SCHEDULE OF VENTILATION

ROOM NAME AND NUMBERS	AREA SQ. FT.	CEILING HEIGHT (FEET)	VOLUME CU. FT.	GUIDELINES 2018 ASHRAE 170-2017				IMC 2018 OUTDOOR AIR REQUIREMENTS								OUTDOOR AIR REQUIRED	EXHAUST AIR REQUIRED	NORMAL OPERTAION CFM PROVIDED				REMARKS
				TOTAL AIR		OUTDOOR AIR		ROOM PRESSURE	OUTDOOR AIR				EXHAUST AIR									
				ACH	CFM	ACH	CFM		CFM/ PERSON	CFM/ SQ. FT.	PERSONS	CFM	CFM/WC	CFM/ SQ. FT.	WC	CFM			SUPPLY	RETURN	OUTDOOR	EXHAUST	
CATH LAB ROOM #2 123	492	9'-6"	4674	20	1558	4	312	POS	5	.06	6	60	·	·	·	·	312	·	1600	1400	640	·	SEVED BY EX. AHU
CATH EQUIPMENT ROOM 124	104	9'-0"	936	·	·	·	·	NR	-	-	-	-	·	·	·	·	-	·	·	·	·	·	SEVED BY MINI SPLITS
TECH CONTROL ROOM 125	126	9'-0"	1134	·	·	·	·	NR	5	.06	2	18	·	·	·	·	18	·	200	300	80	·	SEVED BY EX. AHU
REF #4 CLOSET ROOM 126	46	9'-0"	414	·	·	"	·	NR	-	-	-	-	·	·	·	·	3	·	·	·	·	·	SEVED BY EX. AHU
SUPPLY STORAGE 127	160	9'-0"	1260	4	96	2	48	NR	0	.12	0	20	·	·	·	·	48	·	200	250	80	·	SEVED BY EX. AHU
WORK ROOM 129	133	9'-0"	1053	·	·	·	·	NR	5	.06	4	28	·	·	·	·	28	·	·	·	·	·	SEVED BY EX. AHU
CORRIDOR 130	633	9'-0"	5697	2	190	·	·	NR	·	·	·	·	·	·	·	·	15	·	100	·	20	·	SEVED BY EX. AHU
PRE / POST PATIENT AREA 137	260	9'-0"	2340	10	390	2	78	NR	5	.06	2	26	·	·	·	·	78	·	250	225	100	·	EXISTING CENTRAL SYSTEM
TOILET 138	32	9'-0"	288	10	·	-	-	NEG	·	·	·	·	50	·	1	50	·	50	50	·	15	100	SEVED BY EX. AHU
NURSE STATION 139	64	9'-0"	576	·	·	·	·	NR	5	.06	2	14	·	·	·	·	14	·	100	·	40	·	SEVED BY EX. AHU
PRE / POST PATIENT AREA 140	119	9'-0"	1071	10	179	2	36	NR	5	.06	2	18	·	·	·	·	36	·	75	·	30	·	SEVED BY EX. AHU

NOTE:
1) EXISTING AHU 40% OUTSIDE AIR

REF #5

REHEAT COIL SCHEDULE

SYMBOL	MANUFACTURER AND MODEL #	CFM	DUCT SIZE (WxH)		HEATING COIL DATA @ 160° ENTERING WATER & 56° E.A.T.							REMARKS
					No. OF ROWS	MBH	LEAVING AIR TEMP	WATER ΔP FT	AIR ΔP	GPM	WATER ΔT	
RH-1	DAIKIN 5BS1401B	1600	24" x 12"		1	35.95	76.5	2.5	0.38	2.3	30.80	
RH-2	DAIKIN 5BS0602B	400	10" x 10"		2	8.80	87.4	1.0	0.03	1.0	17.60	
RH-3	DAIKIN 5BS0602B	350	12" x 10"		2	11.54	87.2	0.1	0.10	0.75	30.77	

MECHANICAL SPECIFICATIONS

A. It is not intended that the plans or specifications show or state every detailed requirement of the work, but rather that they furnish adequate information for the Contractor to make a completely approved installation. The Architectural General Conditions form a part of these specifications hether attached hereto or not and shall be carefully examined before submitting proposal. Where General Conditions clauses are repeated in this section, it shall be understood as calling special attention to them, or as a further qualification and shall not be assumed as omitting any other clauses. No General Conditions referring to work included herein shall be considered as waived unless specifically stated herein.

B. Before submitting proposal, examine all plans relating to this work, verify all governing conditions at the site, become fully informed as to the extent and character of the work required and its relation to existing conditions and work of others. No consideration or additional payments will be granted for any alleged misunderstanding of the materials to be furnished or work to be done, it being understood that the submission of a proposal is an agreement to all conditions referred to herein or indicated on the plans. All work shall be carefully coordinated and scheduled to prevent undue inconveniences. All work which will not be permitted during normal working hours due to scheduling, etc., shall be scheduled to be performed on overtime at no additional cost.

C. Proposal must include everything required to provide a complete installation as contemplated in the specifications and plans, whether specifically shown and specified or not. Included are all labor, equipment, materials, light, tools, scaffolding, transportation, Insurance, sales tax, permits, certificates, inspections, testing equipment, etc., necessary for the complete installation of everything described, shown or reasonably implied.

D. Review all plans and specifications relative to this work, and become familiar with work called for therein. At the conclusion of the work, be responsible for the proper mechanical installation furnished and/or installed under this contract. It is the intention of these specifications and plans to furnish enough information for the Contractor to provide and place in service a complete HVAC system and installation.

E. Bidders, before submitting proposals, shall visit and carefully examine those portions of the site and/or present buildings affected by this work so as to familiarize themselves with existing conditions and difficulties that will attend the execution of the work. These difficulties include availability of the equipment and materials.

F. Submission of proposal will be constructed as evidence that such examination has been made and later claims for labor, equipment or materials required because of difficulties encountered, which could have been foreseen had such examination been made, will not be recognized.

2. SCOPE OF WORK

A. The work shall include but not be limited to the following -

1. Provide and install new H&AC systems, including all piping, control wiring, hangers, etc. required for a complete installation.
2. Furnish and install all piping and ductwork as shown on the drawings.
3. Furnish and install air outlets where shown on the drawings.
4. Furnish and install volume dampers.
5. Provide shop drawings for all mechanical equipment being installed.
6. Furnish and install all necessary hangers and supports.
7. Engage the services of an approved air balancing company to balance the systems and issue an air balancing report for the entire system for existing AHU serving Cath Lab Suit.
8. Cutting and rough patching.
9. Obtaining and paying for all necessary permits, inspections and certificates required in connection with this work.
10. Guarantee all work for a period of one year from the final date of acceptance.
11. Provide all temperature controls for all hvac equipment including all thermostats, interlock wiring and control wiring.
12. Provide req'd. vibration isolation for all mech. equipment & systems specified and or required by code.
14. As built drawings.

3. WORK NOT INCLUDED

A. The following items of work shall be provided under other sections of the specifications

1. Finished patching and painting.

4. SHOP DRAWINGS

A. Submit shop drawings covering the following items:

1. Air outlets.
2. Insulation, hangers and supports.
3. Sheetmetal ductwork - 3/8" scale drawings.
4. Air balancing report - with single line diagrams
5. All HVAC equipment specified on the schedules.

5. INSTALLATION

A. All work and materials shall be provided as shown and herein specified and shall be in accordance with the latest applicable edition of The New Jersey Uniform Construction Code and all authorities having jurisdiction.

B. This Contractor shall provide proof of adequate insurance to hold Owner, Architect, and Engineer harmless for any liability claims arising from performance of his work.

C. This Contractor shall take all necessary precautions to prevent unnecessary damage to building structure and protect building contents and occupants.

D. All ductwork shall be concealed within the hung ceilings, walls and floors.

E. For exact location of partitions, ceiling heights, soffits, etc., refer to the architectural drawings.

F. The work under this contract shall be performed simultaneously with work of other trades, so as not to delay the overall progress of work. The work of all trades shall be coordinated. Provide coordination drawings.

G. The systems shall be left in perfect working order upon completion of work.

H. All ductwork gauges, and installation shall conform to the latest edition of SMACNA standards.

6. TESTS AND BALANCING

A. The work of this Contractor shall include the furnishing of all testing instruments, gauges, and other equipment required for necessary tests, required by law, rules and regulations and as specified.

B. Provide all other test required by Building Department, Fire Department and all other public agencies having jurisdiction.

C. Tests shall be performed in the presence and to the satisfaction of the Architect and such other parties that may have legal jurisdiction.

D. Operate the installation after completion for period necessary to make all required adjustments for all equipment, automatic controls, air outlets and fans until all performance characteristics are met.

E. Engage the services of approved air balancing company to balance the system and issue an air balancing report for engineer's approval. The report should be certified by a New Jersey State registered professional engineer and the test should be performed by a person having a minimum of 5 years experience in testing and balancing air systems.

F. Upon completion of the installation, the air balance and testing subcontractor shall make the necessary adjustments to balance the system. Provide any extra manual volume damper required for proper air balance.

G. At the completion of the test, the Contractor shall furnish the Architect seven copies of the final test report, these copies shall be complete with single line diagrams and all required traverse airflow readings at main ducts and branches.

7. PIPING:

A. Steam and condensate piping to be Sch. 40 black steel welded 3" and larger, screwed smoller.
B. Hot water (heating) to be type L copper hard drawn with 125# 95-5 solder fitting.

8. VALVES:

A. Ball type APOLLO all bronze 3 pieces full port series 82-100 or equal.

9. PIPE INSULATION

Insulation hot water supply & return steam & condensate piping with JM 1 1/2" Micro-Lok fiberglass pipe insulation with AP-T Plus jacket and Zeaton 2000 pvc insulated fitting covers & jacketing

10. SHEET METAL WORK

A. All rectangular ductwork, unless otherwise noted, shall be built from galvanized sheet steel and thoroughly braced and stiffened. All supply ductwork shall be constructed as medium pressure ductwork (4" w.g.), return ductwork shall be constructed as low pressure (1" w.g.).

B. The construction for sheet metal ducts shall be made in accordance with recommendations of ASHRAE Guide, Latest Edition, or as per SMACNA Manual. All branches and take-offs shall have volume dampers whether or not shown on the drawings.

C. Contractor shall seal all the ductwork at joints with 3M EC-800.

D. Flexible duct runouts shall not exceed 6'-0" in length and shall meet all requirements of NFPA 90A, latest edition.

11. DUCTWORK INSULATION

1. Insulate all supply and fresh ductwork.

2. Except where otherwise noted, all concealed rectangular and round ductwork shall be covered with flexible duct insulation with vapor barrier and of the thickness indicated below.

3. Flexible duct insulation barrier shall be 1 Lb. per cu. ft. density glass fiber with a maximum K factor of 0.29 at 75 degrees F. mean temperature, with reinforced foil-faced, flame resistant kraft vapor barrier.

4. Insulation with vapor barrier shall be duct wrap insulation FRK-25, type 100 as made by Owens-Corning or Manville Microlite with FRK vapor barrier facing or standard duct insulation as made by CGG with FRK facing.

5. Adhere insulation to duct with Foster fire resistant vapor barrier adhesive or approved equal and joints without tabs shall be firmly sealed with aluminum foil tape adhered with some adhesive. Secure insulation with 18 gauge corrosion resistant wire spaced not more than 18 inches on center.

6. Supply & return ductwork on roof shall be insulated with 1" JM Pemacot Lincoustic R-300 duct liner, with aluminum jacket seal ductwork & jacket per mfr. recommendation

12. CONTROLS

A. Provide and install all controls and wiring for new split systems.
B. Provide and install all neccecary controls wiring for new hot water reheat coils

13. NOISE CONTROL

A. All installation shall be in a manner that the N.C. level in the space shall not exceed 35 dBA. Noise levels above this limit will not be acceptable and should be corrected by this Contractor at no expense to the Owner.

14. RECORD DRAWINGS

A. Maintain a careful and complete record of all items installed and upon completion of work, deliver to the owner a complete set of (reproducible) "as-built" drawings.

15. GUARANTEE

A. The Contractor guarantees by his acceptance of the contract that all work installed will be free from any and all defects for a period of one year from date of completion and acceptance of work.

16. EQUIPMENT SPEC.

A. Mini Split System see dwg M-1
B. See this dwg for reheat coil schedule.

RETURN/EXHAUST REGISTER SCHEDULE

SYMBOL (4-NS CFM)	MFG'R. & MODEL No.	TYPE	NECK SIZE	No AND SIZE OF SLOTS	CFM RANGE	MODULE SIZE	REMARKS
4-4R	ANEMOSTAT	PLAQUE	4"Ø	-	0 - 60	12"x12"	1/8" DROP
6-4R	ANEMOSTAT	PLAQUE	6"Ø	-	60 - 150	12"X12"	1/8" DROP
6-4R	ANEMOSTAT	PLAQUE	6"Ø	-	50 - 200	24"X24"	1/8" DROP
8-4R	ANEMOSTAT	PLAQUE	8"Ø	-	150 - 250	24"x24"	1/8" DROP
10-4R	ANEMOSTAT	PLAQUE	10"Ø	-	0 - 400	24"X24"	1/8" DROP
12-4R	ANEMOSTAT	PLAQUE	12"Ø	-	0 - 700	24"x24"	1/8" DROP

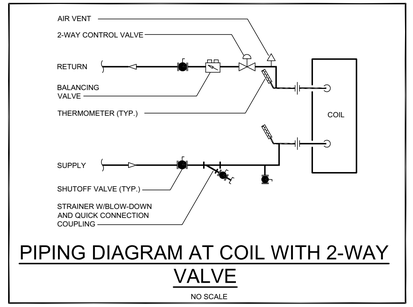
SUPPLY DIFFUSER SCHEDULE

SYMBOL ** (CFM)	MANUFACTURER AND MODEL No.	NECK SIZE	MAXIMUM CFM RANGE				TYPE	MODULE SIZE	REMARKS
			4-WAY	3-WAY	2-WAY	1-WAY			
6-18hv4	ANEMOSTAT PLAQUE	6"DIA	200	150	100	50	PLAQUE	24"x24"	-
8-18hv4	ANEMOSTAT PLAQUE	8"DIA	300	225	150	75	PLAQUE	24"x24"	-
10-18hv4	ANEMOSTAT PLAQUE	10"DIA	500	375	250	125	PLAQUE	24"x24"	-
12-18hv4	ANEMOSTAT PLAQUE	12"DIA	700	525	350	175	PLAQUE	24"x24"	-
14-18hv4	ANEMOSTAT PLAQUE	14"DIA	860	645	430	215	PLAQUE	24"x24"	-
15-18hv4	ANEMOSTAT PLAQUE	15"DIA	1,100	825	550	275	PLAQUE	24"x24"	-

NOTES:
1. SOME DIFFUSERS SHALL BE FURNISH WITH OPTIONAL DIRECTIONAL BLOW TABS (SEE DRAWINGS).
2. ** FIRST NUMBER INDICATES NECK SIZE, SECOND NUMBER INDICATES SUPPLY DIRECTION 1,2,3 OR 4-WAY.

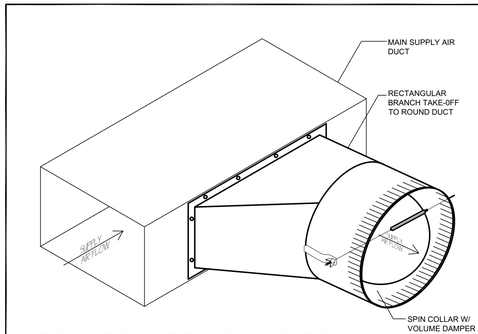
SYMBOL LEGEND

	SUPPLY CEILING DIFFUSER (C.D.) WITH CAPACITY INDICATED.	H.W.S.	HOT WATER SUPPLY
	RETURN AIR GRILLE (RA)	H.W.R.	HOT WATER RETURN
8-4 CFM	NECK SIZE, No OF DIRECTIONS AND MODULE SIZE		ATC CONTROL VALVE FURNISHED BY BMS CONTRACTOR
CFM	CFM	(3.5)	INDICATES G.P.M. SETTING AT H.W. CONTROL VALVES
CR-1 CFM	RETURN REGISTER NECK SIZE AND PANEL SIZE CFM		BALL VALVE
	FLEXIBLE DUCTWORK. DIAMETER SAME AS DIFFUSERS NECK SIZE.		CIRCUIT SETTER
FD	FIRE DAMPER	FC	FLEXIBLE CONNECTION
VD	MANUAL VOLUME CONTROL DAMPER		UNDERCUT DOOR 1" MIN.
		T	THERMOSTAT
			AIR FLOW ARROW

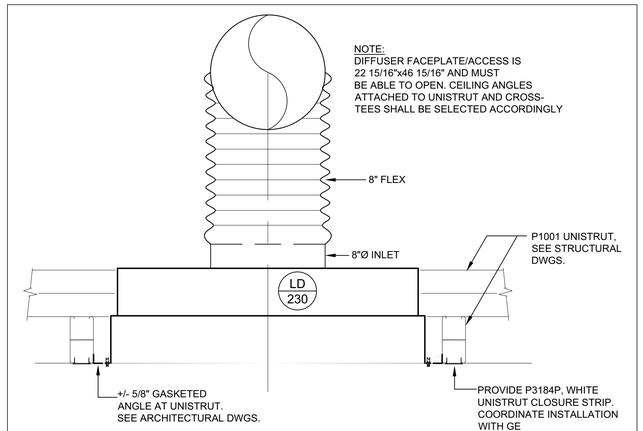


PIPING DIAGRAM AT COIL WITH 2-WAY VALVE

NO SCALE



DETAIL OF RECTANGULAR TO ROUND BRANCH CONNECTION



LAMINAR DIFFUSER DETAIL

SCALE: 3"=1'-0"

Department of Community Affairs
Construction Project Review
Project No: 5228-22
Partial Release
Mechanical
Gregory Wilson
Released: 02/09/23
N.J.S.A. 52:27D-119 ET SEQ., AS AMENDED

POSEN ARCHITECTS

POSEN ARCHITECTS, LLC
Architecture• Interiors• Planning• Regulatory Approvals

NJ:
25 Columbia Street
West Orange, NJ 07052
T: 973-325-3250

NY:
222 Mamaroneck Avenue
White Plains, NY 10605
T: 914-935-8820

Posen Architects, LLC
NY Cert. 80883
NJ Cert. 21AC00035700

Dennis A. Posen, AIA
NY Lic. 015026-1
NJ 21AI00808700

Kosta Koulouris, AIA
NY Lic. 034846-1
NJ 21AI01893200

Thomas A. Fantacone, AIA
NY Lic. 035897-1
NJ 21AI00792500

William S. Hamilton, AIA
NY Lic. 030718-1
NJ 21AI01380200

www.posen.com

Issuance / Revision		
No.	Date	Description
1	01/25/23	PER DCA COMMENTS

MECHANICAL ELECTRICAL PLUMBING

LKU GROUP INC
CONSULTING ENGINEERS
241 MOLNAR DRIVE
ELMWOOD PARK, N.J. 07407
N.J. (201) 791-1210 FAX (201) 791-1572
CERTIFICATE OF AUTHORIZATION No 24GA27953300
David Arabia, PE

Structural Consultant: Jeff Ling, PE
Email: jling@cecengineers.com, T: 908-298-1600
CEC Engineers, 730 Boulevard, Kenilworth, NJ 07033

Client:
CAREPOINT HEALTH - CHRIST HOSPITAL
29 EAST 29TH STREET
BAYONNE, NJ 07002

Project:
CATH LAB #2 - SUITE EXPANSION
176 PALISADE AVENUE
JERSEY CITY, NJ 07306

SEAL AND SIGNATURE:
DAVID S. ARABIA
PROFESSIONAL ENGINEER
GE57337

STATE OF NEW JERSEY — DAVID S. ARABIA — No. GE57337 — PROFESSIONAL ENGINEER

Digitally signed by David S. Arabia
Date: 2023.01.25 14:08:19 -05'00'

Posen Project No.:	DCA Number:
22119	NJPRP-14794

Submission: PROGRESS SET
NOT FOR CONSTRUCTION

Drawing: MECHANICAL: SPECIFICATIONS & SCHEDULE

Drawn By:	Checked By:	Date:
DA	JA	8/10/2022
Scale:	Dwg No.Issue No.:	Drawing:
1/4" = 1'-0"	M-0.1	of