

MECHANICAL ABBREVIATIONS:

AD	ACCESS DOOR
AFC	ABOVE FALSE CEILING
AFF	ABOVE FINISHED FLOOR
AL	ACOUSTICAL LINING
BDD	BACK DRAFT DAMPER
BG	BOTTOM GRILLE
CAV	CONSTANT AIR VOLUME
CC	COOLING COIL
CD	CEILING DIFFUSER
CG	CEILING GRILLE
COD	CLEAN OUT DOOR
CR	CEILING REGISTER
CFM	CUBIC FEET OF AIR PER MINUTE
CP	CONDENSATE DRAIN
EL	ELEVATION
EF	EXHAUST FAN
ERV	ENERGY RECOVERY VENTILATOR
FD	FIRE DAMPER AND ACCESS DOOR
FSD	FIRE SMOKE DAMPER AND ACCESS DOOR
FCU	FAN COIL UNIT
FC	FLEXIBLE CONNECTION
HC	HEATING COIL
LPS	LOW PRESSURE STEAM
LPR	LOW PRESSURE STEAM CONDENSATE RETURN
MBH	THOUSAND BTUS PER HOUR
NK	NECK (AS RELATED TO DUCT & DIFFUSER)
NIC	NOT IN THIS CONTRACT
NTS	NOT TO SCALE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OAD	OUTSIDE AIR DAMPER
OAI	OUTSIDE AIR INTAKE
OED	OPEN END DUCT WITH WMS
RA	RETURN AIR
SD	SMOKE DAMPER AND ACCESS DOOR
SA	SOUND ATTENUATOR
TEF	TOILET EXHAUST FAN
TW	THERMOMETER WELL
TD	TRANSFER DUCT
TO	TRANSFER OPENING
TG	TOP GRILLE
TR	TOP REGISTER
TRG	TRANSFER GRILLE
TRR	TRANSFER REGISTER
FTR	FIN TUBE RADIATOR
MD	MOTORIZED DAMPER
HL	HEATING LOAD IN MBH
AL	ACTIVE LENGTH IN FEET
LTGS	LOW TEMPERATURE GLYCOL SUPPLY
LTGR	LOW TEMPERATURE GLYCOL RETURN

MECHANICAL SYMBOL LIST:

	EXISTING WORK TO REMAIN (WORK SHOWN IN LIGHT)
	EXISTING WORK TO BE REMOVED
	NEW WORK (WORK SHOWN IN DARK)
	CONNECT NEW TO EXISTING
	POINT OF DISCONNECTION
	TEMPERATURE SENSOR
	BACNET THERMOSTAT
	COMBINATION TEMPERATURE SENSOR/HUMIDITY SENSOR
	THERMOSTAT (SPACE) DIGITAL
	THERMOSTAT (DUCT)
	HUMIDISTAT
	DIFFERENTIAL PRESSURE SENSOR
	SWITCH
	FREEZESTAT
	SUPPLY AIR OUTLET, 4 WAY

	EXHAUST AND RETURN DIFFUSER
	SUPPLY AIR DIFFUSER
	DUCT SECTION UNDER POSITIVE PRESSURE
	DUCT SECTION UNDER NEGATIVE PRESSURE (RETURN)
	DUCT SECTION UNDER NEGATIVE PRESSURE (EXHAUST)
	DUCTWORK GOING UP
	DUCTWORK GOING DOWN
	SOUND LINING IN DUCT
	SMOKE DAMPER WITH DUCT ACCESS DOOR, COORDINATE WITH GENERAL CONTRACTOR TO PROVIDE ACCESS DOORS IN INACCESSIBLE LOCATIONS
	FIRE SMOKE DETECTOR
	FIRE SMOKE DAMPER WITH DUCT ACCESS DOOR, COORDINATE WITH GC TO PROVIDE ACCESS DOORS AT ACCESSIBLE LOCATION.
	FUSIBLE LINK FIRE DAMPER WITH ACCESS DOOR, COORDINATE WITH GENERAL CONTRACTOR TO PROVIDE ACCESS DOORS IN INACCESSIBLE LOCATIONS
	DUCT SIZE - FIRST SIZE INDICATES PLAN SIZE
	ACCESS DOOR IN DUCT
	DUCT FLEXIBLE CONNECTION
	VOLUME DAMPER
	SPIN-IN FITTING WITH VOLUME DAMPER
	LOUVER DOOR
	TRANSFER AIR THRU UNDERCUT
	THERMOMETER
	BACK DRAFT DAMPER
	RETURN REGISTER
	SUPPLY REGISTER
	Z-DUCT
	RETURN GRILL WITH FLEX BOOT DUCT

NOTE:

ALL ABBREVIATIONS AND SYMBOLS MAY NOT APPEAR ON THE DRAWINGS FOR THIS PROJECT.

MECHANICAL PIPING SYMBOL LIST:

	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	HOT WATER SUPPLY
	HOT WATER RETURN
	THERMOMETER
	HOT WATER SUPPLY OR RETURN RISER
	RISER NUMBER
	EQUIPMENT TYPE
	EQUIPMENT NUMBER
	PUMP
	STRAINER Y" TYPE WITH BLOWDOWN VALVE
	PIPE UP
	PIPE DOWN
	COMBINATION BALANCING & SHUT-OFF VALVE
	SHUT-OFF VALVE
	SHUT-OFF VALVE WITH CAPPED DRAIN FITTING
	THROTTLING VALVE
	CHECK VALVE
	CIRCUIT SETTER VALVE
	AUTOMATIC 2-WAY CONTROL VALVE
	AUTOMATIC 3-WAY CONTROL VALVE
	ELECTRIC CONTROL VALVE
	CONTROL VALVE STATION
	PIPE EXPANSION JOINT
	UNION
	ECCENTRIC REDUCER
	RELIEF VALVE
	BUTTERFLY VALVE
	PLUG FOR PRESSURE GAUGE & THERMOMETER CONNECTION
	THERMOMETER
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	PRESSURE GAUGE
	PRESSURE RELIEF VALVE
	ARROW INDICATES DIRECTION OF FLOW
	COLD WATER MAKE UP LINE
	AIR LINE
	VENT LINE
	PUMPED CONDENSATE DRAIN
	DRAIN LINE
	ARROW INDICATES DIRECTION OF FLOW
	DIFFERENTIAL PRESSURE TRANSMITTER
	SUCTION DIFFUSER
	MOTORIZED VALVE
	CALIBRATED BALANCING VALVE

GENERAL CONSTRUCTION NOTES:

- THE INTENT OF THE CONTRACT DOCUMENTS IS TO ALLOW FOR THE PERFORMANCE OF THE WORK. EVERY ITEM NECESSARILY REQUIRED MAY NOT BE SPECIFICALLY MENTIONED OR SHOWN. UNLESS EXPRESSLY STATED, ALL SYSTEMS AND EQUIPMENT SHALL BE COMPLETED AND APPROPRIATELY OPERABLE. FURNISH AND INSTALL ALL SPECIFIED AND APPROPRIATE ITEMS, AND ALL INCIDENTAL, ACCESSORY, AND OTHER ITEMS NOT SPECIFIED BUT REQUIRED FOR A COMPLETE AND FINISHED ASSEMBLY.
- THE CONTRACTOR IS RESPONSIBLE FOR CHECKING CONTRACT DOCUMENTS, FIELD CONDITIONS, AND DIMENSIONS FOR ACCURACY AND CONFIRMING THAT WORK IS BUILDABLE AS SHOWN BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR SHALL SUBMIT THEM, IN WRITING, TO THE ENGINEER AND IS RESPONSIBLE FOR OBTAINING A WRITTEN CLARIFICATION FROM THE ENGINEER BEFORE PROCEEDING WITH WORK IN QUESTION, OR RELATED WORK.
- EXECUTE WORK IN ACCORDANCE WITH ANY AND ALL APPLICABLE LOCAL, STATE, FEDERAL CODES, MANUFACTURER'S RECOMMENDATIONS, NFPA AND ASME.
- ALL INSTALLED PLUMBING, MECHANICAL, AND ELECTRICAL EQUIPMENT SHALL OPERATE QUIETLY AND FREE OF VIBRATION.
- ALL MATERIALS SHALL BE NEW, UNUSED, AND OF THE HIGHEST QUALITY IN EVERY RESPECT UNLESS OTHERWISE NOTED. MANUFACTURED MATERIALS AND EQUIPMENT SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS, U.O.N.
- VERIFY IN THE FIELD, THAT NO CONFLICTS EXIST WHICH WOULD PROHIBIT THE LOCATION OF ANY AND ALL MECHANICAL, TELEPHONE, ELECTRICAL, LIGHTING, PLUMBING, AND SPRINKLER EQUIPMENT (TO INCLUDE ALL REQUIRED PIPING, DUCTWORK, AND CONDUIT) AND THAT ALL REQUIRED CLEARANCES FOR INSTALLATION AND MAINTENANCE OF ABOVE EQUIPMENT ARE PROVIDED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF SAME WHICH MAY BE DAMAGED, LOST OR STOLEN, WITHOUT ADDITIONAL COSTS TO THE OWNER.
- ALL WELDING/BURNING WORK SHALL BE PROPERLY VENTILATED AND PURGED.
- THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTS, CONDUITS, PIPING AND FIXTURES. LOCATIONS OF ALL ITEMS SHOWN IN THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. DO NOT SCALE DRAWINGS. CONTRACTOR IS RESPONSIBLE TO SUBMIT SHOP DRAWINGS AFTER COORDINATION WITH OTHER TRADES AND VERIFYING FIELD CONDITIONS. THE CONTRACTOR MAY OBTAIN THE CAD FILES FOR THE FLOOR PLANS AND REFLECTED CEILING PLANS FROM THE ARCHITECT MUST GENERATE OWN SHOP DRAWINGS ON CAD FOR ME-P-PP TRADES BASED ON THE FIELD CONDITIONS AND FOR COORDINATION WITH OTHER TRADES. EQUIPMENT LOCATIONS, ROUTING OF DUCTWORK, PIPING AND ELECTRICAL WIRES, CONDUITS AND CABLES, ETC. SHALL SECURE THE BEST CONDITIONS AND RESULTS AND SHALL BE DETERMINED BY THE CONTRACTOR AT THE PROJECT. SHOP DRAWINGS SHALL HAVE THE APPROVAL OF THE ARCHITECT/ENGINEER BEFORE PROCUREMENT AND INSTALLATION OF ANY ITEM.
- THIS CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ELECTRICAL INSTALLATION TO PREVENT CONFLICT WITH CLEARANCES AND MAINTENANCE SPACE REQUIREMENTS OF ELECTRICAL EQUIPMENT. MECHANICAL EQUIPMENT, DUCT WORK, PIPING OR SUPPORTS FOR MECHANICAL EQUIPMENT SHALL NOT BE INSTALLED IN THE DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL EQUIPMENT, INCLUDING SWITCHBOARDS, PANELBOARDS, TRANSFORMERS AND CONTROL PANELS. DEDICATED ELECTRICAL SPACE IS THE SPACE DIRECTLY ABOVE THE ELECTRICAL EQUIPMENT EQUAL IN WIDTH AND DEPTH OF THE ELECTRICAL EQUIPMENT AND FROM THE TOP OF THE ELECTRICAL EQUIPMENT TO THE STRUCTURAL DECK OF FLOOR ABOVE. SIMILARLY, MECHANICAL EQUIPMENT, DUCTWORK, PIPING OR SUPPORTS FOR MECHANICAL EQUIPMENT SHALL NOT BE INSTALLED IN THE DEDICATED WORKING SPACE DIRECTLY IN FRONT OF THE ELECTRICAL EQUIPMENT, MINIMUM 3'-0" WIDE OR EQUAL IN WIDTH OF THE ELECTRICAL EQUIPMENT, 3'-0" DEEP AND FROM FLOOR TO THE STRUCTURAL DECK OF FLOOR ABOVE OR THE CEILING.

SPECIAL INSPECTIONS

SPECIAL INSPECTIONS REQUIRED UNDER THIS APPLICATION IN ACCORDANCE WITH CHAPTER 17 AND THE APPLICABLE SECTIONS OF THE NYS CONSTRUCTION CODE ARE LISTED IN THE FOLLOWING TABLES. SPECIAL INSPECTIONS FOR PORTIONS OF THE WORK THAT ARE FILED UNDER SEPARATE APPLICATION ARE NOT LISTED HERE AND ARE TO BE LISTED ON THOSE APPLICATIONS BY THE CONTRACTOR'S APPLICANT OF RECORD.

THE "AUTHORITY" SHALL BE RESPONSIBLE FOR THE FOLLOWING SPECIAL INSPECTIONS:

FIRE-RESISTANT PENETRATIONS AND JOINTS	ASTM E2174, ASTM E814, UL 1479	BC 1705.17,
--	--------------------------------	-------------

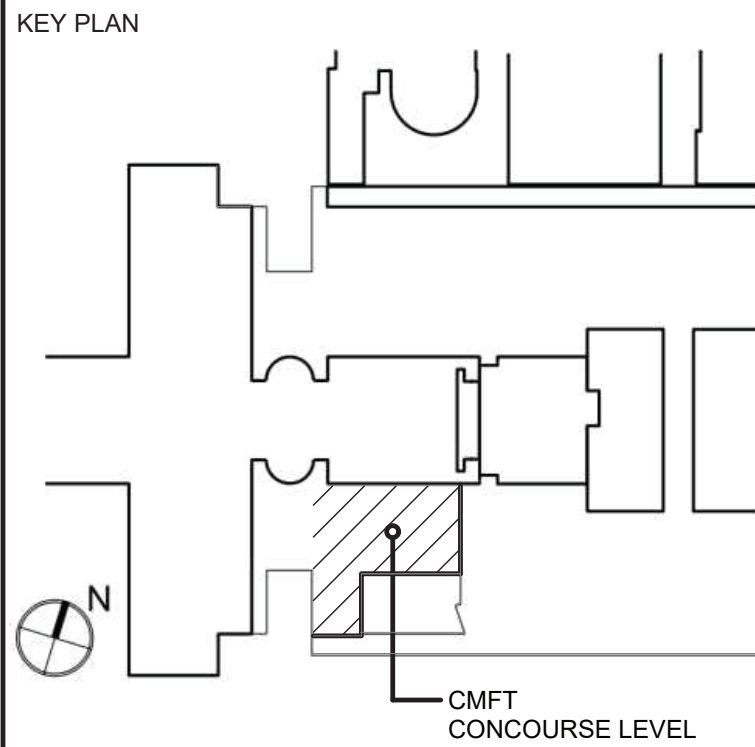
BUILDING DEPARTMENT NOTES

- HEATING SYSTEM DESIGN AS PER 2020 NYS 2020 MECHANICAL AND BUILDING CODE.
- FIRE STOPPING FOR PIPES AND DUCTS PASSING THROUGH FIRE RATED CONSTRUCTION SHALL COMPLY WITH 2020 NYS BC CHAPTER 07.
- ALL MECHANICAL PLANS COMPLY WITH 2020 NYS MC SECTION 106.
- SPACING OF HANGERS AND SUPPORTS SHALL CONFORM WITH NYS 2020 MC 305.

SUMMARY OF WORK :

THE PROJECT SCOPE OF WORK INCLUDE THE FOLLOWING :

- PROVIDE FOUR (4) FAN COIL UNIT
- DUCT WORK (SUPPLY, RETURN, FRESH AIR & EXHAUST)
- PROVIDE TWO (2) ENERGY RECOVERY VENTILATOR UNITS
- PROVIDE FOUR (4) SOUND ATTENUATION DEVICE FOR FAN COIL UNITS
- CHILLED WATER PIPES AND VALVES PER CONTRACT DOCUMENTS
- HOT WATER PIPES AND VALVES PER CONTRACT DOCUMENTS
- CONTROL INTEGRATION OF NEW FAN COIL UNITS AND ENERGY RECOVERY VENTILATOR INTO EXISTING BMS



PROJECT TEAM:

Kliment Halsband Architects
- A Perkins Eastman Studio
115 Fifth Avenue, Third Floor, New York, NY 10003

LERA Consulting Structural Engineers
40 Wall Street, Floor 23, New York, New York 10005

A&J Consulting Engineering Services
164 Brighton Road, Clifton, NJ 07012

The Lighting Practice
115 Broadway, 5th Floor, New York, NY 10006

Shen Milsom & Wilke LLC
417 Fifth Avenue, New York, NY 10016

Trophy Point Construction Services
4588 South Park Avenue, Blassdell, NY 14219

PROJECT:

Renovations to Relocate Admissions for
Rehab of Administration Bldg - Phase 1A
SUCF #291036-01

1906
SUNY Purchase College
Purchase, NY 10577

DRAWING TITLE:

HVAC SYMBOL, ABBREVIATION AND NOTES

SCALE:

As indicated

DATE:

12 JUNE 2023

DRAWING NO.:

M001.00






- 1 ALL CONTROL SYSTEMS, WIRING, PIPING, AND DUCTWORK ASSOCIATED WITH UH-13, UH-14, UH-18 SHALL REMAIN IN PLACE, PROTECTED AND OPERATIONAL THROUGH-OUT THE COURSE OF CONSTRUCTION.
- 2 RETURN GRILL TO BE CONNECTED TO FLEXABOOT, WHICH WILL THEN TRANSFER AIR TO ZEE-DUCT THROUGH CEILING SPACE.
- 3 REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER DETAILS.
- 4 CONTRACTOR SHALL PROVIDE FULL FACE INSULATED PLENUM BOX 26"X28" BEHIND LOUVER.
- 5 CONTRACTOR SHALL PROVIDE END CAP



M101.00





SCALE: As indicated		
DATE: 12 JUNE 2023		
DRAWING NO.:		
<div style="font-size: 48pt; font-weight: bold;">M201.00</div>		






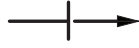







- M301.00**

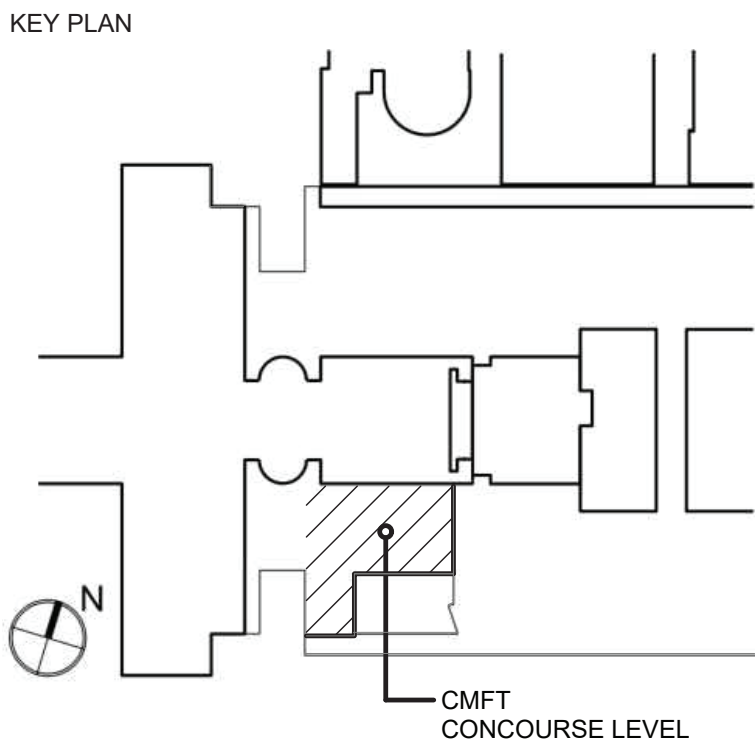


FAN COIL UNIT SCHEDULE																							BASED ON TRANE OR APPROVED EQUAL.			
UNIT TAG	SERVICE ROOM	MODEL NUMBER	FAN							COOLING WATER COIL								HEATING WATER COIL					WEIGHT LBS	REMARKS		
			AIR VOLUME CFM	OUTSIDE AIR CFM	E.S.P. IN H2O	HP	ELECTRICAL SUPPLY VOLTS/PHASE/Hz	WATTS	AMPS	FAN SPEED RPM	TOTAL CAPACITY BTUH	SENSIBLE CAPACITY BTUH	ENTERING DB/WB °F	LEAVING DB/WB °F	NUMBER OF ROWS	ENTERING WATER °F	LEAVING WATER °F	FLOW RATE GPM	WATER P.D. FT/H2O	FLOW RATE GPM	T-IN / T-OUT	HEATING BTUH			AIR FLOW CFM	AIR T-IN / T-OUT
FCU-1	EAST SIDE	BCH018	600	200	0.75	0.5	208/3/60	204	2.4	1496	22680	17300	81.7/67.6	55/54.23	-	45	50.24	8.65	10.72	2.7	180/160	27216	600	53/95	152.2	
FCU-2	ORIENTATION	BCH036	1200	400	0.75	1	208/3/60	665	4.6	1693	47300	36200	82.9/68.8	55/54.43	-	45	54.21	10.24	15.43	5.8	180/160	58320	1200	50/95	230.2	
FCU-3	WEST-NORTH SIDE	BCH036	1200	300	0.75	1	208/3/60	820	4.6	1771	40380	32600	79.20/65.30	54/53.33	-	45	53.32	9.78	14.22	4.5	180/160	45360	1200	60/95	230.2	
FCU-4	WEST-SOUTH SIDE	BCH036	1200	300	0.75	1	208/3/60	820	4.6	1771	40380	32600	79.20/65.30	54/53.33	-	45	53.32	9.78	14.22	4.4	180/160	43416	1200	61.50/95	230.2	

ENERGY RECOVERY VENTILATION SCHEDULE																											BASED ON "GREEN CHECK" OR APPROVED EQUAL.									
UNIT NO.	MODEL NO.	LOCATION	DIMENSIONS (L X W X H) (INCH)	APPROX. WEIGHT (LB)	QTY.	FAN DATA										ENERGY RECOVERY DATA										ELECTRICAL DATA			FILTER DATA						REMARKS	
						SUPPLY-AIR AIRFLOW					EXHAUST-AIR AIRFLOW					SUMMER/COOLING					WINTER/HEATING								OUT DOOR AIR			ROOM AIR				
																OUTDOOR AIR		SUPPLY AIR		RETURN AIR			OUTDOOR AIR		FRESH AIR			ROOM AIR								
						FRESH AIR CFM	ESP	MOTOR HP	VFD	RPM	EXHAUST AIR CFM	ESP	MOTOR HP	VFD	RPM	DRY BULB	WET BULB	DRY BULB	WET BULB	DRY BULB	WET BULB	DRY BULB	WET BULB	DRY BULB	WET BULB	DRY BULB	WET BULB	V-PH-HZ	MO(PA)	MCA	TYPE	SIZE (IN)	RATING	TYPE		SIZE (IN)
ERV-1	MIN/VENT - 750	EAST SIDE MECH ROOM	45.9 X 35.3 X 24.2	240	1	600	1	3/4	NO	1725	600	1	3/4	NO	1725	94	77.7	78.9	66.4	75.0	62.5	10	7.7	58.2	47.4	72.0	55.8	208-1-60	15	12.5	PLEATED 2"1-16X20	MERV-8	PLEATED 2"1-16X20	MERV-8	SEE NOTES 1	
ERV-2	MIN/VENT - 750	WEST SIDE	45.9 X 35.3 X 24.2	240	1	600	1	3/4	NO	1725	600	1	3/4	NO	1725	94	77.7	78.9	66.4	75.0	62.5	10	7.7	58.2	47.4	72.0	55.8	208-1-60	15	12.5	PLEATED 2"1-16X20	MERV-8	PLEATED 2"1-16X20	MERV-8	SEE NOTES 1	
NOTES:																																				
1. PROVIDE ERV UNIT WITH REMOTE ON/OFF CONTROLLER. CONTROLLER SHALL HAVE CAPABILITY TO RECEIVE ON/OFF SIGNAL FROM BAS SYSTEM.																																				
2. PROVIDE UNIT WITH INTEGRAL FROST CONTROL SYSTEM. UPON DETECTION OF THE FROST UNIT SHALL BE CAPABLE TO PERFORM THE FROST PROTECTION OPERATION.																																				

AIR OUTLETS AND INLETS										BASIS OF DESIGN: TITUS									
TYPE DESIGNATION	SERVICE	SPECIFICATION TYPE	MAX CFM	FACE SIZE (INCHES)	NECK SIZE (INCHES)	MODEL NUMBER	USE	NOISE CRITERIA AT MAX CFM	REMARKS										
	CEILING DIFFUSER	SD-1	0-200	24x24	6"Ø	TMSA	SEE PLANS	25	SEE NOTES 1, 2										
	CEILING DIFFUSER	SD-2	201-350	24x24	8"Ø	TMSA	SEE PLANS	28	SEE NOTES 1, 2										
	CEILING DIFFUSER	SD-3	900-1000	24X24	15"Ø	TMSA	SEE PLANS	31	SEE NOTES 1, 2										
	CEILING RETURN	RD-1	0-200	24X24	6"Ø	TMSA	SEE PLANS	25	SEE NOTES 1, 2										
	CEILING RETURN	RD-2	201-350	24X24	8"Ø	TMSA	SEE PLANS	28	SEE NOTES 1, 2										
	SUPPLY REGISTER	SG-1	0-114	6X6	-	300 RS	SEE PLANS	15	SEE NOTES 1,2,3										
	LINEAR SLOT DIFFUSER SUPPLY	SL-1	300-400	-	8"Ø	FL-15	SEE PLANS	16	SEE NOTES 1,2,3										
	CEILING RETURN	RD-3	1200	24X24	16"Ø	TMSA	SEE PLANS	28	SEE NOTES 1, 2										
	ROUND SUPPLY DIFFUSER	RSD-1	315-550	22Ø	12"Ø	TMRA	SEE PLANS	18	SEE NOTES 1,2,3										
	RETURN REGISTER	RG-1	149-745	-	24X10	350 R	SEE PLANS	14	SEE NOTES 1,2,3										
	EXHAUST REGISTER	EG-1	0-76	6X6	12X12	23 R	SEE PLANS	19	SEE NOTES 1,2,3										
NOTES:																			
1. ALL DIFFUSERS & REGISTERS: CONTRACTOR SHALL COORDINATE WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS TO ENSURE PROPER AIR DEVICE BORDER SELECTION .																			
2. COORDINATE COLOR/FINISH WITH ARCHITECT.																			
3. 3/4" SPACING, 35 DEGREE DEFLECTION.																			

SOUND ATTENUATOR SCHEDULE										BASIS OF DESIGN: VIBRO ACOUSTIC									
TAG	QUANTITY	SYSTEM	TYPE (NOTE 1)	AIR FLOW CFM	FACE VELOCITY FPM	IDEAL DP IN W.G (NOTE 3)	LENGTH	Octave Band - Hz/Dynamic Insertion Loss (dB)								MODEL NUMBER	REMARKS		
								63	125	250	500	1000	2000	4000	8000				
FCU-1 DISCHAGE	1	FAN COIL UNIT	RD	600	+738	0.09	36	5	8	14	18	20	17	13	10	RD-MLV-F3	-		
FCU-1 RETURN	1	FAN COIL UNIT	RD	600	-738	0.08	60	5	12	20	29	29	21	14	12	RD-MHV-F3	-		
FCU-2,3&4 DISCHAGE	3	FAN COIL UNIT	RD	1200	+949	0.08	48	4	8	14	18	19	15	13	10	RD-MV-F2	-		
FCU-2 RETURN	1	FAN COIL UNIT	RD	1200	-949	0.06	72	5	12	19	25	23	17	14	11	RD-MV-F2	-		
NOTES:																			
1. TYPE R - RECTANGULAR D - DISSIPATIVE																			
2. VELOCITY SHOWN IS +(FORWARD FLOW) OR - (REVERSE FLOW) AS DEFINED BY ASTM E477-20 .																			
3. IDEAL PRESSURE DROP AS DETERMINED PER ASTM E477-20 IN A NVLAP-ACCREDITED ACOUSTICAL LABORATORY .																			
4. PRESSURE DROP PER ASTM E477-20 PLUS SYSTEM EFFECTS FOR NEARBY DUCT ELEMENTS.																			



PROJECT TEAM:

Kliment Halsband Architects
- **A Perkins Eastman Studio**
115 Fifth Avenue, Third Floor, New York, NY 10003

LERA Consulting Structural Engineers
40 Wall Street, Floor 23, New York, New York 10005

A&J Consulting Engineering Services
164 Brighton Road, Clifton, NJ 07012

The Lighting Practice
115 Broadway, 5th Floor, New York, NY 10006

Shen Milsom & Wilke LLC
417 Fifth Avenue, New York, NY 10016

Trophy Point Construction Services
4588 South Park Avenue, Blasdell, NY 14219

PROJECT:

Renovations to Relocate Admissions for Rehab of Administration Bldg - Phase 1A
SUCF #291036-01

1906
SUNY Purchase College
Purchase, NY 10577

DRAWING TITLE:


HVAC SCHEDULES

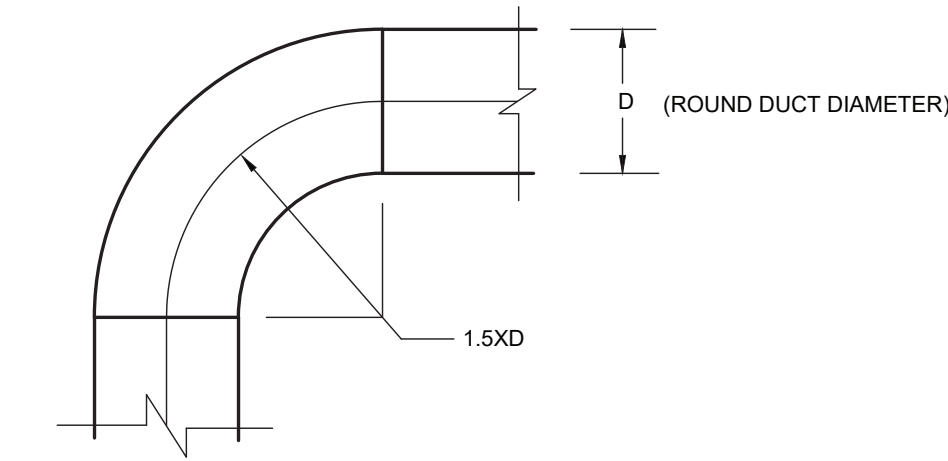
SCALE:
As indicated

DATE:
12 JUNE 2023

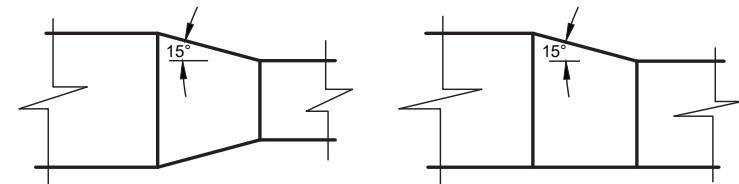
DRAWING NO.:

M401.00

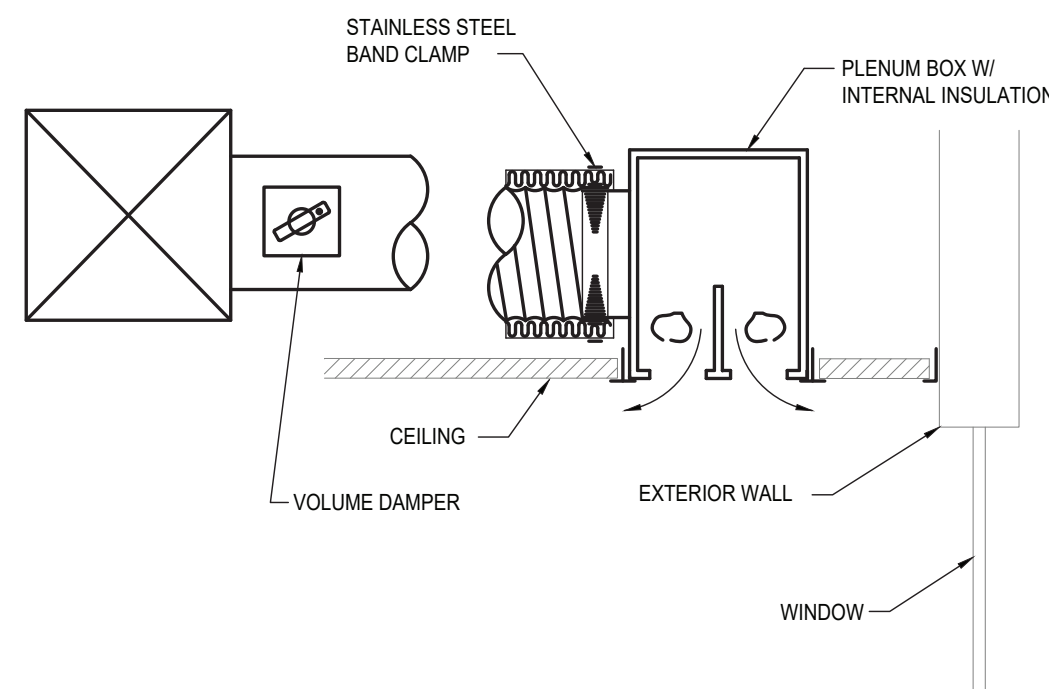




1 **ROUND ELBOW**
M601 N.T.S.

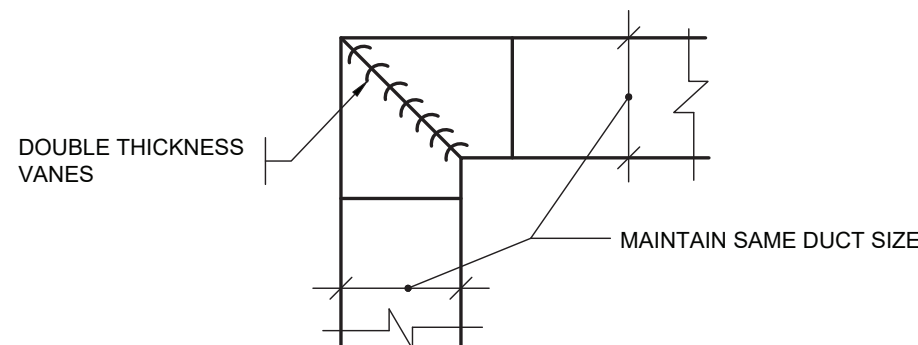


2 **TRANSITIONS DETAIL**
M601 N.T.S.



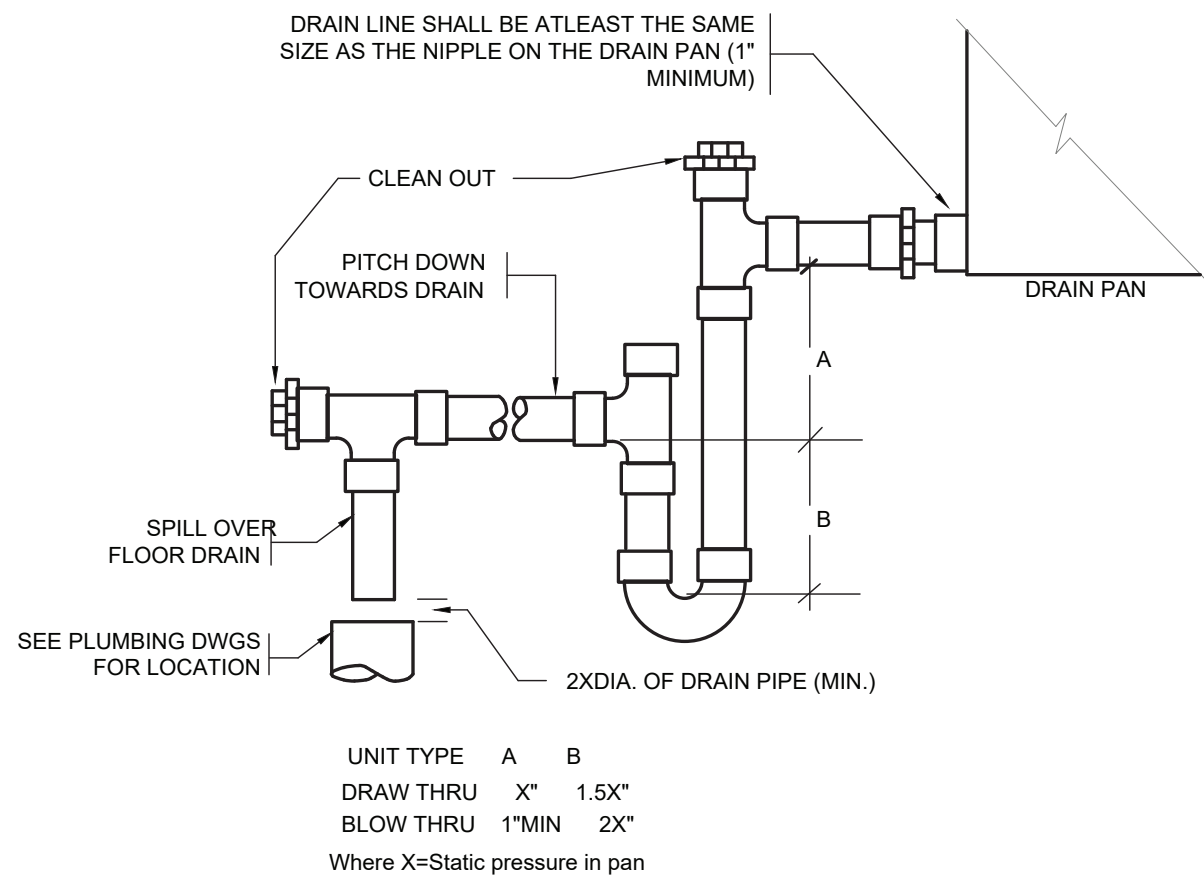
NOTE: WHERE VOLUME DAMPERS ARE INACCESSIBLE DUE TO CEILING TYPE AND/OR DAMPER LOCATION, PROVIDE REMOTE DAMPER OPERATOR. COORDINATE CEILING TYPES WITH ARCHITECTURAL REFLECTED CEILING PLAN.

3 **LINEAR DIFFUSER DETAIL**
M601 N.T.S.

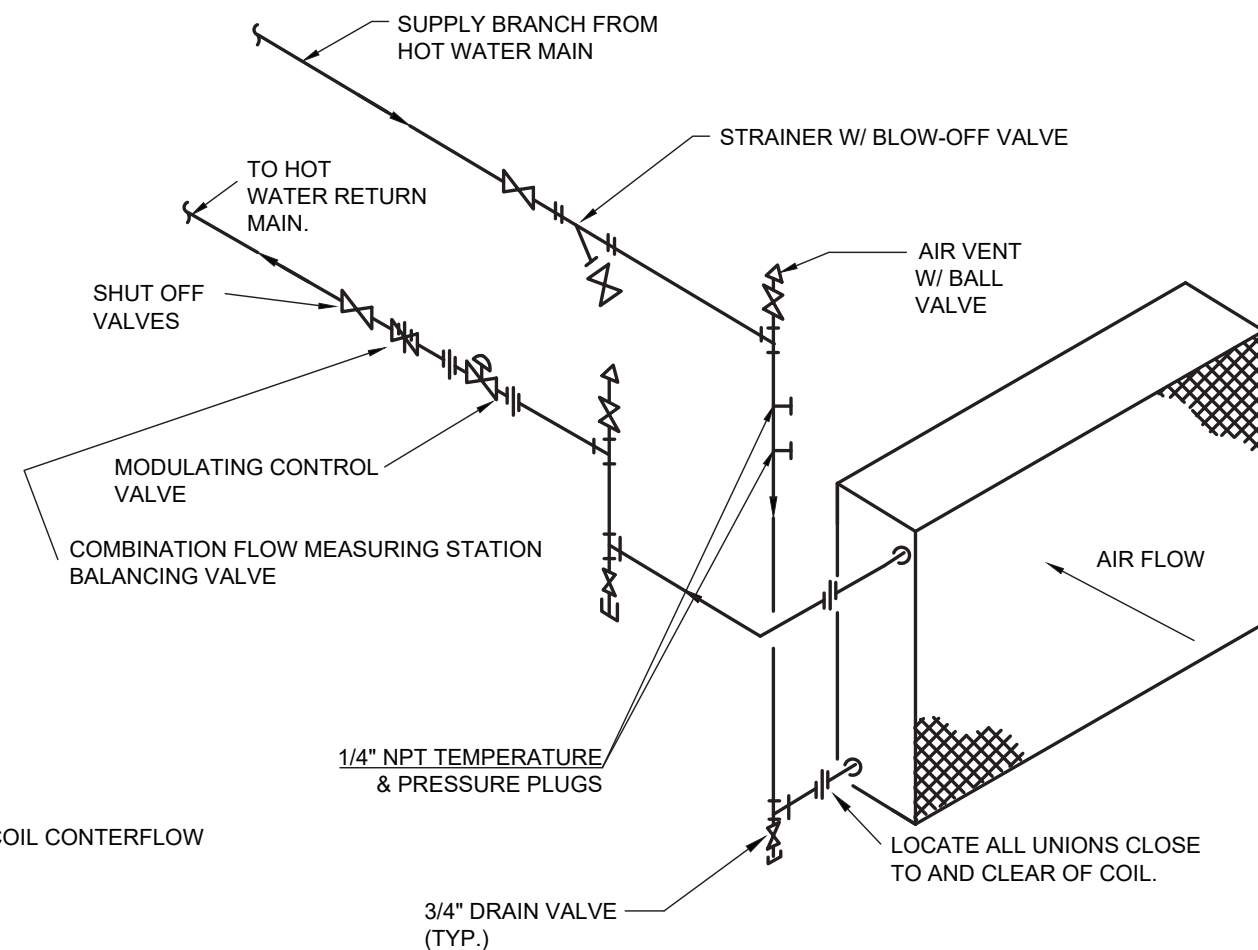


ELBOWS 8" AND SMALLER SHALL BE RADIUS ELBOWS ONLY.

4 **SQUARE ELBOW WITH TURN VANES**
M601 N.T.S.

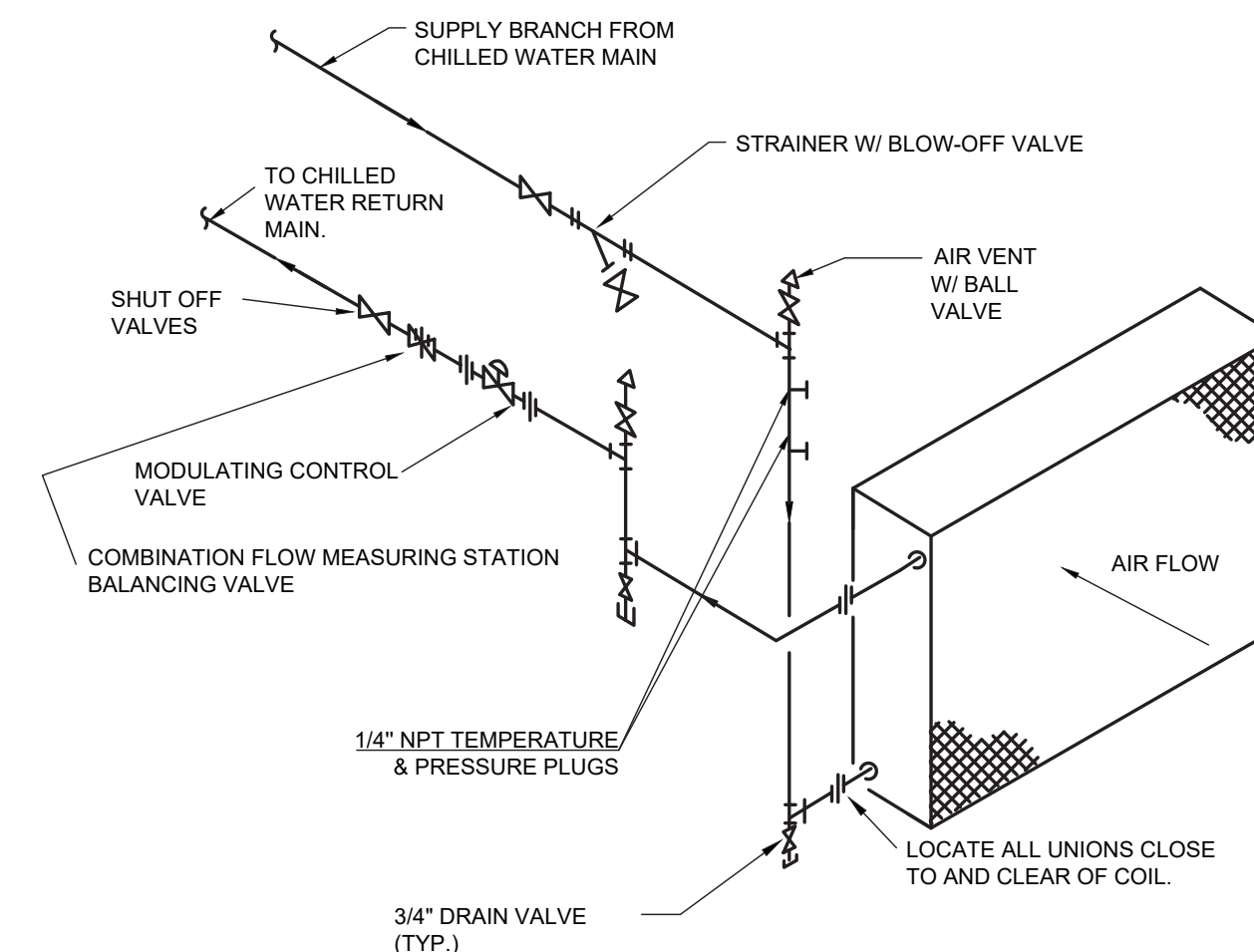


5 **FCU DRAIN TRAP DETAIL**
M601 N.T.S.



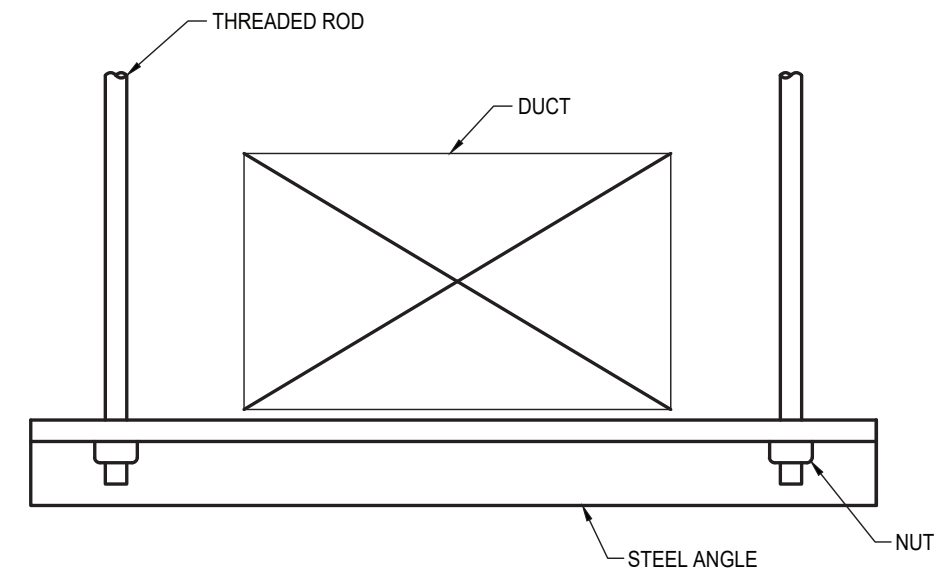
NOTE:
1. HOOK UP COIL COUNTERFLOW

6 **FCU HEATING COIL CONNECTION DETAIL**
M601 N.T.S.

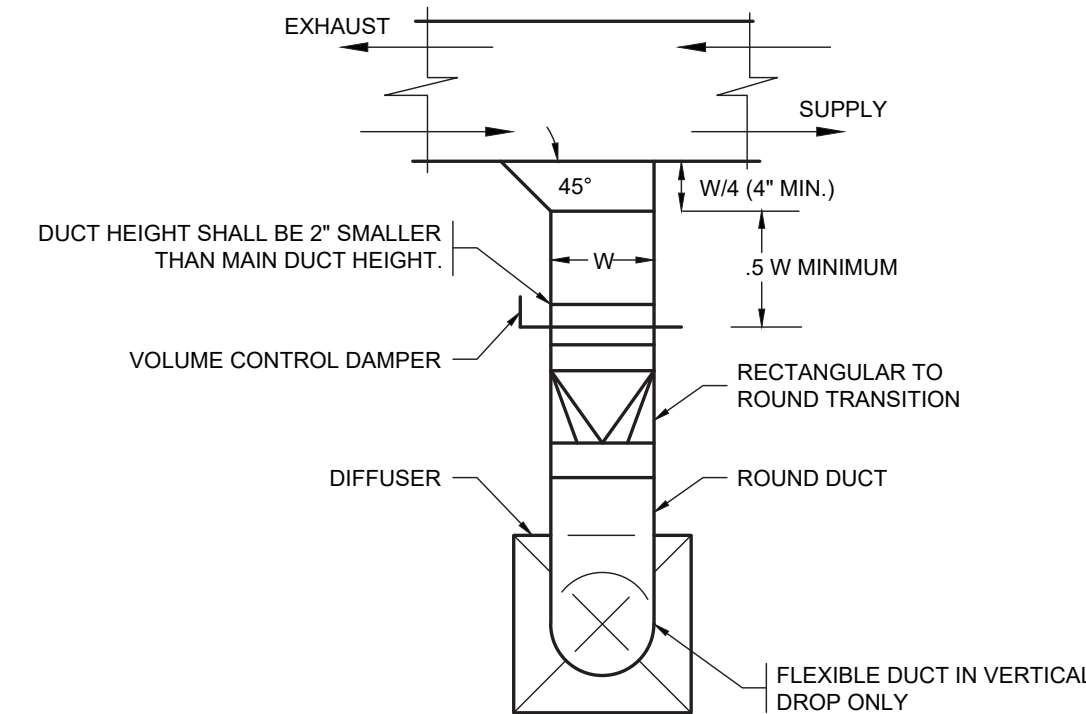


NOTE:
1. HOOK UP COIL COUNTERFLOW

7 **FCU COOLING COIL CONNECTION DETAIL**
M601 N.T.S.



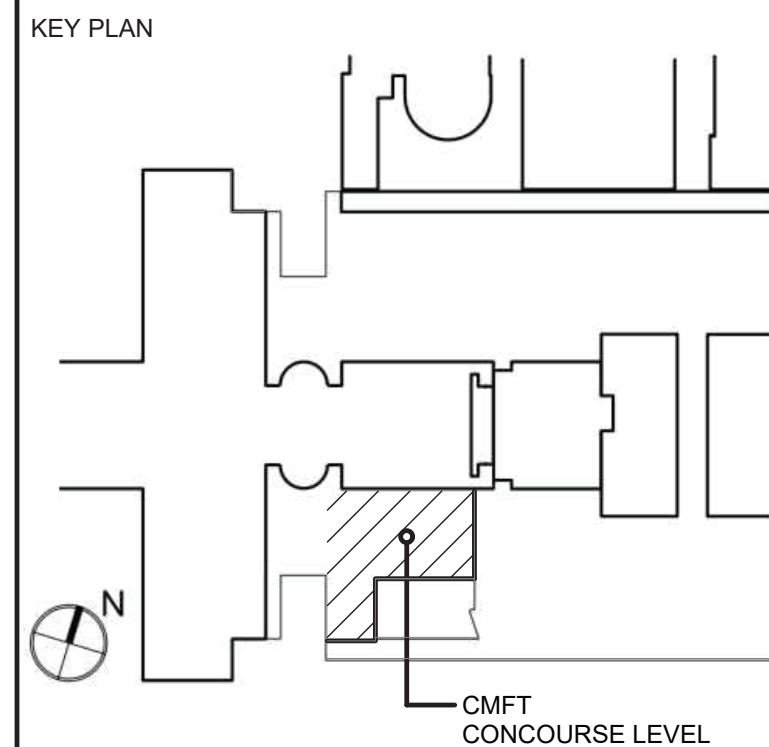
8 **DUCT TRAPEZE HANGER DETAIL**
M601 N.T.S.



9 **CEILING DIFFUSER CONNECTION DETAIL**
M601 N.T.S.

ISSUE:
BID DOCUMENTS

NO. DATE REVISION



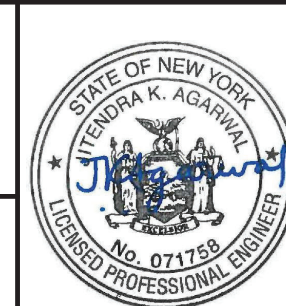
PROJECT TEAM:
Kliment Halsband Architects
- **A Perkins Eastman Studio**
115 Fifth Avenue, Third Floor, New York, NY 10003
LERA Consulting Structural Engineers
40 Wall Street, Floor 23, New York, New York 10005
A&J Consulting Engineering Services
164 Brighton Road, Clifton, NJ 07012
The Lighting Practice
115 Broadway, 5th Floor, New York, NY 10006
Shen Milsom & Wilke LLC
417 Fifth Avenue, New York, NY 10016
Trophy Point Construction Services
4588 South Park Avenue, Blasdell, NY 14219

PROJECT:
Renovations to Relocate Admissions for
Rehab of Administration Bldg - Phase 1A
SUCF #291036-01
1906
SUNY Purchase College
Purchase, NY 10577

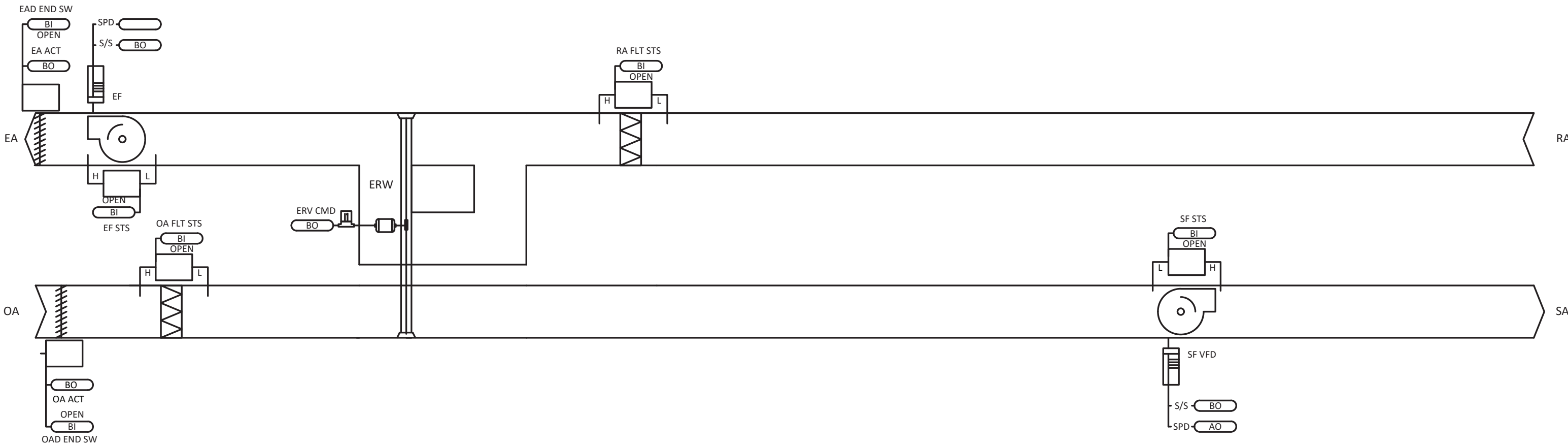
DRAWING TITLE:
HVAC STANDARD DETAILS 1 OF 2

SCALE:
As indicated
DATE:
12 JUNE 2023

DRAWING NO.:
M601.00







1
M701

TYPICAL CONTROL ENERGY RECOVERY VENTILATOR

N.T.S.

ERV FLOW - SYSTEM POINTS LIST												
CONTROLLER: EXISTING ATC FIELD INSTALLED UNIT CONTROLLER	POINT TYPE							ALARMS				
	GRAPHIC	HARDWARE INPUT	HARDWARE OUTPUT	SOFTWARE POINT	HARDWARE INTERLOCK	WIRELESS	NETWORK	DEFAULT VALUE	HIGH ANALOG LIMIT	LOW ANALOG LIMIT	BINARY	COMMUNICATION FAIL
SYSTEM POINT DESCRIPTION												
DISCHARGE AIR TEMPERATURE	X	AI							X	X		X
ENERGY WHEEL LEAVING OUTDOOR AIR TEMPERATURE	X	AI							X	X		X
EXHAUST AIR TEMPERATURE	X	AI							X	X		X
MIXED AIR TEMPERATURE LOCAL	X	AI										
OUTDOOR AIR RELATIVE HUMIDITY LOCAL	X	AI										
OUTDOOR AIR TEMPERATURE LOCAL	X	AI										
RETURN AIR TEMPERATURE LOCAL	X	AI							X	X		X
RETURN DUCT/SPACE PRESSURE	X	AI										
EXHAUST FAN STATUS OPEN	X	BI										
OUTDOOR AIR DAMPER POSITION STATUS OPEN	X	BI										
RETURN AIR DIRTY FILTER ALARM OPEN	X	BI									X	
SUPPLY FAN STATUS OPEN	X	BI										
ENERGY WHEEL EXHAUST AIR BYPASS DAMPER COMMAND	X		AO									
ENERGY WHEEL OUTSIDE AIR BYPASS DAMPER COMMAND	X		AO									
EXHAUST FAN SPEED OUTPUT COMMAND	X		AO									
SUPPLY FAN SPEED COMMAND	X		AO									
ENERGY WHEEL COMMAND	X		BO									
EXHAUST FAN START STOP COMMAND	X		BO									
EXHAUST/RETURN DAMPER COMMAND	X		BO									
OUTDOOR AIR DAMPER COMMAND	X		BO									
SUPPLY FAN START STOP COMMAND	X		BO									
UNOCCUPIED COOLING SETPOINT				X				80.0 deg. F				
UNOCCUPIED HEATING SETPOINT				X				65.0 deg. F				
DISCHARGE AIR COOLING SETPOINT				X				55.0 deg. F				
DISCHARGE AIR HEATING SETPOINT				X				80.0 deg. F				
RETURN DUCT/SPACE PRESSURE SETPOINT				X				1.00 inches of W.C.				
POWER EXHAUST FAN VFD SETPOINT				X				80%				
CONDENSER COIL TEMPERATURE SETPOINT	X		X					105.0 deg. F				
BAS COMMUNICATION STATE	X		X									
EVAPORATOR LEAVING TEMPERATURE SETPOINT				X				53.0 deg. F	45.0 deg. F	75.0 deg. F		

SEQUENCE OF OPERATIONS

ERV FLOW

BUILDING AUTOMATION SYSTEM INTERFACE:
THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE ERV REMOTE CONTROLLER THE ON/OFF SIGNAL.

ON/OFF OPERATION:
REMOTE CONTROLLER SHALL RECEIVE ON/OFF SIGNAL BASED ON THE STATUS OF THE CONNECTED FAN COIL UNITS TO TURN ERV ON/OFF. THE ERV SHALL BE ENERGIZED WHEN ANY ONE OF THE FAN COIL UNIT IS SCHEDULED TO BE ENERGIZED.

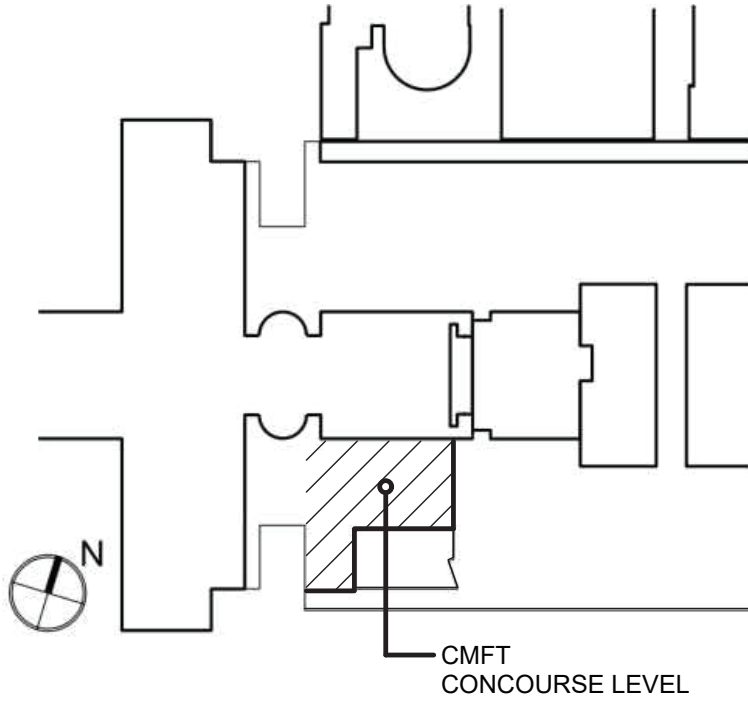
INTERLOCK THE ON/OFF OPERATION OF THE ERV TO THE MOTORIZED DAMPER IN OUTDOOR AIR INTAKE DUCTWORK. BOTH THE OUTDOOR AIR INTAKE MOTORIZED DAMPER AND EXHAUST AIR MOTORIZED DAMPER SHALL TURN ON/OFF WITH ERV BEING TURNED ON/OFF.

TIMED FROST PROTECTION:
ERV SHALL BE PROVIDED WITH MANUFACTURER PROVIDED FROST PROTECTION CONTROLLER INTEGRAL TO THE UNIT. THE FROST PROTECTION MODE SHALL OPERATE BASED ON THE PRESSURE DIFFERENTIAL OF AIR UP-STREAM (SUPPLY AIR SIDE) AND DOWN-STREAM (EXHAUST AIR SIDE) OF THE ENERGY RECOVERY WHEEL. DURING THIS OPERATION THE OA DAMPER SHALL CLOSE AND THE ERV'S EXHAUST FAN SHALL REMAIN ENERGIZED TO UTILIZE RETURN AIR TO PREVENT THE FROST CONDITIONS ON WHEEL. CONTRACTOR IS FULLY RESPONSIBLE TO COORDINATE WITH MANUFACTURER AND PROVIDE THE REQUIRED DIFFERENTIAL PRESSURE SENSOR ON THESE ERV TO FACILITATE THIS MODE OF OPERATION.

ISSUE:
BID DOCUMENTS

NO. DATE REVISION

KEY PLAN



PROJECT TEAM:

Kliment Halsband Architects
- A Perkins Eastman Studio
115 Fifth Avenue, Third Floor, New York, NY 10003

LERA Consulting Structural Engineers
40 Wall Street, Floor 23, New York, New York 10005

A&J Consulting Engineering Services
164 Brighton Road, Clifton, NJ 07012

The Lighting Practice
115 Broadway, 5th Floor, New York, NY 10006

Shen Milsom & Wilke LLC
417 Fifth Avenue, New York, NY 10016

Trophy Point Construction Services
4588 South Park Avenue, Blasdell, NY 14219

PROJECT:

Renovations to Relocate Admissions for
Rehab of Administration Bldg - Phase 1A
SUCF #291036-01

1906
SUNY Purchase College
Purchase, NY 10577

DRAWING TITLE:

HVAC SEQUENCE OF OPERATION 1 OF 2

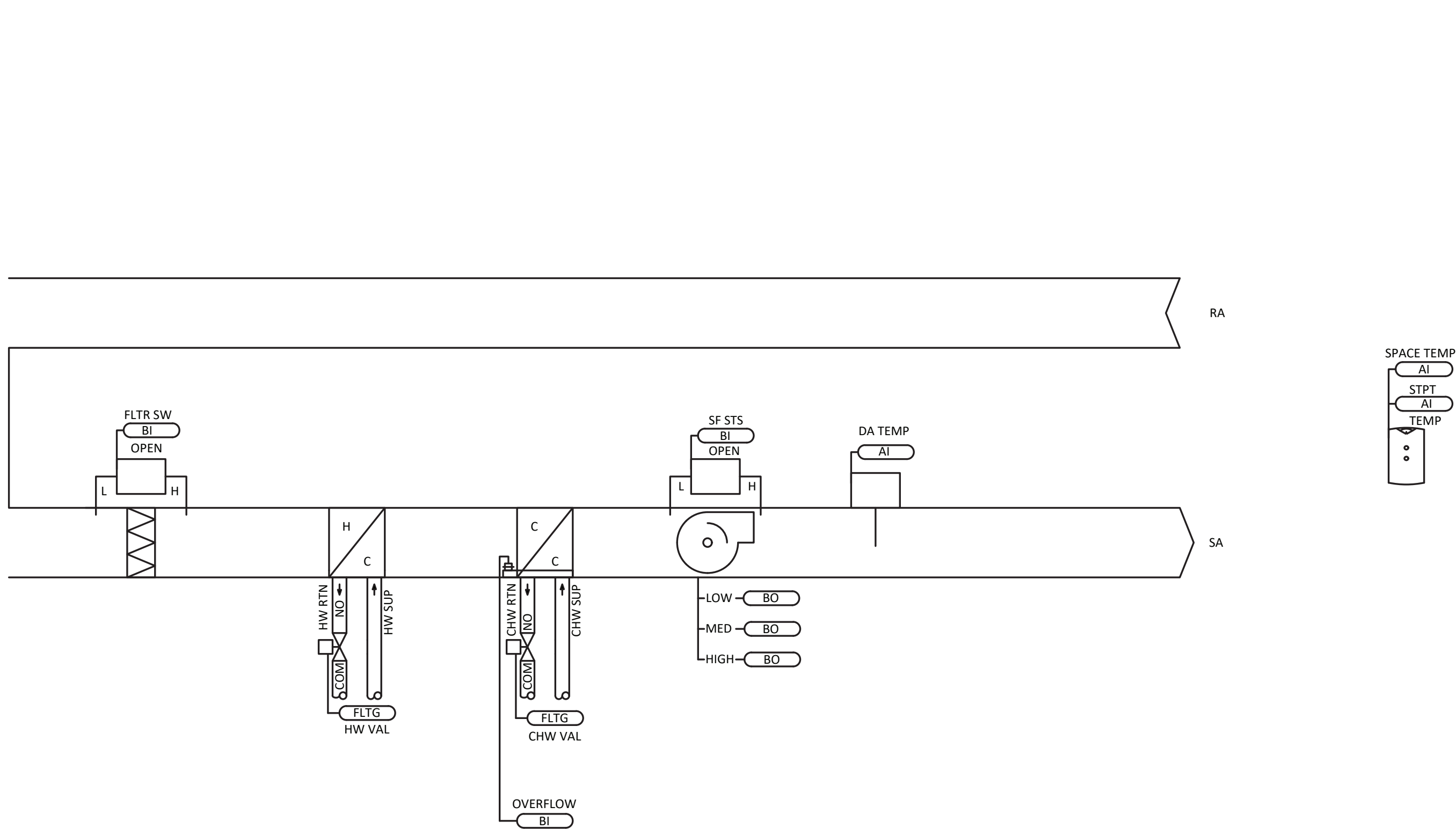
SCALE:
As indicated

DATE:
12 JUNE 2023

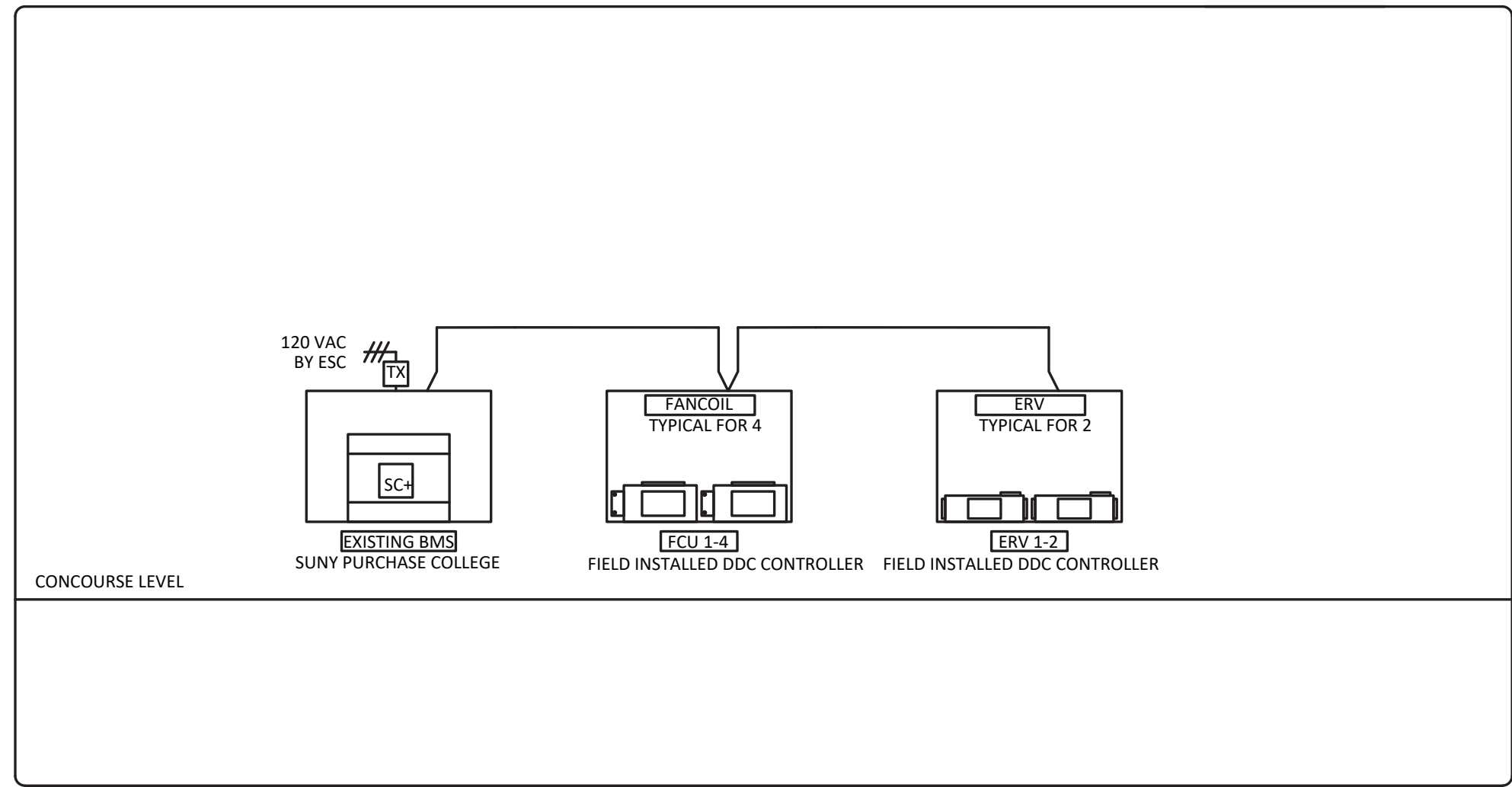
DRAWING NO.:

M701.00





1 TYPICAL CONTROL FAN COIL UNITS
M702 N.T.S.



2 NETWORK CONTROL DIAGRAM
M702 N.T.S.

SEQUENCE OF OPERATIONS
FCU Flow

BUILDING AUTOMATION SYSTEM INTERFACE:
THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED / UNOCCUPIED AND HEAT / COOL MODES BASED ON SCHEDULES. IF COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE USING DEFAULT MODES AND SETPOINTS.

OCCUPIED MODE:
DURING OCCUPIED PERIODS THE FCU SUPPLY FAN SHALL RUN CONTINUOUSLY. THE CHILLED WATER AND HOT WATER VALVES SHALL OPEN AND CLOSE TO MAINTAIN THE ACTIVE SPACE TEMPERATURE SETPOINT. WHEN THE FCU IS SCHEDULED TO BE OCCUPIED, THE ERV'S UNIT CONTROLLER SHALL ALSO INITIATE THE UNIT TO PROVIDE REQUIRED VENTILATION TO EACH SPACE.

UNOCCUPIED HEATING MODE:
WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL START AND THE HOT WATER VALVE SHALL OPEN.
WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP AND THE HOT WATER VALVE SHALL CLOSE.

UNOCCUPIED COOLING MODE:
WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL START, AND THE CHILLED WATER VALVE SHALL OPEN.
WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 2.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP AND THE CHILLED WATER VALVE SHALL CLOSE.

OPTIMAL START:
THE BAS SHALL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.

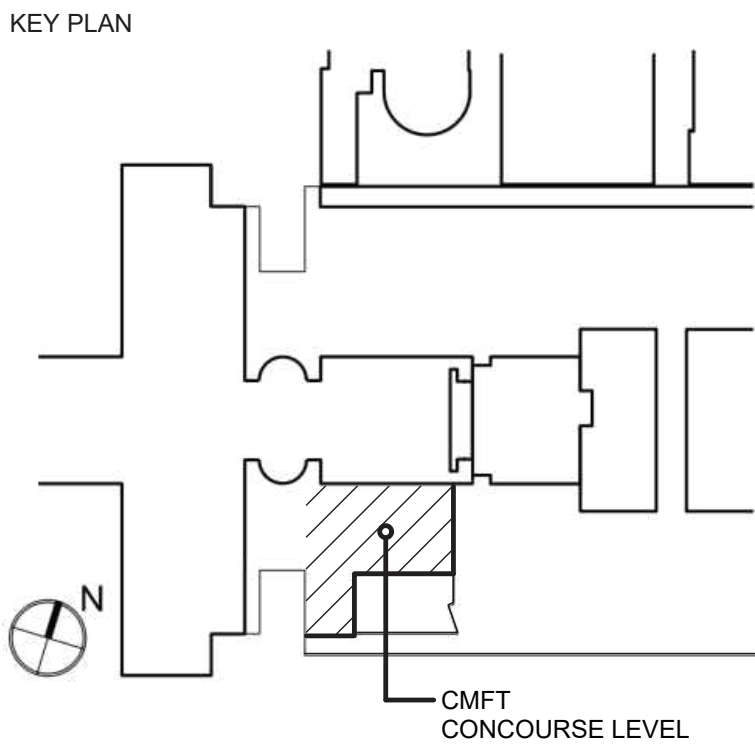
PRE-COOL MODE:
DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SETPOINT, PRE-COOL MODE SHALL BE ACTIVATED. WHEN PRE-COOL IS INITIATED THE UNIT SHALL ENABLE THE FAN AND COOLING. WHEN THE SPACE TEMPERATURE REACHES OCCUPIED COOLING SETPOINT (ADJ.), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE.

OPTIMAL STOP:
THE BAS SHALL MONITOR THE SCHEDULED UNOCCUPIED TIME, OCCUPIED SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT.

SUPPLY FAN OPERATION:
THE SUPPLY FAN SHALL CYCLE ON DEMAND DURING THE UNOCCUPIED MODE. WHEN THE CONTROLLER TRANSITIONS TO THE OCCUPIED MODE, THE SUPPLY FAN SHALL START AT HIGH SPEED BEFORE AUTOMATICALLY TRANSITIONING TO CONTINUOUS OPERATION TO MAINTAIN THE DESIRED CFM SETPOINT. THE SUPPLY FAN STATUS SHALL BE MONITORED BY A DIFFERENTIAL PRESSURE SWITCH. IF THE SUPPLY FAN FAILS THE FAN SHALL BE COMMANDED OFF AND AN ALARM WILL BE ANNUNCIATED AT THE BAS. IF THE SUPPLY FAN FAILS THE FAN SHALL BE COMMANDED OFF AND AN ALARM SHALL BE ANNUNCIATED AT THE BAS. A MANUAL RESET SHALL BE REQUIRED TO RESTART THE FAN.

CONDENSATE OVERFLOW MONITORING:
IF THE CONDENSATE LEVEL REACHES THE TRIP POINT, A CONDENSATE OVERFLOW ALARM SHALL BE ANNUNCIATED AT THE BAS. TO PREVENT THE CONDENSATE DRAIN PAN FROM OVERFLOWING AND CAUSING WATER DAMAGE TO THE BUILDING THE FAN SHALL BE DISABLED AND THE CHILLED WATER VALVE SHALL CLOSE.

FCU FLOW - SYSTEM POINTS LIST										
CONTROLLER: EXISTING ATC FIELD INSTALLED UNIT CONTROLLER				POINT TYPE						
SYSTEM POINT DESCRIPTION				GRAPHIC	HARDWARE INPUT	HARDWARE OUTPUT	SOFTWARE POINT	HARDWARE INTERLOCK	NETWORK	DEFAULT VALUE
DISCHARGE AIR TEMPERATURE LOCAL				X	AI					
SPACE TEMPERATURE LOCAL				X	AI					
SPACE TEMPERATURE SETPOINT LOCAL				X	AI					
CONDENSATE OVERFLOW DETECTION LOCAL				X	BI					
SUPPLY FAN STATUS LOCAL					BI					
FAN SPEED HI						BO				
FAN SPEED LO						BO				
FAN SPEED MED						BO				
CHILLED WATER VALVE				X		FLTG				
HOT WATER VALVE				X		FLTG				
OCCUPIED COOLING SETPOINT							X			74.0 deg. F
OCCUPIED HEATING SETPOINT							X			70.0 deg. F
UNOCCUPIED COOLING SETPOINT							X			85.0 deg. F
UNOCCUPIED HEATING SETPOINT							X			60.0 deg. F
DISCHARGE AIR TEMPERATURE CONTROL POINTS						X			45.0 deg. F-150.0 deg. F	



PROJECT TEAM:
Kliment Halsband Architects
- **A Perkins Eastman Studio**
115 Fifth Avenue, Third Floor, New York, NY 10003

LERA Consulting Structural Engineers
40 Wall Street, Floor 23, New York, New York 10005

A&J Consulting Engineering Services
164 Brighton Road, Clifton, NJ 07012

The Lighting Practice
115 Broadway, 5th Floor, New York, NY 10006

Shen Milsom & Wilke LLC
417 Fifth Avenue, New York, NY 10016

Trophy Point Construction Services
4588 South Park Avenue, Blasdell, NY 14219

PROJECT:
Renovations to Relocate Admissions for
Rehab of Administration Bldg - Phase 1A
SUCF #291036-01
1906
SUNY Purchase College
Purchase, NY 10577

DRAWING TITLE:
HVAC SEQUENCE OF OPERATION 2 OF 2

SCALE:
As indicated
DATE:
12 JUNE 2023

DRAWING NO.:

M702.00

