Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246

NATIONAL TAB

Comfort. Under control.

Report: test_1
Function: Test, Adjust, & Balance
Date: 06/07/2023

PROJECT

Dayton Children's Hospital (Dayton, OH)

1 Childrens Plaza

Dayton, OH 45404

Client

Cinfab, LLC

5240 Lester Road

Cincinnati, OH 45213

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

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CERTIFICATION

PROJECT:

The data presented in this report is a record of system measurements and final adjustments that have been obtained in accordance with the current edition of the NEBB *Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.* Any variances from design quantities, which exceed NEBB tolerances, are noted in the Test-Adjust-Balance Report Project Summary.

The air distribution system has been tested and balanced and final adjustments have been made in accordance with NEBB standards and the project specifications.

NEBB TAB FIRM:	National TAB
REGISTRATION NO:	3629
CERTIFIED BY:	Joe Hertenstein
DATE:	1/16/2023

The hydronic distribution system has been tested and balanced and final adjustments have been made in accordance with NEBB standards and the project specifications.

NEBB TAB FIRM:	National TAB
REGISTRATION NO:	3629
CERTIFIED BY:	Joe Hertenstein
DATE:	1/16/2023

Submitted and Certified by:

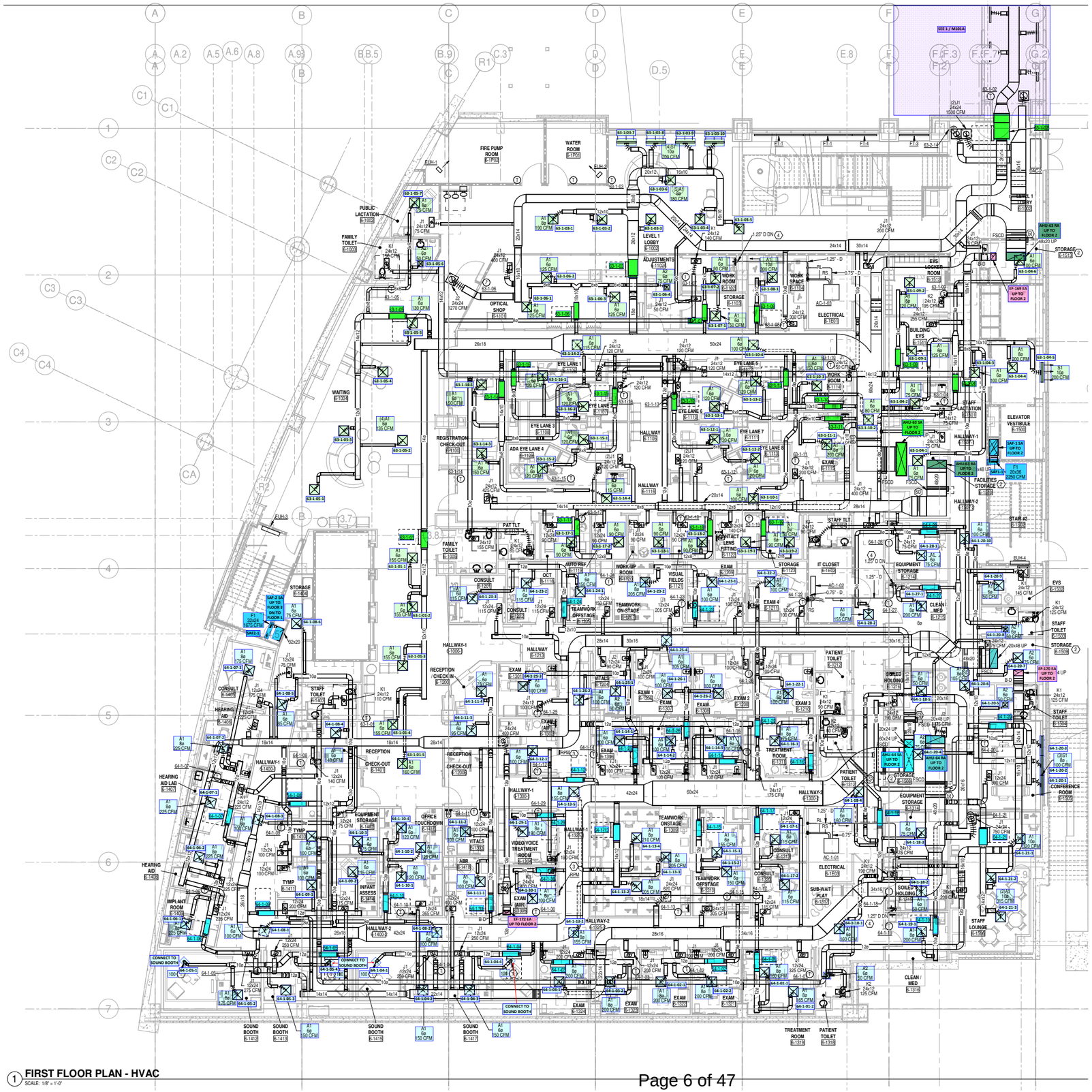
NEBB TAB FIRM:	National TAB
TAB PROFESSIONAL:	Joe Hertenstein
SIGNATURE:	
REGISTRATION NO:	3629
CERTIFICATION EXP:	3/31/2023

National TAB

Testing, Adjusting, and Balancing Equipment

Function		Range	Minimum Accuracy	Instrument Information	Calibration Date	Date Due
AIR	AIR PRESSURE	0 in wg to 10 in wg	2% +/- 0.001 in wg	TSI Alnor EBT 731 S/N EBT732044025	11/17/2022	11/17/2023
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	TSI Alnor EBT 731 S/N EBT732044025	11/17/2022	11/17/2023
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 5 % +/- 7 cfm	TSI Alnor EBT 731 S/N EBT732044025	11/17/2022	11/17/2023
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	5/13/2022	5/13/2023
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 5028	5/13/2022	5/13/2023
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	5/13/2022	5/13/2023
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 1075	5/13/2022	5/13/2023
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	5/13/2022	5/13/2023
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 4011	5/13/2022	5/13/2023
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper ATKINS - SRH77A S/N 071118034	5/13/2022	5/13/2023
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Fluke 373 True RMS, S/N: 33290686	5/12/2022	5/12/2023
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Fluke 373 True RMS, S/N: 33290686	5/12/2022	5/12/2023
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	SHIMPO DT-207LR S/N: D1530081R	5/12/2022	5/12/2023
HYDRONIC	PRESSURE MEASUREMENT	-30 in Hg to 200 psi	±2% of reading +/- 1 psi	Alnor HM570 S/N: 72214041	4/28/2022	4/28/2023
	DIFFERENTIAL PRESSURE MEASUREMENT	0 psi - 80 psi	±2% of reading +/- 1 psi	Alnor HM570 S/N: 72214041	4/28/2022	4/28/2023

NEBB ABBREVIATIONS	
A = Area (ft²) IP, (m²) SI	M = Mass (lb) IP, (kg) SI
ACH = Air Changes per Hour	ma = Mixed Air
A_k = Effective Area	m = meter (metre)
AV = Average	m³/s = Volumetric Flow: Cubic Meters Per Second
BHP = Brake Horsepower (IP) HP	NLA = No Load Amperage
BP = Brake Power (SI) kW	NPSHA = Net Positive Suction Head Available
Btu = British Thermal Unit	oa = Outside Air
Btu/h = Btuh = BTUH = BTU/Hour	$\%_{oa}$ = % of Outside Air
℄ = Center Distance (used in belt formula)	Ω = Ohm
°C = Degrees Celsius, °C	P = Pressure
C = Friction Loss Coefficient (For Duct Fittings)	P_a = Atmospheric Pressure
CCF = 100 Cubic Feet	P_{ab} = Absolute Pressure (Atmospheric Pressure + Gauge Pressure)
CFM = Volumetric Flow: Cubic Feet Per Minute	Pa = Pascals, Pressure SI
C_p = Specific Heat	π = 3.14
C_v = Flow Constant (IP)	PD = Sheave Pitch Diameter
ρ = Density (lb/ft³) IP, (kg/m³) SI	$P_{℄}$ = Pressure at Pump Centerline
d = Diameter (in.) IP, (mm) SI	ppm = parts per million
Δ = Difference or Change (Final - Initial)	psi = Pounds Per Square Inch
d_{imp} = Impeller Diameter	psia = Pounds Per Square Inch Absolute
E = Volts	psig = Pounds Per Square Inch Gauge
Eff = Efficiency	P_{vp} = Absolute Vapor Pressure
EP = Pump Efficiency	Q (flow) = Volumetric Fluid Flow Rate: (i.e. CFM, GPM, m³/s, l/s, etc.)
°F = Degrees Fahrenheit, °F	Q (heat) = Heat Flow Rate (BTU/Hour) IP, (W or kW) SI
f = Friction Factor	°R = °Rankin = Degrees Rankin, °R
FLA = Full Load Amps	r = Radius (in) IP, (mm) SI
fpm = Feet per Minute (fpm)	$\%_{ra}$ = % of Return Air
ft = Foot	R = Resistance
g = Acceleration of Gravity	ra = Return Air
gal = Gallons	rad = Radians
GPM = Gallons Per Minute (GPM)	RH = Relative Humidity
h = Enthalpy (BTU/lb dry air) IP, (kJ/kg dry air) SI	RPM = Revolutions Per Minute
H = Head (in wc, ft wc, psi) IP, (Pa, kPa) SI	R_{value} = Thermal Resistance
Hg = Mercury	s = second
h_{ma} = Mixed Air Enthalpy	SHR = Sensible Heat Ratio
h_{oa} = Outside Air Enthalpy	SME = Sash Movement Effect Performance Rating (SME-XX yyy)
HP = Horsepower	SP = Static Pressure
hr = Hour	Sp Gr = Specific Gravity (for water use 1.00)
h_{ra} = Return Air Enthalpy	T = Temperature
HT = Height (in) IP, (mm) SI	Ta = Absolute Temperature (460˚ + T) or °R
I = Amps	T_{ma} = Mixed Air Temperature
J = Joules	T_{oa} = Outside Air Temperature
K = Kelvin, K	TP = Total Pressure
K_v = Flow constant (SI)	T_{ra} = Return Air Temperature
kg = Kilogram	TS = Tip Speed (fpm) IP, (m/s) SI
kJ = Kilojoule	U = Heat Transfer Coefficient
kPa = Kilopascal	μ = viscosity, dynamic
kW = Kilowatt = 1000 Watts	V = Velocity
l = Liter (Litre)	VP = Velocity Pressure
l/s = Volumetric Flow: Liters Per Second	W = Watt
lb = Pounds	WD = Width (in) IP, (mm) SI
lm = Lumens	wg = wc = water gauge = water column
ln = natural log	WHP = Water Horsepower (IP)
LG = Length (in) IP, (mm) SI	WP = Water Power (SI)
lx = Lux	ω = Humidity Ratio (lb or grains of water/lb of dry air) (g H_2O/kg dry air)


SEE 1 / M101A
FIRE PUMP ROOM E-1700
WATER ROOM E-1701
PUBLIC LACTATION E-1002
FAMILY TOILET E-1003
WAITING E-1004
OPTICAL SHOP E-1101
ADJUSTMENTS E-1102
LEVEL 1 LOBBY E-1003
WORK ROOM E-1103
STORAGE E-1104
WORK SPACE E-1105
ELECTRICAL E-1151
EVS LOCKER ROOM E-1512
BUILDING EVS E-1511
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LEVEL 1 LOBBY E-1300
EYE LANE 1 E-1106
EYE LANE 2 E-1107
EYE LANE 3 E-1108
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ELEVATOR VESTIBULE E-1500
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EVS E-1508
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CLEAN / MED E-1318
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TREATMENT ROOM E-1315
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PATIENT TOILET E-1220
TEAMWORK OFFSTAGE E-1206
TEAMWORK ONSTAGE E-1309
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VISUAL FIELDS E-1125
CONSULT E-1207
CONSULT E-1208
CONSULT E-1310
CONSULT E-1320
OCT E-1115
AUTO REF E-1116
WORK-UP ROOM E-1117
VITALS E-1204
VITALS E-1303
ABR E-1418
EXAM (ABR) E-1304
VIDEO/VOICE TREATMENT ROOM E-1305
OFFICE TOUCHDOWN E-1410
INFANT ASSESS E-1414
IMPLANT ROOM E-1408
HEARING AID LAB E-1407
HEARING AID E-1405
HEARING AID E-1406
TYMP E-1411
TYMP E-1412
RECEPTION CHECK-IN E-1200
RECEPTION CHECK-OUT E-1201
RECEPTION CHECK-OUT E-1202
PAT TLT E-1125
CONTACT LENS FITTING E-1124
SUB-WAIT PLAY E-1313
SOUND BOOTH E-1412
SOUND BOOTH E-1413
SOUND BOOTH E-1415
SOUND BOOTH E-1417
EXAM E-1324
EXAM E-1323
EXAM E-1321
EXAM E-1322
CONNECT TO SOUND BOOTH
EF-169 1A UP TO FLOOR 2
EF-170 1A UP TO FLOOR 2
EF-172 1A UP TO FLOOR 2
SAF-1 1A UP TO FLOOR 2
SAF-2 1A UP TO FLOOR 3 DN TO FLOOR 1
AHU-63 RA UP TO FLOOR 2
AHU-63 SA UP TO FLOOR 2
AHU-64 RA UP TO FLOOR 2
AHU-64 SA UP TO FLOOR 2
SAF-3
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SAF-5
SAF-6
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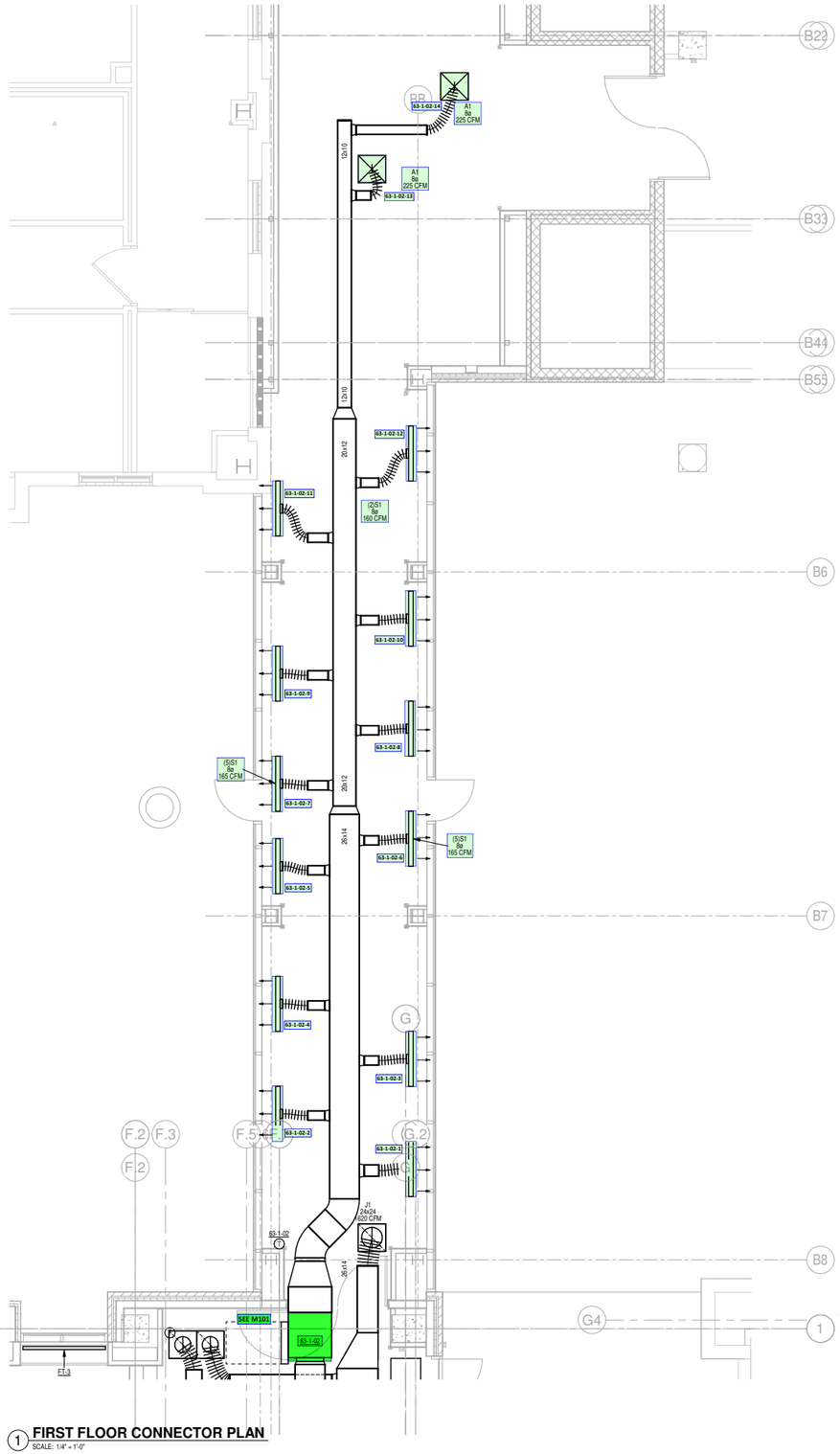
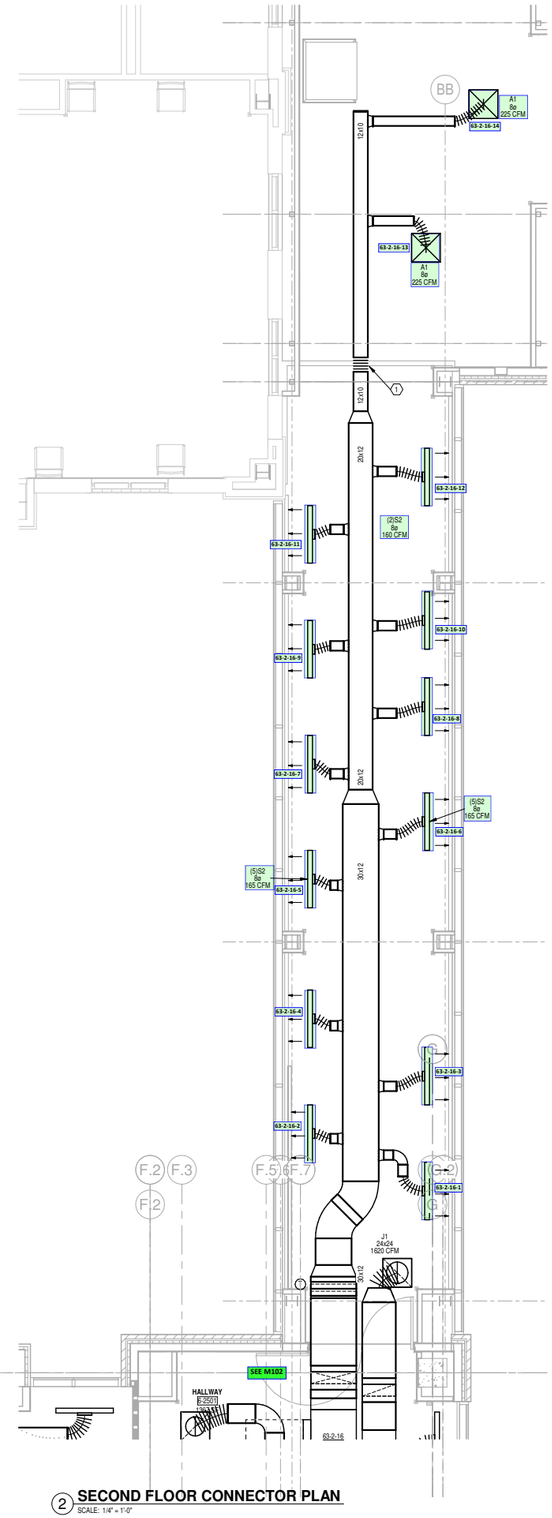


1 **FIRST FLOOR CONNECTOR PLAN**
SCALE: 1/4" = 1'-0"



2 **SECOND FLOOR CONNECTOR PLAN**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS.

B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

PLAN NOTES

1. PROVIDE FLEXIBLE DUCT CONNECTOR AT BUILDING EXPANSION JOINT.

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS: -

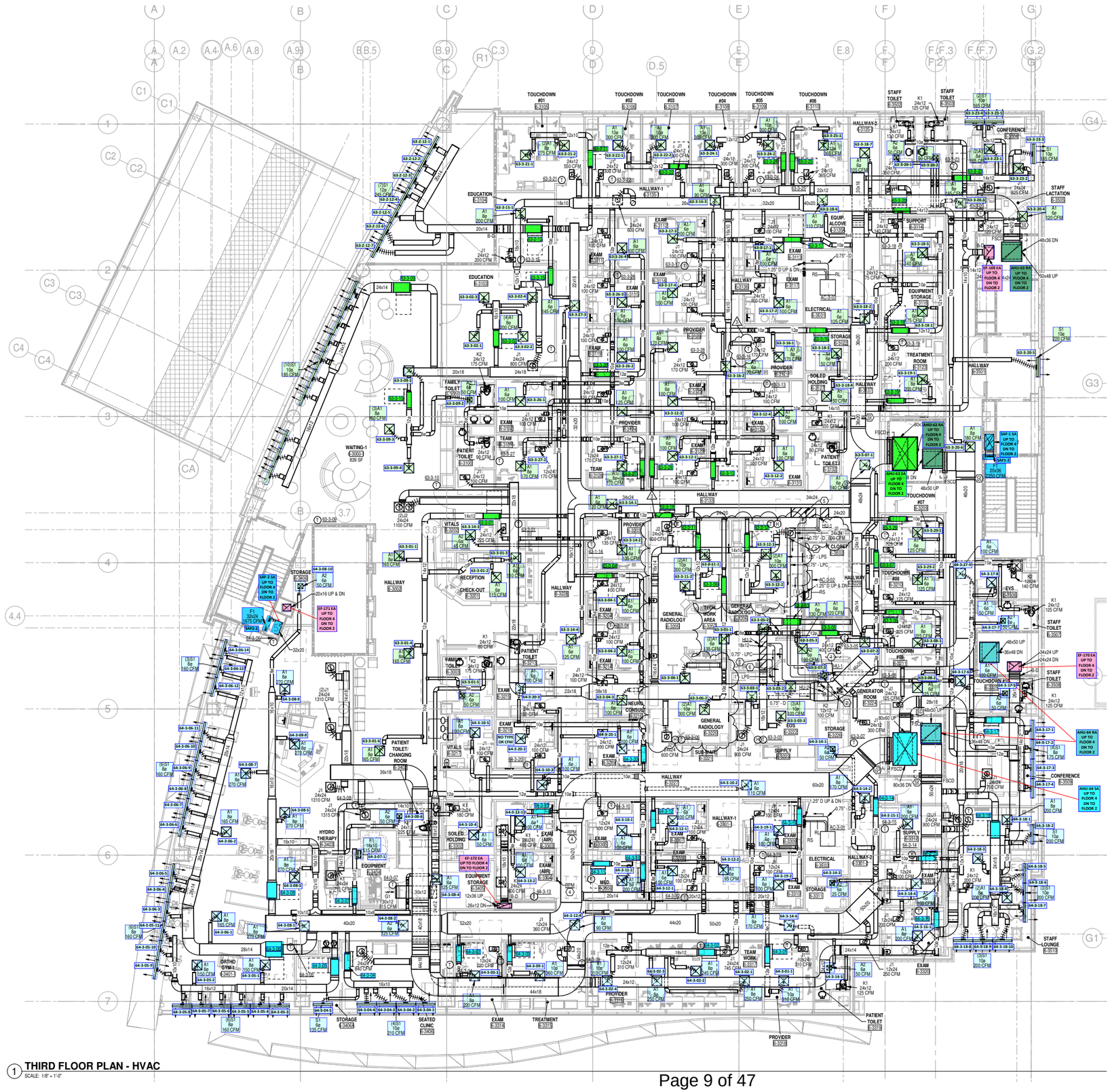
B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

PLAN NOTES

1. FLOOR DRAIN. REFER TO PLUMBING DRAWINGS.
2. EXTEND DRAIN PIPE TO DRISTEEM DRANE- KOOLER IN THIS APPROXIMATE LOCATION. DRAIN PIPE FROM DRANE- KOOLER SHALL EXTEND TO FLOOR DRAIN IN THIS EQUIPMENT ROOM. PROVIDE CLEAN- OUTS AT EACH CHANGE IN DIRECTION.
3. 0.75" CONDENSATE DRAIN PIPE AND 1" STEAM PIPE FROM STEAM GENERATOR TO HUMIDIFIER GRID. PIPING MUST SLOPE BACK FROM THE GRID TO THE GENERATOR AND DRAN-KOOLER WITHOUT TRAPPING.
4. DIGITAL ROOM PRESSURE MONITOR ON WALL, THRU-THE-WALL ROOM PRESSURE SENSORS SHALL BE MOUNTED ABOVE THE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. ROOM PRESSURE MONITOR SHALL BE PROVIDED BY ATC AND PROGRAMMED TO ALARM IF THE ISOLATION ROOM DROPS BELOW 0.01" NEGATIVE PRESSURE WITH RESPECT TO CORRIDOR.
5. DIGITAL ROOM PRESSURE MONITOR ON WALL, THRU-THE-WALL ROOM PRESSURE SENSORS SHALL BE MOUNTED ABOVE THE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. ROOM PRESSURE MONITOR SHALL BE PROVIDED BY ATC AND PROGRAMMED TO ALARM IF THE PE ROOM DROPS BELOW 0.01" POSITIVE PRESSURE WITH RESPECT TO CORRIDOR.
6. DUCTWORK SHALL BE STAINLESS STEEL MINIMUM OF 1' UPSTREAM AND 5' DOWNSTREAM OF HUMIDIFIER GRID. ALL SEAMS SHALL BE SILICONED WATER TIGHT. NO LONGITUDINAL SEAMS ON THE BOTTOM. BOTTOM SHALL SLOPE TO A 0.75" DRAIN FITTING. DRAIN PIPING SHALL BE TRAPPED ABOVE CEILING AND FLOW BY GRAVITY TO FLOOR DRAIN.

① **SECOND FLOOR PLAN - HVAC**
SCALE: 1/8" = 1'-0"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TOUCHDOWN #06 S-3119
STAFF TOILET S-3505
STAFF TOILET S-3503
CONFERENCE S-3509
STAFF LACTATION S-3550
EDUCATION S-3100
HALLWAY-1 S-3135
HALLWAY-2 S-3136
EXAM S-3112
EXAM S-3113
EXAM S-3117
EXAM S-3118
EQUIP. ALCOVE S-3156
SUPPORT S-3114
EQUIPMENT STORAGE S-3116
TREATMENT ROOM S-3125
HALLWAY S-3501
ELECTRICAL S-3503
STORAGE S-3162
SOILED HOLDING S-3327
PROVIDER S-3326
EXAM S-3109
EXAM S-3110
EXAM S-3111
EXAM S-3131
EXAM S-3132
EXAM S-3133
PATIENT TOILET S-3330
FAMILY TOILET S-3331
TEAM S-3129
TEAM S-3128
PATIENT TOILET S-3103
WAITING-1 S-3000 939 SF
HALLWAY S-3138
HALLWAY S-3139
TOUCHDOWN #07 S-3509
VITALS S-3328
PROVIDER S-3327
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TREATMENT S-3315
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STORAGE S-3406
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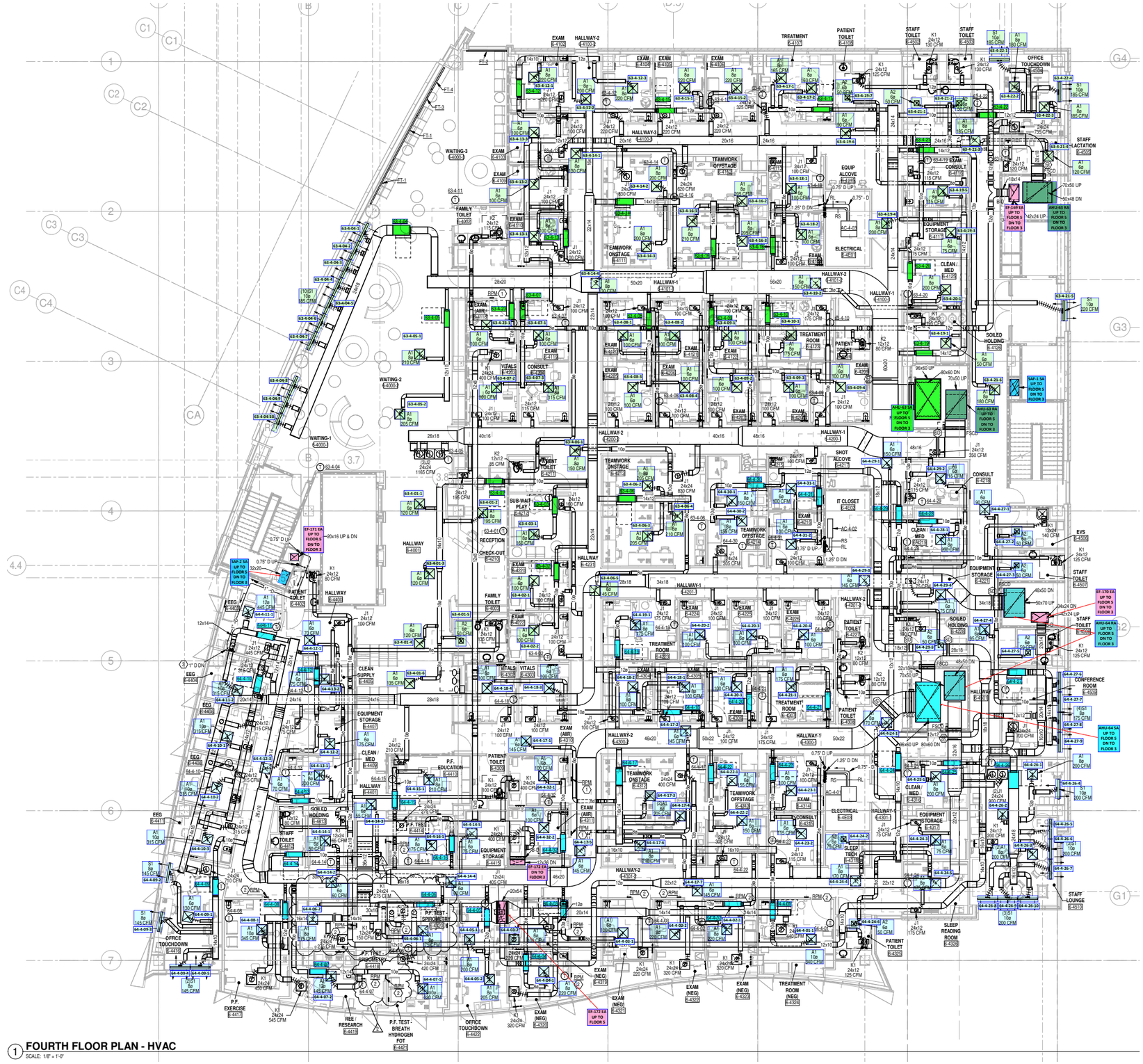


1 **FOURTH FLOOR PLAN - HVAC**
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS.

B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

PLAN NOTES

1. DIGITAL ROOM PRESSURE MONITOR ON WALL. THRU-THE-WALL ROOM PRESSURE SENSORS SHALL BE MOUNTED ABOVE THE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. ROOM PRESSURE MONITOR SHALL BE PROVIDED BY ATC AND PROGRAMMED TO ALARM IF THE ISOLATION ROOM DROPS BELOW 0.01" NEGATIVE PRESSURE WITH RESPECT TO CORRIDOR.
2. DIGITAL ROOM PRESSURE MONITOR ON WALL. THRU-THE-WALL ROOM PRESSURE SENSORS SHALL BE MOUNTED ABOVE THE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. ROOM PRESSURE MONITOR SHALL BE PROVIDED BY ATC AND PROGRAMMED TO ALARM IF THE ROOM IS NOT NEGATIVELY PRESSURIZED IN RELATION TO THE CORRIDOR.
3. DROP COOLING CONDENSATE DRAIN TO BELOW SINK. COORDINATE TIE-IN TO SANITARY WITH PLUMBING CONTRACTOR. PROVIDE AIR GAP AT CONNECTION.

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER, THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS.

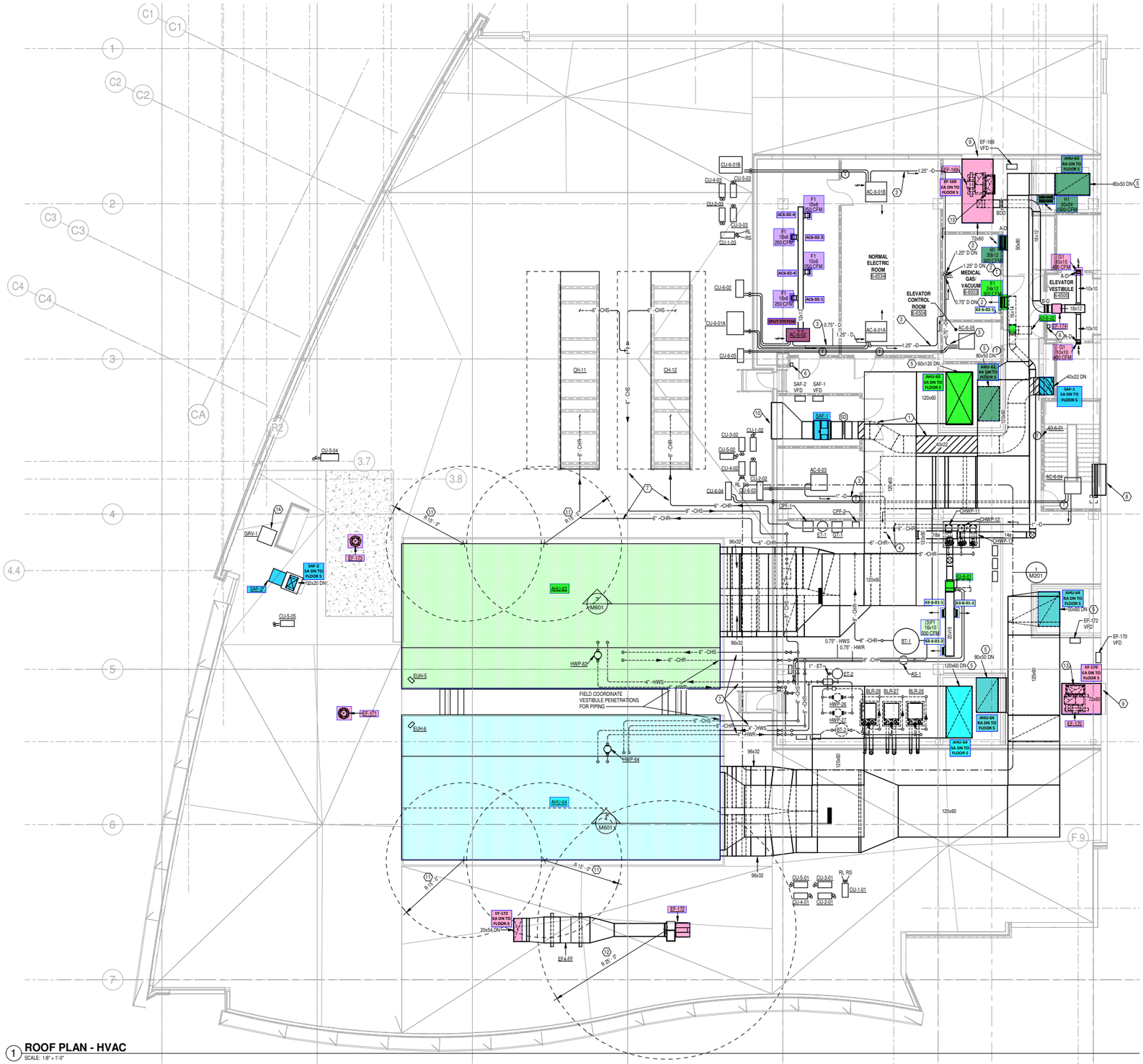
B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

PLAN NOTES

1. CAP DUCTWORK FOR FUTURE EXTENSION.
2. ROUTE PIPING TO AVOID BEING OVERTOP OF ELECTRICAL EQUIPMENT. WHERE PIPING PASSES OVER ELECTRICAL EQUIPMENT, PROVIDE SECONDARY DRAIN PAN UNDERNEATH PIPING.
3. DUCTWORK WITHIN ELEVATOR CONTROL ROOM SHALL BE 2-HOUR FIRE-WRAPPED.

1 FIFTH FLOOR PLAN - HVAC
SCALE: 1/8" = 1'-0"



1 **ROOF PLAN - HVAC**
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS, OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS.

B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

PLAN NOTES

1. STAIR PRESSURIZATION DUCTWORK SHALL BE 2-HOUR FIRE-WRAPPED FROM FAN ROOM TO SHAFT PENETRATION.
2. EXTEND COOLING CONDENSATE TO FLOOR DRAIN IN MEDICAL VAC ROOM.
3. ROUTE PIPING TO AVOID BEING OVERTOP OF ELECTRICAL EQUIPMENT. WHERE PIPING PASSES OVER ELECTRICAL EQUIPMENT, PROVIDE SECONDARY DRAIN PAN UNDERNEATH PIPING.
4. EXTEND COOLING CONDENSATE TO NEARBY FLOOR DRAIN.
5. PROVIDE TYPE-B FIRE DAMPER AT FLOOR PENETRATION. ACCESS TO DAMPER SHALL BE FROM THE PENTHOUSE. COORDINATE APPROPRIATE ACCESS.
6. BOILERS' EMERGENCY SHUT-OFF WITH SIGNAGE.
7. ALL EXTERIOR PIPING SHALL BE HEAT TRACED PER THE SPECIFICATIONS.
8. 6' X 5' RELIEF LOUVER BY GC. PROVIDE RELIEF DAMPER FOR STAIRWELL PRESSURIZATION. REFER TO CONTROLS.
9. 6' X 5' EXHAUST LOUVER BY GC. PROVIDE INSULATED EXHAUST PLENUM FULL SIZE OF LOUVER.
10. 7' -4" X 4' INTAKE LOUVER BY GC. INSULATE STAIR PRESSURIZATION DUCTWORK THAT IS NOT FIRE WRAPPED.
11. MAINTAIN MINIMUM 15'-0" CLEARANCE FROM OUTSIDE AIR INTAKES TO ALL EXHAUST AIR OUTLETS AND PLUMBING VENTS.
12. MAINTAIN MINIMUM 25'-0" CLEARANCE FROM DISCHARGE OF ISOLATION EXHAUST TO OUTSIDE AIR INTAKES.
13. EXHAUST DUCTWORK FROM FLOOR BELOW INTO FAN INLET PLENUM. PROVIDE FIRE DAMPER AT FLOOR PENETRATION. ACCESS TO FIRE DAMPER SHALL BE FROM ACCESS DOOR ON INLET PLENUM. INSTALL BACKDRAFT DAMPER FOR FAN ON DISCHARGE OF FAN. DUCTWORK SHALL BE INSULATED DOWNSTREAM OF FAN UP TO PLENUM.
14. RELIEF AIR GRV FOR STAIRWELL. EXTEND DUCTWORK DOWN THRU ROOF FULL SIZE OF GRV CONNECTION. PROVIDE STAIRWELL RELIEF DAMPER IN DUCTWORK BELOW ROOF. REFER TO CONTROLS.

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS.

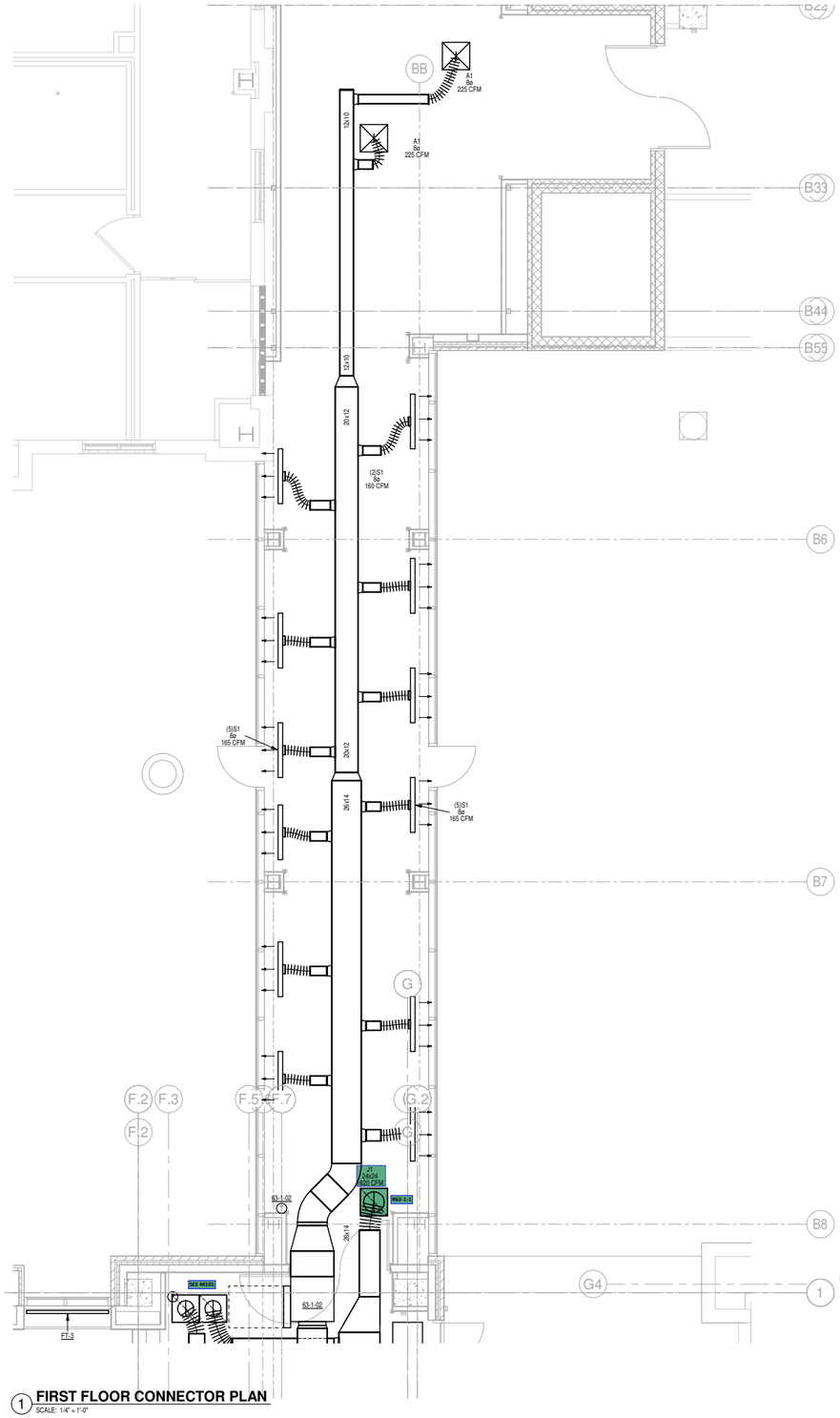
B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

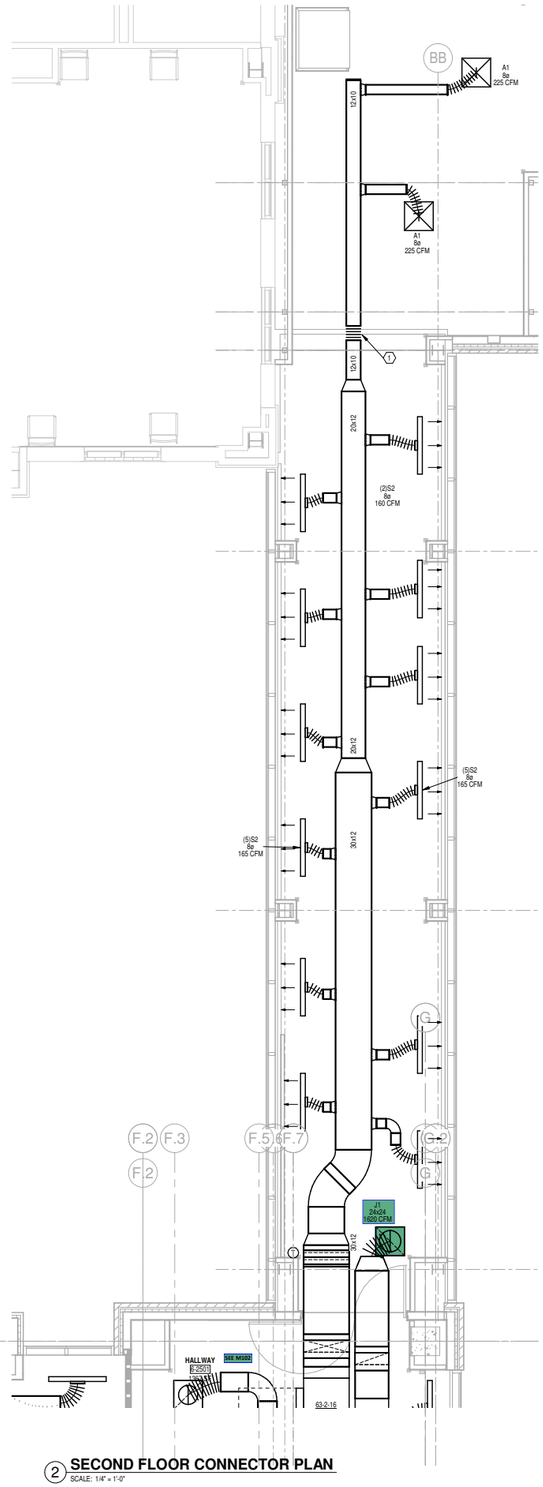
PLAN NOTES

1. CONNECT 6" SUPPLY AIR DUCTWORK TO SOUND BOOTH. REFER TO MANUFACTURER'S CUTSHEETS. BALANCE TO CFM INDICATED.
2. ROUND DUCTWORK SERVING ROOM SHALL BE LOCATED BELOW BOTTOM OF SHAFT ENCLOSURE ABOVE CEILING AND SHALL NOT REQUIRE DAMPERS.
3. DIGITAL ROOM PRESSURE MONITOR ON WALL. THRU-THE-WALL ROOM PRESSURE SENSORS SHALL BE MOUNTED ABOVE THE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. ROOM PRESSURE MONITOR SHALL BE PROVIDED BY ATC AND PROGRAMMED TO ALARM IF THE ISOLATION ROOM DROPS BELOW 0.01" NEGATIVE PRESSURE WITH RESPECT TO CORRIDOR.
4. DROP COOLING CONDENSATE DRAIN TO BELOW SINK. COORDINATE TIE-IN TO SANITARY WITH PLUMBING CONTRACTOR. PROVIDE AIR GAP AT CONNECTION.

① **FIRST FLOOR PLAN - HVAC**
SCALE: 1/8" = 1'-0"



1 **FIRST FLOOR CONNECTOR PLAN**
SCALE: 1/4" = 1'-0"



2 **SECOND FLOOR CONNECTOR PLAN**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

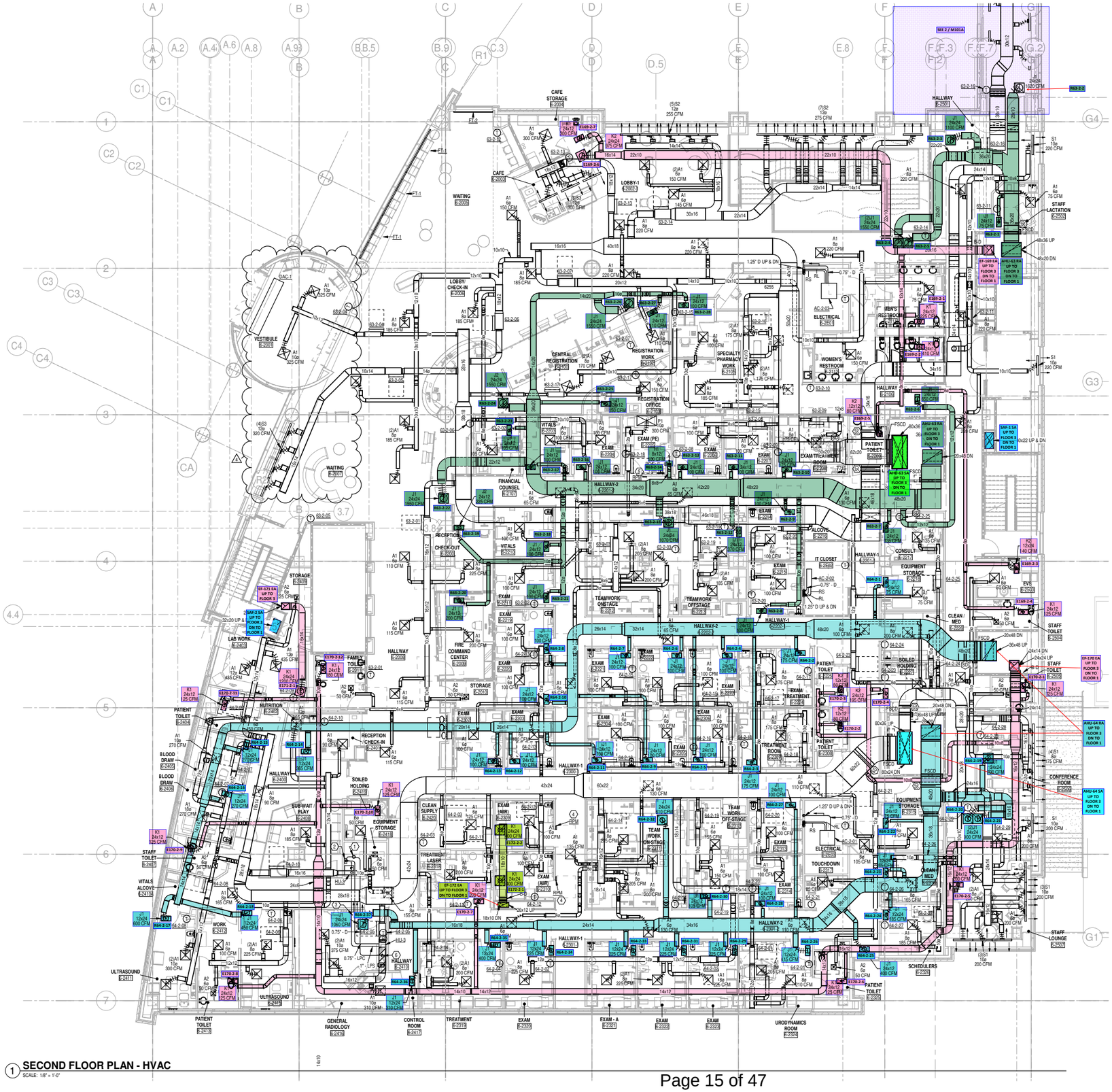
FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS.

B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

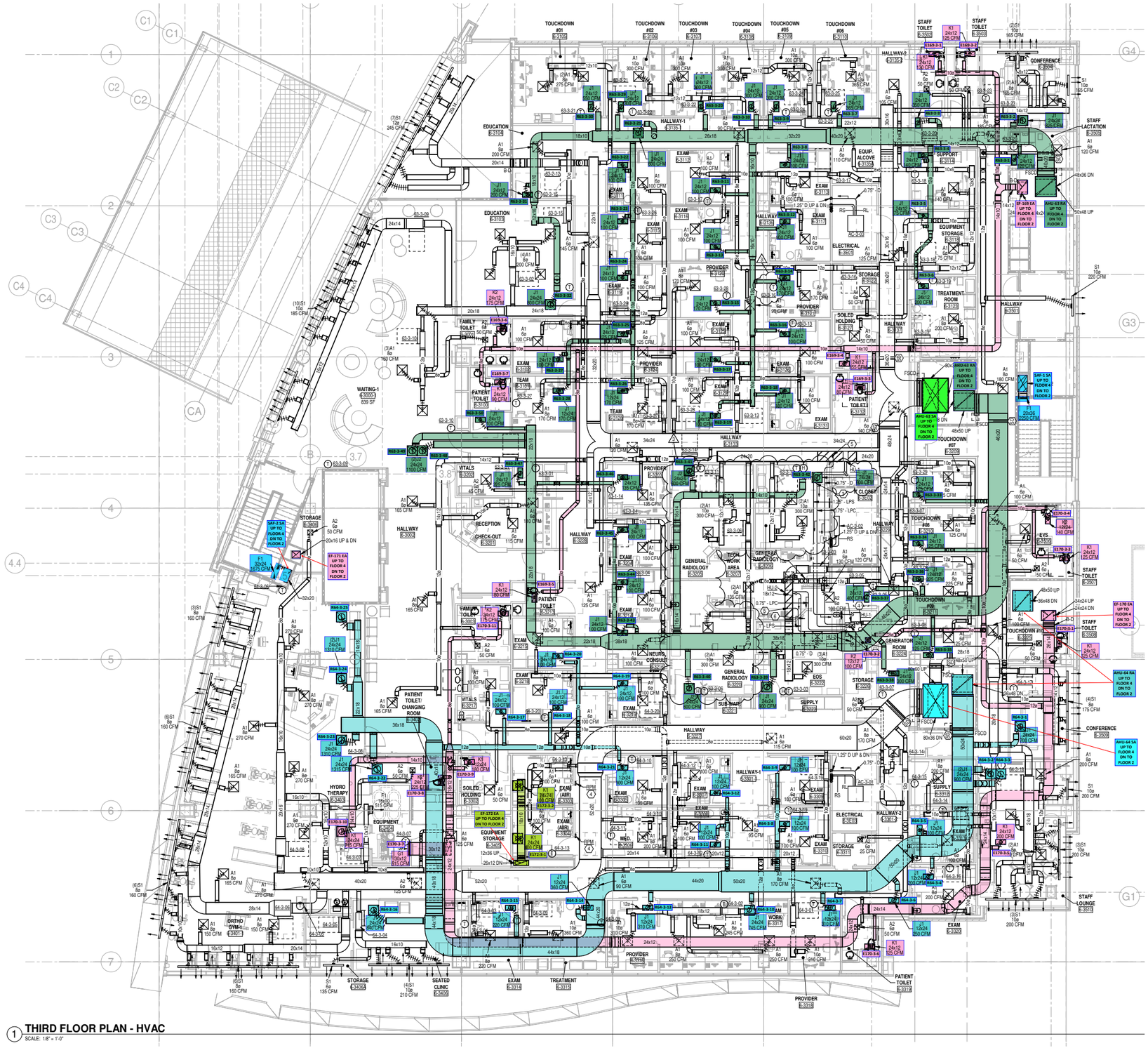
SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

PLAN NOTES

1. PROVIDE FLEXIBLE DUCT CONNECTOR AT BUILDING EXPANSION JOINT.



1 **SECOND FLOOR PLAN - HVAC**
SCALE: 1/8" = 1'-0"



① **THIRD FLOOR PLAN - HVAC**
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

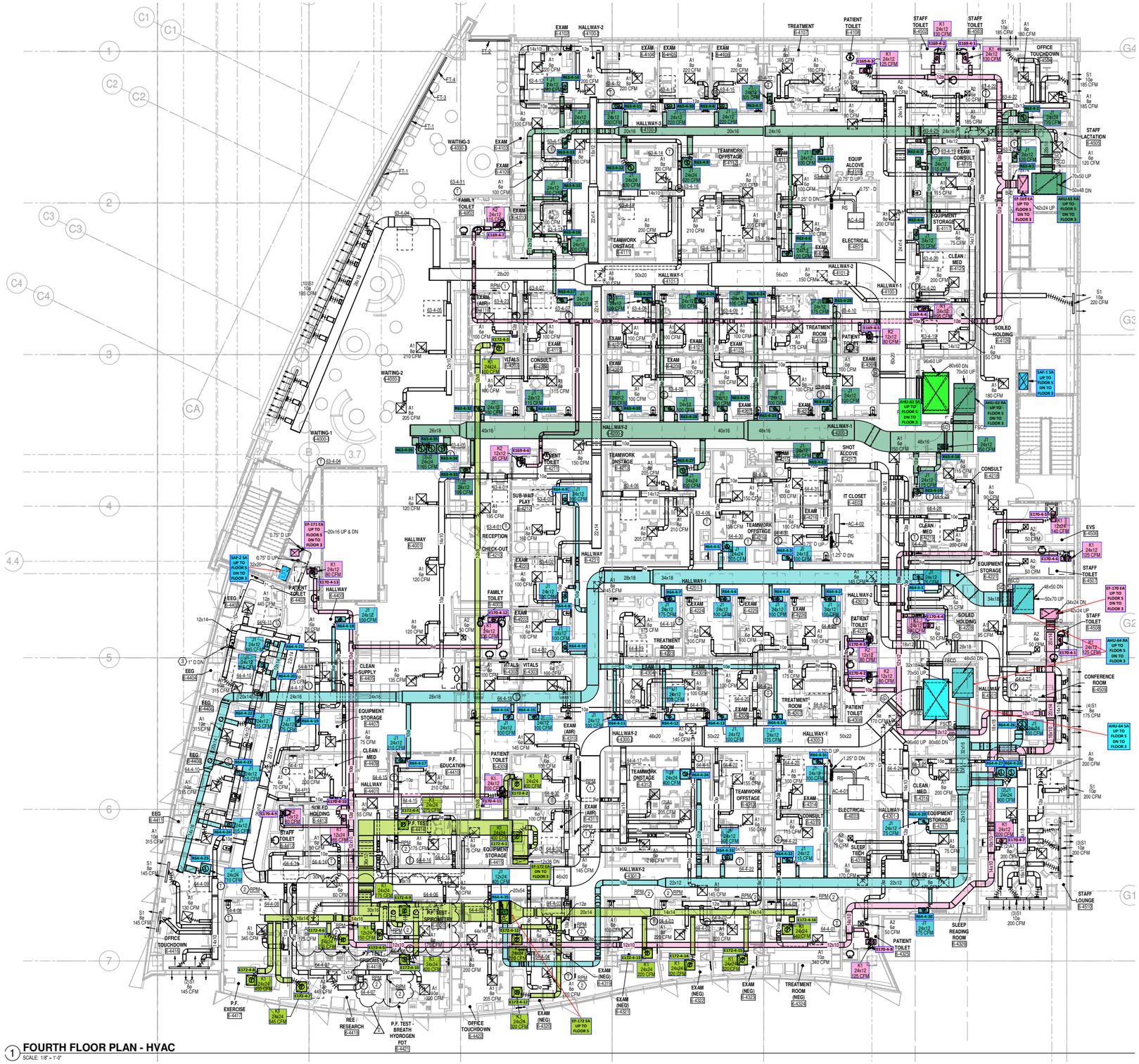
FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS.

B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

⬡ PLAN NOTES

1. FLOOR DRAIN. REFER TO PLUMBING DRAWINGS.
2. EXTEND DRAIN PIPE TO DRISTEEM DRANE- KOOLER IN THIS APPROXIMATE LOCATION. DRAIN PIPE FROM DRANE- KOOLER SHALL EXTEND TO FLOOR DRAIN IN THIS EQUIPMENT ROOM. PROVIDE CLEAN- OUTS AT EACH CHANGE IN DIRECTION.
3. 0.75" CONDENSATE DRAIN PIPE AND 1.25" STEAM PIPE FROM STEAM GENERATOR TO HUMIDIFIER GRID. PIPING MUST SLOPE BACK FROM THE GRID TO THE GENERATOR AND DRANE-KOOLER WITHOUT TRAPPING.
4. DIGITAL ROOM PRESSURE MONITOR ON WALL. THRU-THE-WALL ROOM PRESSURE SENSORS SHALL BE MOUNTED ABOVE THE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. ROOM PRESSURE MONITOR SHALL BE PROVIDED BY ATC AND PROGRAMMED TO ALARM IF THE ISOLATION ROOM DROPS BELOW 0.01" NEGATIVE PRESSURE WITH RESPECT TO CORRIDOR.
5. DUCTWORK SHALL BE STAINLESS STEEL MINIMUM OF 1' UPSTREAM AND 5' DOWNSTREAM OF HUMIDIFIER GRID. ALL SEAMS SHALL BE SILICONED WATER TIGHT, NO LONGITUDINAL SEAMS ON THE BOTTOM. BOTTOM SHALL SLOPE TO A 0.75" DRAIN FITTING. DRAIN PIPING SHALL BE TRAPPED ABOVE CEILING AND FLOW BY GRAVITY TO FLOOR DRAIN.
6. 0.75" CONDENSATE DRAIN PIPE AND 1" STEAM PIPE FROM STEAM GENERATOR TO HUMIDIFIER GRID. PIPING MUST SLOPE BACK FROM THE GRID TO THE GENERATOR AND DRANE-KOOLER WITHOUT TRAPPING.



1 **FOURTH FLOOR PLAN - HVAC**
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

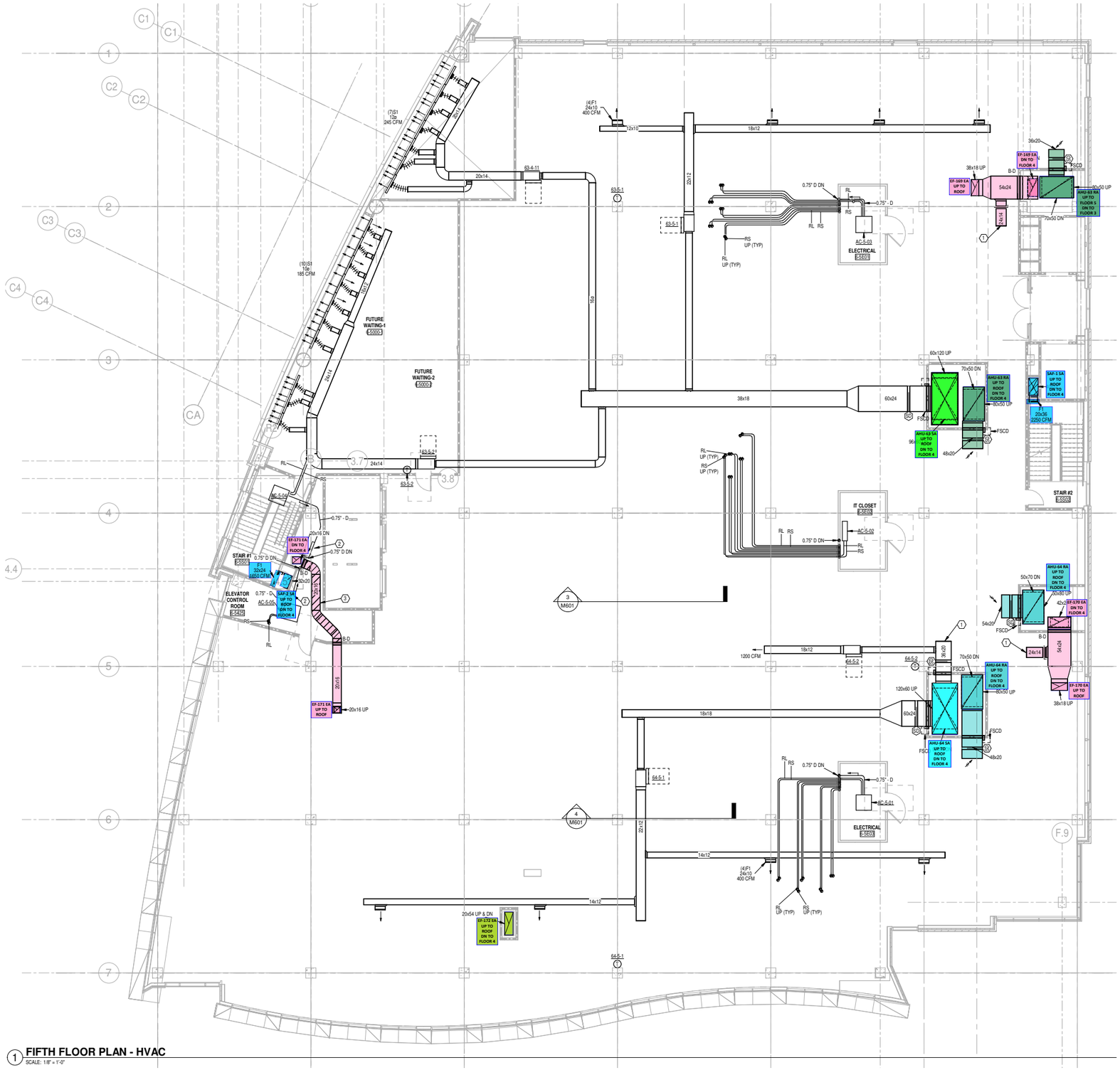
FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS:

B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

PLAN NOTES

1. DIGITAL ROOM PRESSURE MONITOR ON WALL. THRU-THE-WALL ROOM PRESSURE SENSORS SHALL BE MOUNTED ABOVE THE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. ROOM PRESSURE MONITOR SHALL BE PROVIDED BY ATC AND PROGRAMMED TO ALARM IF THE ISOLATION ROOM DROPS BELOW 0.01" NEGATIVE PRESSURE WITH RESPECT TO CORRIDOR.
2. DIGITAL ROOM PRESSURE MONITOR ON WALL. THRU-THE-WALL ROOM PRESSURE SENSORS SHALL BE MOUNTED ABOVE THE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. ROOM PRESSURE MONITOR SHALL BE PROVIDED BY ATC AND PROGRAMMED TO ALARM IF THE ROOM IS NOT NEGATIVELY PRESSURIZED IN RELATION TO THE CORRIDOR.
3. DROP COOLING CONDENSATE DRAIN TO BELOW SINK. COORDINATE TIE-IN TO SANITARY WITH PLUMBING CONTRACTOR. PROVIDE AIR GAP AT CONNECTION.



1 **FIFTH FLOOR PLAN - HVAC**
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS.

B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

PLAN NOTES

1. CAP DUCTWORK FOR FUTURE EXTENSION.
2. ROUTE PIPING TO AVOID BEING OVERTOP OF ELECTRICAL EQUIPMENT. WHERE PIPING PASSES OVER ELECTRICAL EQUIPMENT, PROVIDE SECONDARY DRAIN PAN UNDERNEATH PIPING.
3. DUCTWORK WITHIN ELEVATOR CONTROL ROOM SHALL BE 2-HOUR FIRE-WRAPPED.

GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS.

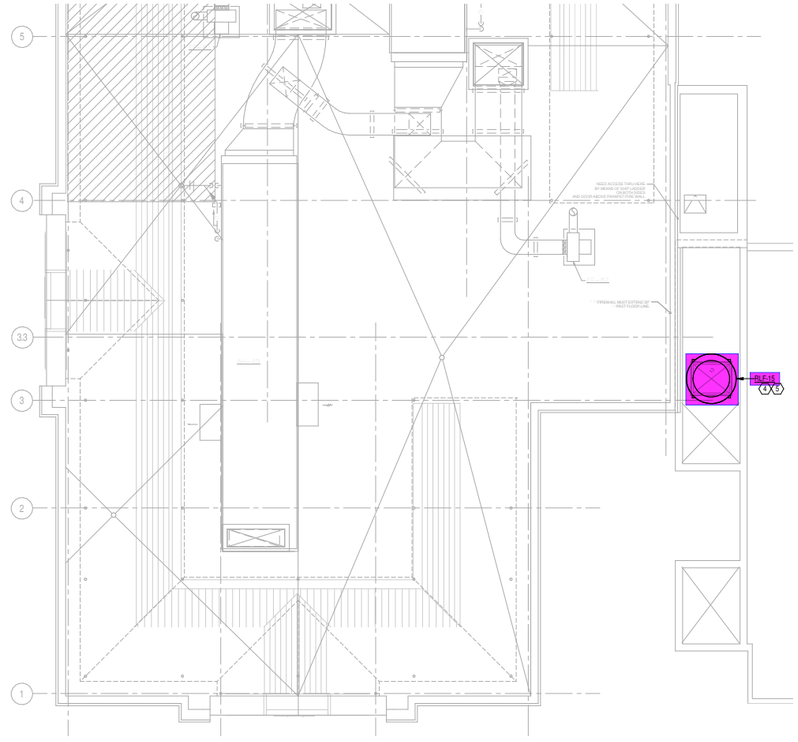
B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

PLAN NOTES

1. STAIR PRESSURIZATION DUCTWORK SHALL BE 2-HOUR FIRE-WRAPPED FROM FAN ROOM TO SHAFT PENETRATION.
2. EXTEND COOLING CONDENSATE TO FLOOR DRAIN IN MEDICAL VAC ROOM.
3. ROUTE PIPING TO AVOID BEING OVERTOP OF ELECTRICAL EQUIPMENT. WHERE PIPING PASSES OVER ELECTRICAL EQUIPMENT, PROVIDE SECONDARY DRAIN PAN UNDERNEATH PIPING.
4. EXTEND COOLING CONDENSATE TO NEARBY FLOOR DRAIN.
5. PROVIDE TYPE-B FIRE DAMPER AT FLOOR PENETRATION. ACCESS TO DAMPER SHALL BE FROM THE PENTHOUSE. COORDINATE APPROPRIATE ACCESS.
6. BOILERS' EMERGENCY SHUT-OFF WITH SIGNAGE.
7. ALL EXTERIOR PIPING SHALL BE HEAT TRACED PER THE SPECIFICATIONS.
8. 6' X 5' RELIEF LOUVER BY GC. PROVIDE RELIEF DAMPER FOR STAIRWELL PRESSURIZATION. REFER TO CONTROLS.
9. 6' X 5' EXHAUST LOUVER BY GC. PROVIDE INSULATED EXHAUST PLENUM FULL SIZE OF LOUVER.
10. 7' - 4" X 4' INTAKE LOUVER BY GC. INSULATE STAIR PRESSURIZATION DUCTWORK THAT IS NOT FIRE WRAPPED.
11. MAINTAIN MINIMUM 15'-0" CLEARANCE FROM OUTSIDE AIR INTAKES TO ALL EXHAUST AIR OUTLETS AND PLUMBING VENTS.
12. MAINTAIN MINIMUM 25'-0" CLEARANCE FROM DISCHARGE OF ISOLATION EXHAUST TO OUTSIDE AIR INTAKES.
13. EXHAUST DUCTWORK FROM FLOOR BELOW INTO FAN INLET PLENUM. PROVIDE FIRE DAMPER AT FLOOR PENETRATION. ACCESS TO FIRE DAMPER SHALL BE FROM ACCESS DOOR ON INLET PLENUM. INSTALL BACKDRAFT DAMPER FOR FAN ON DISCHARGE OF FAN. DUCTWORK SHALL BE INSULATED DOWNSTREAM OF FAN UP TO PLENUM.
14. RELIEF AIR GRV FOR STAIRWELL. EXTEND DUCTWORK DOWN THRU ROOF FULL SIZE OF GRV CONNECTION. PROVIDE STAIRWELL RELIEF DAMPER IN DUCTWORK BELOW ROOF. REFER TO CONTROLS.

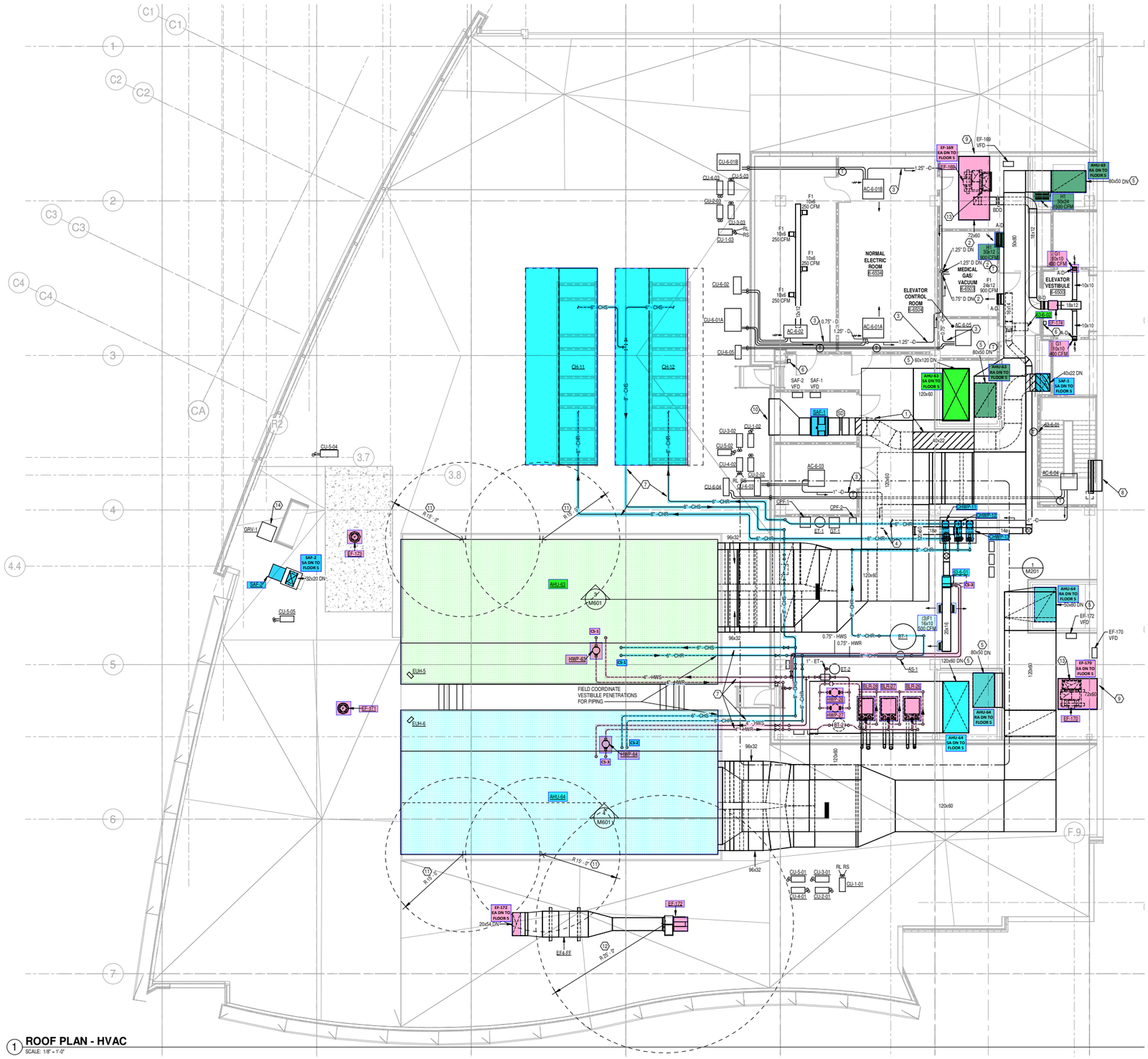
1 **ROOF PLAN - HVAC**
SCALE: 1/8" = 1'-0"



PLAN NOTES

1. PROVIDE DIFFERENTIAL PRESSURE SENSOR IN WALL ABOVE DOOR OF MECHANICAL ROOM FOR CONTROL OF RLF-15. REFER TO CONTROLS.
2. EXISTING RELIEF AIR DAMPER FOR AIR HANDLING UNITS 15 & 16 IN MECHANICAL ROOM. RLF-15 SHALL BE INTERLOCKED WITH DAMPER, SO THAT THE FAN DOES NOT START UNTIL DAMPER IS OPEN.
3. REMOVE EXISTING RELIEF AIR DUCTWORK AND CURB FROM ROOF. EXISTING OPENING SHALL BE MODIFIED FOR NEW FAN.
4. PROVIDE NEW RELIEF FAN AND CURB. EXTEND DUCTWORK FULL SIZE OF FAN CONNECTION DOWN THRU ROOF INTO RELIEF AIR SHAFT. MODIFY EXISTING OPENING AS REQUIRED FOR NEW DUCTWORK.
5. LOCATE VFD FOR RLF-15 IN 4TH FLOOR ELECTRICAL ROOM BELOW. REFER TO ELECTRICAL DRAWINGS.

3 **FIFTH FLOOR PLAN - EXISTING ROOF NEW WORK**
SCALE: 1/8" = 1'-0"



GENERAL NOTES

A. FIRE BARRIERS – OBC 717.5.2 EXCEPTION 3 / FIRE PARTITIONS – OBC 717.5.4 EXCEPTION 4

FIRE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS, OR SCHEMATICS) AT PENETRATIONS OF FIRE BARRIERS WHERE SUCH WALLS ARE PENETRATED BY DUCTED HVAC SYSTEMS, HAVING A REQUIRED FIRE-RESISTANCE RATING OF 1 HOUR OR LESS IN AREAS OTHER THAN GROUP H AND ARE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.1.2. HVAC SYSTEM SHALL BE CONSTRUCTED OF SHEET STEEL NOT LESS THAN 26 GAUGE. FLEXIBLE AIR CONNECTORS SHALL NOT BE PROHIBITED IN FULLY DUCTED SYSTEMS AT AIR HANDLING EQUIPMENT CONNECTIONS AND AT AIR CONNECTORS INSTALLATION TO CONNECT METAL DUCT TO A CEILING DIFFUSER AND IS LOCATED ENTIRELY W ITHIN THE SAME ROOM AS THE CEILING DIFFUSER. THE FLEXIBLE AIR CONNECTOR SHALL NOT PASS THROUGH ANY WALLS, FLOORS, OR CEILINGS.

B. SHAFT ENCLOSURES – OBC 717.5.3 EXCEPTION 6

SMOKE DAMPERS ARE NOT REQUIRED (UNLESS SHOWN ON FLOOR PLANS OR SCHEMATICS) AT PENETRATIONS OF RATED SHAFT ENCLOSURES WHERE THE BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

PLAN NOTES

1. STAIR PRESSURIZATION DUCTWORK SHALL BE 2-HOUR FIRE-WRAPPED FROM FAN ROOM TO SHAFT PENETRATION.
2. EXTEND COOLING CONDENSATE TO FLOOR DRAIN IN MEDICAL VAC ROOM.
3. ROUTE PIPING TO AVOID BEING OVERTOP OF ELECTRICAL EQUIPMENT. WHERE PIPING PASSES OVER ELECTRICAL EQUIPMENT, PROVIDE SECONDARY DRAIN UNDEREATH PIPING.
4. EXTEND COOLING CONDENSATE TO NEARBY FLOOR DRAIN.
5. PROVIDE TYPE-B FIRE DAMPER AT FLOOR PENETRATION. ACCESS TO DAMPER SHALL BE FROM THE PENTHOUSE. COORDINATE APPROPRIATE ACCESS.
6. BOILERS' EMERGENCY SHUT-OFF WITH SIGNAGE.
7. ALL EXTERIOR PIPING SHALL BE HEAT TRACED PER THE SPECIFICATIONS.
8. 6' X 5' RELIEF LOUVER BY GC. PROVIDE RELIEF DAMPER FOR STAIRWELL PRESSURIZATION. REFER TO CONTROLS.
9. 6' X 5' EXHAUST LOUVER BY GC. PROVIDE INSULATED EXHAUST PLENUM FULL SIZE OF LOUVER.
10. 7' - 4" X 4' INTAKE LOUVER BY GC. INSULATE STAIR PRESSURIZATION DUCTWORK THAT IS NOT FIRE WRAPPED.
11. MAINTAIN MINIMUM 15'-0" CLEARANCE FROM OUTSIDE AIR INTAKES TO ALL EXHAUST AIR OUTLETS AND PLUMBING VENTS.
12. MAINTAIN MINIMUM 25'-0" CLEARANCE FROM DISCHARGE OF ISLOATION EXHAUST TO OUTSIDE AIR INTAKES.
13. EXHAUST DUCTWORK FROM FLOOR BELOW INTO FAN INLET PLENUM. PROVIDE FIRE DAMPER AT FLOOR PENETRATION. ACCESS TO FIRE DAMPER SHALL BE FROM ACCESS DOOR ON INLET PLENUM. INSTALL BACKDRAFT DAMPER FOR FAN ON DISCHARGE OF FAN. DUCTWORK SHALL BE INSULATED DOWNSTREAM OF FAN UP TO PLENUM.
14. RELIEF AIR GRV FOR STAIRWELL. EXTEND DUCTWORK DOWN THRU ROOF FULL SIZE OF GRV CONNECTION. PROVIDE STAIRWELL RELIEF DAMPER IN DUCTWORK BELOW ROOF. REFER TO CONTROLS.

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Split Sys Furnace

Comfort. Under control.

Asset: AC-6-02 AREA:6-6534

Unit Data		
	Design	**Actual**
MFG	LIEBERT	LIEBERT
Model Num	MMD24ENPR0D4	MMD24ENPR0D4
Serial Num	-	Y22B001821
Configuration	-	HORIZONTAL
Filter Size Size 1	-	20X20

Test Data		
	Design	**Actual**
SF CFM	885	940
Motor Speed SetPt	-	HIGH
RL Voltage	-	214.9
RL Amperage	-	1.79
RA CFM	-	940

Motor Data		
	Design	**Actual**
Motor MFG	-	US MOTOR
Frame	-	48Y
Horsepower	0.5	0.5
Motor Rpm	-	1060
Phase	1	1
Voltage	208	208
Amperage	-	2.6

Performance Data		
	Design	**Actual**
Suction ESP	-	-0.68"
Discharge ESP	-	0.10"
Total ESP	0.3"	0.10"

Completed By: Tyler Youells on 12/12/2022

National TAB

Project:Dayton Children's Hospital (Dayton, OH)

Split Sys Furnace

Comfort. Under control.

Diffuser Supply (GRD)

AC-6-02/6-6534

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
AC6-02-1	F1	10"X6"	10	250	205	230	92.0
AC6-02-2	F1	10"X6"	10	250	194	237	94.8
AC6-02-3	F1	10"X6"	10	250	187	241	96.4
AC6-02-4	F1	10"X6"	10	250	197	232	92.8

Completed By: Michael Gabbert on

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: FAN - Supply

Comfort. Under control.

Asset: SAF-1 AREA:EAST STAIRWELL

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	BSQ-300HP-50
Serial Num	-	NOT ACCESSIBLE

Motor Data		
	Design	**Actual**
Motor MFG	-	NOT ACCESSIBLE
Frame	-	NOT ACCESSIBLE
Horsepower	5.0	5.0
Motor Rpm	1725	1725
Phase	3	3
Voltage (rated)	460	460
Amperage (rated)	-	7.6
Service Factor	-	NA

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	NOT ACCESSIBLE
Motor Bore Size	-	NOT ACCESSIBLE
Fan Sheave Size	-	NOT ACCESSIBLE
Fan Sheave Bore	-	NOT ACCESSIBLE
Belt CL Distance	-	NOT ACCESSIBLE
Num of Belts	-	NOT ACCESSIBLE
Belt Size	-	NOT ACCESSIBLE

Test Data		
	Design	**Actual**
CFM	7000	6716
SF RPM	-	44.3HZ
RL Voltage	-	280 AVG
RL Amperage	-	3.31AVG
Suction ESP	-	-0.04"
Discharge ESP	-	0.13"
Total ESP	1.5"	0.17"
Brake Horse Power	-	2.18

Completed By: Tyler Youells on 12/16/2022

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: FAN - Supply

Comfort. Under control.

Asset: SAF-2 AREA:WEST STAIRWELL

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	SAF-118-30
Serial Num	-	19298383

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	182T
Horsepower	3.0	3.0
Motor Rpm	1725	1765
Phase	3	3
Voltage (rated)	460	460
Amperage (rated)	-	4.2
Service Factor	-	1.15

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VP50
Motor Bore Size	-	1.25"
Fan Sheave Size	-	10"
Fan Sheave Bore	-	1"
Belt CL Distance	-	18"
Num of Belts	-	1
Belt Size	-	AX66

Test Data		
	Design	**Actual**
CFM	5000	4369
SF RPM	-	35.5HZ
RL Voltage	-	224AVG
RL Amperage	-	2.4AVG
Suction ESP	-	ATM
Discharge ESP	-	0.21"
Total ESP	1.00"	0.21"
Brake Horse Power	-	1.71

Completed By: Tyler Youells on 12/16/2022

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF-169 AREA:6-4002

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	USF-24-5-B1-00-01-01
Serial Num	-	19420335
Type	-	UTILITY

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR RELIANCE
Frame	-	213T
Horsepower	7.5	7.5
Motor Rpm	1770	1770
Phase	3	3
Voltage (rated)	460	460
Amperage (rated)	-	9.5
Service Factor	-	1.15

Drive Data		
	Design	**Actual**

Test Data		
	Design	**Actual**
CFM	5290	5204
Fan RPM	1207	994
RL Voltage	-	452
RL Amperage	-	7.26
Suction ESP	-	-0.87"
Discharge ESP	-	0.12"
Total ESP	2.0"	0.99"
Brake Horse Power	-	2.55

Completed By: Tyler Youells on 12/14/2022

National TAB

Project:Dayton Children's Hospital (Dayton, OH)

FAN - Exhaust

Comfort. Under control.

Diffuser Ret/Exh (GRD)

EF-169/6-4002

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
E169-1-1	K2	24"X12"	195	1	304		182	93.3
E169-1-2	K1	24"X12"	255	1	211		249	97.6
E169-1-3	K1	24"X12"	90	1	186		83	92.2
E169-1-4	K1	24"X12"	145	1	44		133	91.7
E169-1-5	K1	24"X12"	125	1	54		113	90.4
E169-1-6	K1	24"X12"	155	1	37		162	104.5
E169-1-7	K1	24"X12"	85	1	34		81	95.3
E169-1-8	K1	24"X12"	140	1	143		138	98.6
E169-1-9	K1	24"X12"	150	1	396		162	108.0
E169-2-1	K1	24"X12"	225	1	83		226	100.4
E169-2-2	K1	24"X12"	410	1	87		404	98.5
E169-2-3	K2	12"X24"	140	1	89		153	109.3
E169-2-4	K1	24"X12"	125	1	601		137	109.6
E169-2-5	K2	12"X12"	80	1	515		86	107.5
E169-2-6	K2	24"X24"	975	1	562		892	91.5
E169-2-7	K1	24"X12"	300	1	497		328	109.3
E169-3-1	K1	24"X12"	130	1	306		135	103.8
E169-3-2	K1	24"X12"	125	1	314		125	100.0
E169-3-3	K1	24"X12"	80	1	171		76	95.0
E169-3-4	K1	24"X12"	155	1	149		143	92.3
E169-3-5	K1	24"X12"	80	1	93		85	106.3
E169-3-6	K2	24"X12"	175	1	78		181	103.4
E169-3-7	K1	24"X12"	90	1	153		89	98.9
E169-4-1	K1	24"X12"	130	1	111		121	93.1
E169-4-2	K1	24"X12"	130	1	86		132	101.5
E169-4-3	K1	24"X12"	125	1	93		137	109.6
E169-4-4	K1	24"X12"	195	1	322		177	90.8
E169-4-5	K2	12"X12	80	1	192		83	103.8
E169-4-6	K2	12"X12"	85	1	115		82	96.5
E169-4-7	K2	24"X12"	115	1	94		109	94.8

Completed By: Michael Gabbert on

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF-170 AREA:6-4400

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	USF-24-5-B1-00-01-01
Serial Num	-	19420342
Type	-	UTILITY

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR RELIANCE
Frame	-	215T
Horsepower	10.0	10
Motor Rpm	1770	1760
Phase	3	3
Voltage (rated)	460	460
Amperage (rated)	-	12.2
Service Factor	-	1.15

Drive Data		
	Design	**Actual**

Test Data		
	Design	**Actual**
CFM	7270	7162
Fan RPM	1440	1294
RL Voltage	-	278
RL Amperage	-	10.4
Suction ESP	-	-1.10"
Discharge ESP	-	0.28"
Total ESP	2.5"	1.38"
Brake Horse Power	-	5.63

Completed By: Tyler Youells on 11/28/2022

National TAB

Project:Dayton Children's Hospital (Dayton, OH)

FAN - Exhaust

Comfort. Under control.

Diffuser Ret/Exh (GRD)

EF-170/6-4400

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
E170-1-1	K1	24"X12"	125	1	316		135	108.0
E170-1-2	K1	24"X12"	190	1	301		200	105.3
E170-1-3	K2	12"X12"	80	1	189		78	97.5
E170-1-4	K1	24"X12"	90	1	356		90	100.0
E170-1-5	K1	24"X12"	190	1	274		180	94.7
E170-1-6	K1	24"X12"	200	1	0		206	103.0
E170-1-7	K2	24"X12"	125	1	29		113	90.4
E170-1-8	K1	24"X12"	225	1	220		213	94.7
E170-1-9	K1	24"X12"	110	1	10		118	107.3
E170-2-1	K1	24"X12"	125	1	210		122	97.6
E170-2-2	K2	12"X12"	80	1	75		87	108.8
E170-2-3	K2	12"X12"	80	1	20		83	103.8
E170-2-4	K2	24"X12"	195	1	363		203	104.1
E170-2-5	K1	24"X12"	200	1	26		190	95.0
E170-2-6	K1	24"X12"	125	1	179		115	92.0
E170-2-7	K1	24"X12"	200	1	289		210	105.0
E170-2-8	K1	24"X12"	125	1	226		134	107.2
E170-2-9	K1	24"X12"	125	1	163		119	95.2
E170-2-10	K1	24"X12"	125	1	129		137	109.6
E170-2-11	K1	24"X12"	125	1	23		132	105.6
E170-2-12	K1	24"X12"	180	1	145		181	100.6
E170-3-1	K1	24"X12"	125	1	253		114	91.2
E170-3-2	K2	12"X12"	100	1	232		110	110.0
E170-3-3	K1	24"X12"	125	1	393		117	93.6
E170-3-4	K2	12"X24"	140	1	356		134	95.7
E170-3-5	K1	24"X12"	200	1	216		211	105.5
E170-3-6	K1	24"X12"	125	1	163		128	102.4
E170-3-7	G1	30"X12"	515	1	130		483	93.8
E170-3-8	K2	24"X12"	225	1	111		223	99.1
E170-3-9	K1	12"X24"	180	1	152		171	95.0
E170-3-10	K1	24"X24"	715	1	733		631	88.3
E170-3-11	K2	24"X12"	175	1	301		163	93.1
E170-4-1	K1	24"X12"	125	1	239		114	91.2
E170-4-2	K2	12"X12"	80	1	180		83	103.8
E170-4-3	K2	12"X12"	80	1	270		88	110.0
E170-4-4	K1	24"X12"	190	1	64		185	97.4
E170-4-5	K1	12"X24"	140	1	117		127	90.7
E170-4-6	K1	24"X12"	125	1	150		125	100.0
E170-4-7	K1	24"X12"	200	1	0		203	101.5
E170-4-8	K1	24"X12"	125	1	170		127	101.6
E170-4-9	K2	12"X12"	80	1	66		82	102.5
E170-4-10	K1	12"X24"	165	1	110		171	103.6
E170-4-11	K1	24"X12"	100	1	113		110	110.0
E170-4-12	K1	24"X12"	135	1	188		133	98.5
E170-4-13	K1	24"X12"	80	1	233		83	103.8

Completed By: Michael Gabbert on

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF-171 AREA:6-2403

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	CUE-130-7-VG-1-19-X
Serial Num	-	19235605
Type	-	UPBLAST CRE

Test Data		
	Design	**Actual**
CFM	1200	1288
RL Voltage	-	279.5
RL Amperage	-	3.55
Total ESP	1.0"	0.67"

Motor Data		
	Design	**Actual**
Motor MFG	-	VERI-GREEN
Frame	-	NL
Horsepower	0.75	0.75"
Motor Rpm	1725	1750
Phase	1	1
Voltage (rated)	277	277
Amperage (rated)	-	3.65
Service Factor	-	NL

Completed By: Tyler Youells on 01/05/2023

National TAB

Project:Dayton Children's Hospital (Dayton, OH)

FAN - Exhaust

Comfort. Under control.

Diffuser Ret/Exh (GRD)

EF-171/6-2403

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
E171-2-1	K1	24"X24"	1200	1	1288		1288	107.3

Completed By: Michael Gabbert on

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF-172 AREA:6-4324

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	FJI-24-BI-X
Serial Num	-	19420346
Type	-	FUME

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	256T
Horsepower	20.0	20
Motor Rpm	1725	1765
Phase	3	3
Voltage (rated)	460	460
Amperage (rated)	-	24
Service Factor	-	1.15

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	6.5"
Motor Bore Size	-	1 5/8"
Motor Sheave SetPt	-	FIXED
Fan Sheave Size	-	6"
Fan Sheave Bore	-	1 15/16"
Belt CL Distance	-	19.5"
Num of Belts	-	4
Belt Size	-	BP56

Test Data		
	Design	**Actual**
CFM	7830	7732
Fan RPM	1807	1060
RL Voltage	-	219V
RL Amperage	-	10.1A
Suction ESP	-	-1.81
Discharge ESP	-	0.10"
Total ESP	6.0"	1.91"
Brake Horse Power	-	3.75

Completed By: Tyler Youells on 01/05/2023

National TAB

Project:Dayton Children's Hospital (Dayton, OH)

FAN - Exhaust

Comfort. Under control.

Diffuser Ret/Exh (GRD)

EF-172/6-4324

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
E172-1-1	K1	24"X24"	400	1	588	410	410	102.5
E172-1-2	K1	24"X24"	400	1	414	387	387	96.8
E172-2-1	K1	24"X24"	400	1	26	379	379	94.8
E172-2-2	K1	24"X24"	400	1	303	401	401	100.3
E172-3-1	K1	24"X24"	400	1	450	423	423	105.8
E172-3-2	K1	24"X24"	400	1	539	415	415	103.8
E172-4-1	K1	24"X24"	400	1	483	405	382	95.5
E172-4-2	K1	24"X24"	400	1	365	378	392	98.0
E172-4-3	K1	24"X24"	400	1	492	408	428	107.0
E172-4-4	K1	24"X24"	275	1	394	288	258	93.8
E172-4-5	K1	12"X24"	150	1	306	144	141	94.0
E172-4-6	K1	24"X24"	275	1	273	251	259	94.2
E172-4-7	K1	24"X24"	545	1	642	596	537	98.5
E172-4-8	K1	24"X24"	450	1	542	455	465	103.3
E172-4-9	K1	24"X24"	275	1	553	284	265	96.4
E172-4-10	K1	24"X24"	420	1	961	443	419	99.8
E172-4-11	K1	24"X24"	220	1	428	237	202	91.8
E172-4-12	K1	24"X24"	320	1	603	342	304	95.0
E172-4-13	K1	24"X24"	220	1	469	206	234	106.4
E172-4-14	K1	24"X24"	320	1	341	343	305	95.3
E172-4-15	K1	24"X24"	320	1	241	324	299	93.4
E172-4-16	K1	24"X24"	440	1	399	465	427	97.0

Completed By: Michael Gabbert on

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF-174 AREA:6-6500

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	SQ-130HP-VG-7-6
Serial Num	-	19235232
Type	-	INLINE

Test Data		
	Design	**Actual**
CFM	800	818
RL Voltage	-	278.1
RL Amperage	-	1.27
Total ESP	1.0"	0.32"

Motor Data		
	Design	**Actual**
Motor MFG	-	VARI-GREEN
Frame	-	NL
Horsepower	0.75	0.75
Motor Rpm	1950	2200
Phase	1	1
Voltage (rated)	277	277
Amperage (rated)	-	4.35
Service Factor	-	NL

Completed By: Tyler Youells on 12/12/2022

National TAB

Project:Dayton Children's Hospital (Dayton, OH)

FAN - Exhaust

Comfort. Under control.

Diffuser Ret/Exh (GRD)

EF-174/6-6500

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
E174-6-1	G1	10"X10"	400	1	561		412	103.0
E174-6-2	G1	10"X10"	400	1	534		406	101.5

Completed By: Michael Gabbert on

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Boiler

Comfort. Under control.

Asset: BLR-26 AREA:PENTHOUSE

Unit Data		
	Design	**Actual**
MFG	NA	LOCHINVAR
Model Num	NA	FBN0751
Serial Num	-	2142 126561835

Test Data		
	Design	**Actual**
GPM	-	37.8

Completed By: Nick Payne on 12/23/2022

Notes: DESIGN GPM 35

Date: 01/13/2023

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Boiler

Comfort. Under control.

Asset: BLR-27 AREA:PENTHOUSE

Unit Data		
	Design	**Actual**
MFG	NA	LOCHINVAR
Model Num	NA	FBN1001
Serial Num	-	2142 126561833

Test Data		
	Design	**Actual**
GPM	-	68.2

Completed By: Nick Payne on 12/23/2022

Notes: DESIGN GPM 70

Date: 01/13/2023

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Boiler

Comfort. Under control.

Asset: BLR-28 AREA:PENTHOUSE

Unit Data		
	Design	**Actual**
MFG	NA	LOCHINVAR
Model Num	NA	FBN1001
Serial Num	-	2142 126561834

Test Data		
	Design	**Actual**
GPM	-	71.5

Completed By: Nick Payne on 12/23/2022

Notes: DESIGN GPM 70

Date: 01/13/2023

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Chiller

Comfort. Under control.

Asset: CH-11 AREA:ROOF

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Model Num	NA	YVAA0308EVB46BAVB
Serial Num	-	11552N13694871
Type	SCREW	CHILLER

Test Data-Evaporator		
	Design	**Actual**

Completed By: Nick Payne on 12/22/2022

Notes: No ports to sample pressure drop *

Date: 12/23/2022

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Chiller

Comfort. Under control.

Asset: CH-12 AREA:ROOF

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Model Num	NA	YVAA0308EVV46BAVB
Serial Num	-	11552N13694870
Type	SCREW	SCREW

Test Data-Evaporator		
	Design	**Actual**

Completed By: Nick Payne on 12/23/2022

Notes: No ports to sample pressure drop *

Date: 12/23/2022

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Pump

Comfort. Under control.

Asset: CHWP-11 AREA:ROOF

Unit Data		
	Design	**Actual**
MFG	NA	GRUNDFOS
Model Num	NA	LCS 30127
Service	-	CHILLED WATER
Type	-	CENTRIGUGAL
Pump RPM	-	1760
GPM/HD	550.0-125	555.0-125
Impeller Diameter	11.94"	11.94"

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	284TC
Horsepower	-	25
Motor Rpm	-	1775
Phase	-	3
Voltage	-	460
Amperage	-	30
Service Factor	-	1.15
Efficiency	-	93.6
Power Factor	-	82

Test Data		
	Design	**Actual**
Pump Off Pres	-	39.2 ft
Final Suction Pres (FT)	-	36.36 ft
Final Discharge Pres (FT)	-	152.7 ft
Total Head Pres (FT)	125'	116.3 ft
Final GPM	550.0	542.8
Pump Rotation	-	CW
Motor Frequency	-	55HZ
System SetPt	-	55HZ
RL Voltage	-	382vfd
RL Amperage	-	27.5 vfd
Brake Horse Power	-	22.5

Completed By: Nick Payne on 12/22/2022

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Pump

Comfort. Under control.

Asset: CHWP-12 AREA:ROOF

Unit Data		
	Design	**Actual**
MFG	NA	GRUNDFOS
Model Num	NA	LCS 30127
Service	-	CHILLED WATER
Type	-	CENTRIFUGAL
Pump RPM	-	1760
GPM/HD	550.0-125	550.0-125
Impeller Diameter	11.94"	11.94

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	284TC
Horsepower	-	25
Motor Rpm	-	1775
Phase	-	3
Voltage	-	460
Amperage	-	30
Service Factor	-	1.15
Efficiency	-	93.6
Power Factor	-	82

Test Data		
	Design	**Actual**
Pump Off Pres	-	37.9 ft
Final Suction Pres (FT)	-	35.09 ft
Final Discharge Pres (FT)	-	161.4 ft
Total Head Pres (FT)	125'	126.31 ft
Final GPM	550.0	547.6
Pump Rotation	-	CW
Motor Frequency	-	60HZ
System SetPt	-	17 PSI
RL Voltage	-	435 vfd
RL Amperage	-	28.9 vfd
Brake Horse Power	-	19.27

Completed By: Nick Payne on 12/22/2022

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Pump

Comfort. Under control.

Asset: CHWP-13 AREA:ROOF

Unit Data		
	Design	**Actual**
MFG	NA	GRUNDFOS
Model Num	NA	LCS 30127
Service	-	CHILLED WATER
Type	-	CENTRIFUGAL
Pump RPM	-	1760
GPM/HD	550.0-125	550.0-125
Impeller Diameter	11.94"	11.94"

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	284TC
Horsepower	-	25
Motor Rpm	-	1775
Phase	-	3
Voltage	-	460
Amperage	-	30
Service Factor	-	1.15
Efficiency	-	93.6
Power Factor	-	82

Test Data		
	Design	**Actual**
Pump Off Pres	-	35.7 FT
Valve Open GPM (FT)	-	716.5
Valve Open Diff (FT)	-	75.7 FT
Final Suction Pres (FT)	-	34.3 FT
Final Discharge Pres (FT)	-	85.2 FT
Total Head Pres (FT)	125'	50.9 FT
Final GPM	550.0	587
Pump Rotation	-	CW CORRECT
Motor Frequency	-	50 HZ
RL Voltage	-	332 VFD
RL Amperage	-	27.2 VFD
Brake Horse Power	-	22.5

Completed By: Nick Payne on 02/09/2023

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Pump

Comfort. Under control.

Asset: HWP-26 AREA:ROOF

Unit Data		
	Design	**Actual**
MFG	NA	GRUNDFOS
Model Num	NA	16-30967-130108-1782P
Serial Num	-	19712008143-20B
Service	-	HOT WATER LOOP
Type	-	CENTRIFUGAL
Configuration	-	INLINE
Pump RPM	-	1760
GPM/HD	250.0-75	250-75
Impeller Diameter	9.16"	9.17

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	215JM
Horsepower	10.0	10
Motor Rpm	-	1770
Phase	-	3
Voltage	-	230/460
Amperage	-	12.5
Service Factor	-	1.15
Efficiency	-	91.7
Power Factor	-	0.82

Test Data		
	Design	**Actual**
Pump Off Pres	-	35.7 FT
Pump Dead Head Pres	-	96.8 FT
Act Impeller Dia (IN)	-	9.6 FT
Valve Open GPM (FT)	-	246.3
Valve Open Diff (FT)	-	77.3 FT
Final Suction Pres (FT)	-	33.5 FT
Final Discharge Pres (FT)	-	110.8 FT
Total Head Pres (FT)	75.0'	77.3 FT
Final GPM	250.0	246.3
Pump Rotation	-	CW CORRECT
Motor RPM	-	1771
Motor Frequency	-	60 HZ
System SetPt	-	17 PSI
RL Voltage	-	455 VFD
RL Amperage	-	9.8 VFD
Brake Horse Power	-	6.63

Completed By: Nick Payne on 11/21/2022

National TAB

Project: Dayton Children's Hospital (Dayton, OH)

System/Unit: Pump

Comfort. Under control.

Asset: HWP-27 AREA:ROOF

Unit Data		
	Design	**Actual**
MFG	NA	GRUNDFOS
Model Num	NA	16-30917-130108-1782P
Serial Num	-	1971208143-20A
Service	-	HOT WATER LOOP
Type	-	CENTRIFUGAL
Configuration	-	INLINE
Pump RPM	-	1760
GPM/HD	250.0-75	250.0-75
Impeller Diameter	9.16"	9.17

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR
Frame	-	215JM
Horsepower	10.0	10
Motor Rpm	-	1770
Phase	-	3
Voltage	-	230/460
Amperage	-	12.5
Service Factor	-	1.15
Efficiency	-	91.7
Power Factor	-	85

Test Data		
	Design	**Actual**
Pump Off Pres	-	36.1 ft
Final Suction Pres (FT)	-	103.88 ft
Final Discharge Pres (FT)	-	33.75 ft
Total Head Pres (FT)	75.0'	77.1 ft
Final GPM	250.0	246.7
Pump Rotation	-	cw correct
Motor RPM	-	1775
Motor Frequency	-	60 HZ
System SetPt	-	17 PSI
RL Voltage	-	454 VFD
RL Amperage	-	9.9 VFD
Brake Horse Power	-	6.63

Completed By: Nick Payne on 01/11/2023

Circuit Setter

HW CS/

Asset							
Asset Name	**Size**	**Type**	**Design GPM**	**Setting**	**Delta P**	**Final GPM**	**% to Design**
CS-1	4"	MANUAL	126.0	7.5	0.55	124.1	98.5
CS-2	4"	MANUAL	126.0	8.0	0.48	120.8	95.9

Circuit Setter

CHW CS/

Asset							
Asset Name	**Size**	**Type**	**Design GPM**	**Setting**	**Delta P**	**Final GPM**	**% to Design**
CS1	3	MANUAL	82	8.0	0.313	77.71	94.8
CS2	3	MANUAL	83	8.0	0.327	79.39	95.7
CS3	3	MANUAL	82	8.0	0.317	78.14	95.2
CS4	3	MANUAL	83	8.0	0.346	81.66	98.4
CS5	3	MANUAL	82	8.0	0.366	83.98	102.4
CS6	3	MANUAL	83	8.0	0.404	88.23	106.3
CS7	3	MANUAL	82	8.0	0.372	84.72	103.3
CS8	3	MANUAL	83	8.0	0.375	85.04	102.4
CS9	3	MANUAL	82	8.0	0.399	87.81	107.1
CS10	3	MANUAL	83	8.0	0.349	82.1	98.9
CS11	3	MANUAL	82	8.0	0.391	86.81	105.9
CS12	3	MANUAL	83	8.0	0.376	85.10	102.5