TEST SHALL BE WITNESSED BY SPECIAL INSPECTOR AND REPORTS SHALL BE ISSUED TO OWNER/ENGINEER.

6. ASSIST SPECIAL INSPECTOR WITH OBSERVATION AND OPERATION DUTIES FOR VERIFYING FAN SYSTEM OPERATION.

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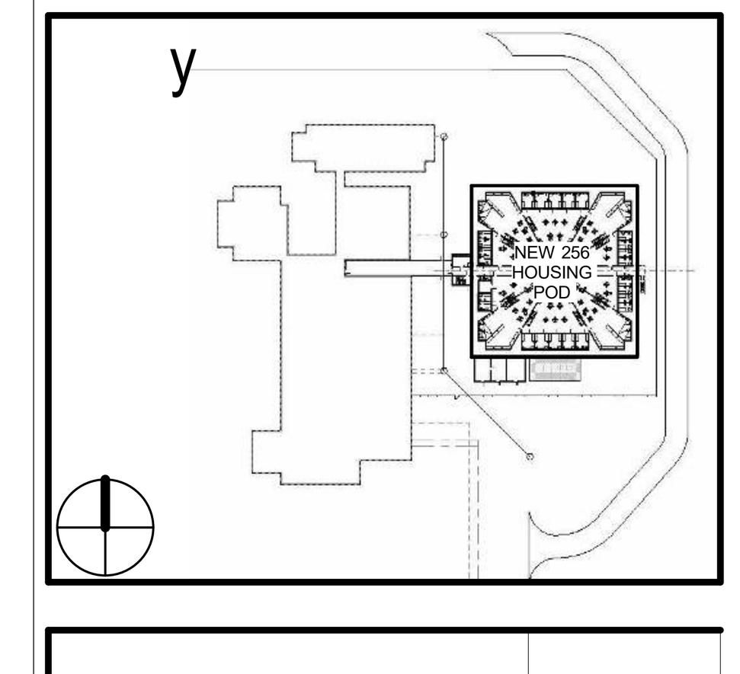

SCALE 12" = 1'-0"

No.	Description	Date
	ISSUED FOR PERMIT	7-24-20

REVISIONS

DRAWN BY C FLOEGEL
APPROVED BY C FLOEGEL
CHECKED BY C FLOEGEL
DATE JULY 24, 2020

TITLE
SMOKE CONTROL NOTES

PROJECT NO. 50101397

M-003
SHEET NO.

DESTROY AFTER USE