

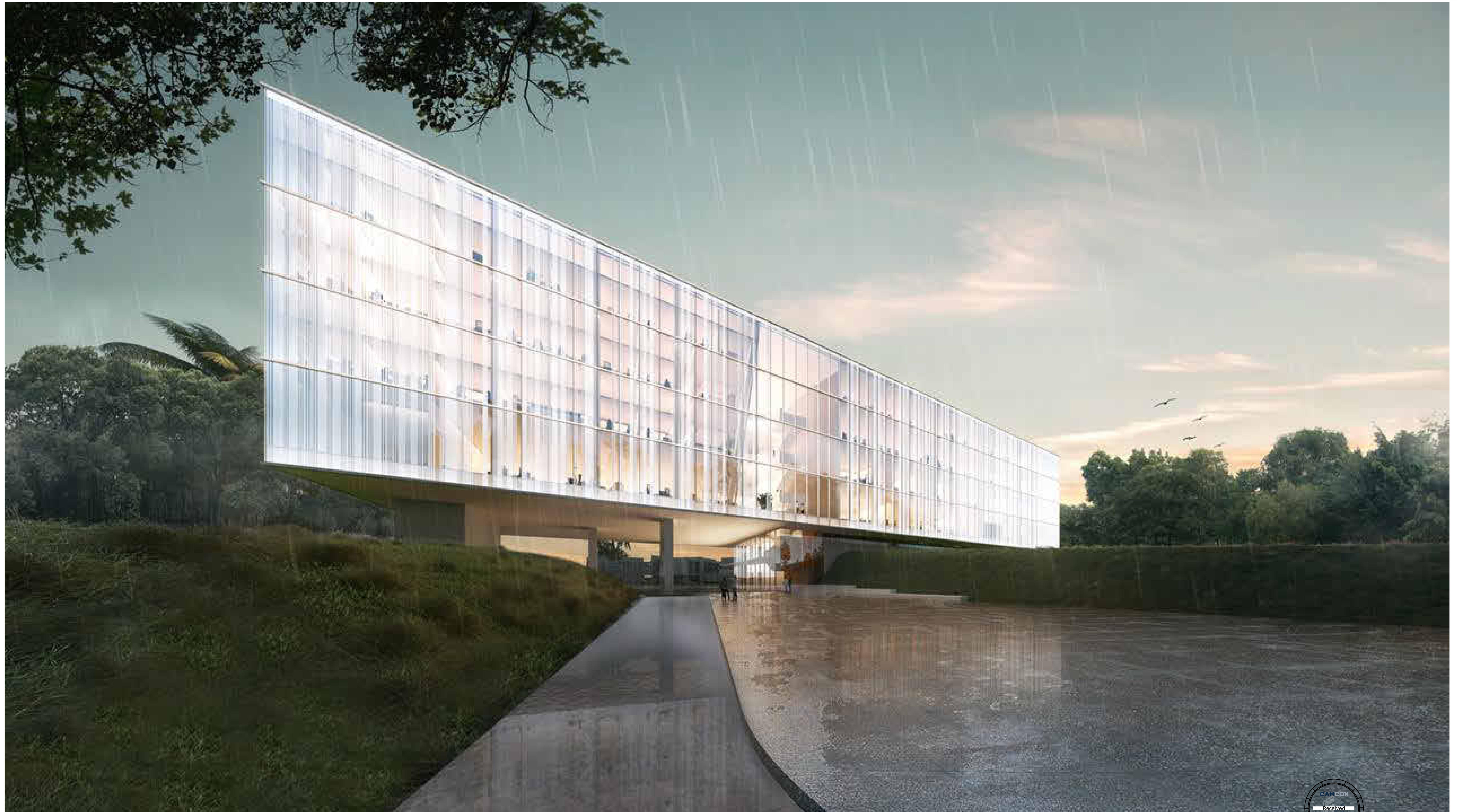
# Perkins&Will

# **FIU BT-919 ENGINEERING - 5TH FLOOR FIT-OUT**



# 5TH FLOOR FIT-OUT

07/18/2025

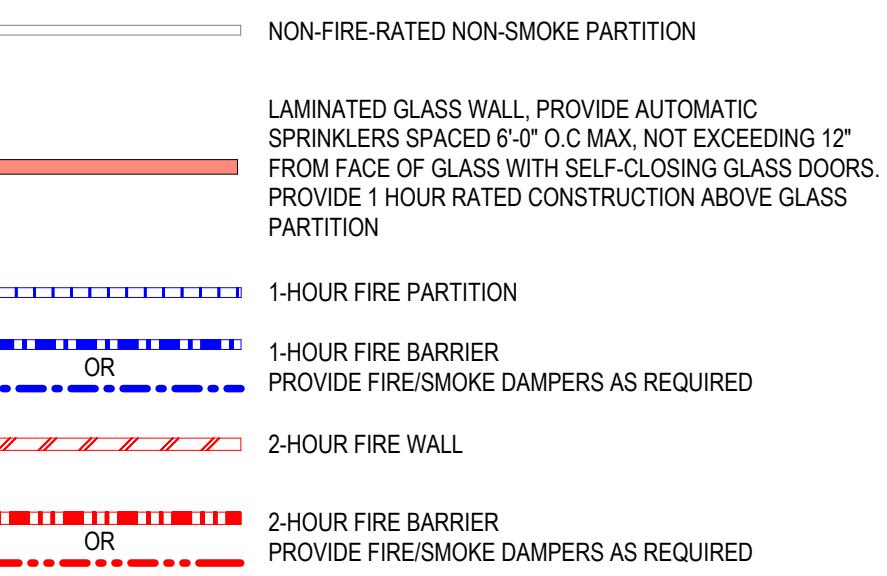




## CODE COMPLIANCE PLAN GENERAL NOTES

- REFER TO ELECTRICAL DRAWINGS FOR LOCATION AND QUANTITY OF SMOKE DETECTORS PERFORMANCE SPECIFICATION.
- DOORS IN CORRIDOR PARTITIONS SHALL BE INSTALLED TO RESIST THE PASSAGE OF SMOKE UNLESS NOTED OTHERWISE.
- PROVIDE FIRE EXTINGUISHER CABINET COMPLYING WITH FBCB 2020 SECTION 906. FEC FULLY RECESSED STAINLESS STEEL. CABINET LATCH @48" A.F.P.
- REFER TO MECHANICAL FOR SMOKE, FIRE AND SMOKE/FIRE DAMPER LOCATIONS.
- VERTICAL PIPE CHASES (PIPS NOT IN VERTICAL SHAFTS) SHALL BE FIRE STOPPED AT EACH FLOOR EQUIVALENT TO THE FLOOR ASSEMBLY RATING.
- SOURCES OF IGNITION ARE NOT ALLOWED IN PIPE CHASES.
- PROVIDE DRAIN PAN IN ACCORDANCE WITH NFPA 500-15-10 COORDINATE CLOSURE WITH SPRINKLER LOCATION REFER TO FIRE PROTECTION DRAWINGS FOR FURTHER INFORMATION WHERE SPRINKLERS ARE CLOSER THAN 6' CROSS BAFFLES SHALL BE PROVIDED (TYP.)
- PROVIDE DRAIN PAN ABOVE RATED CEILINGS ELECTRICAL ROOMS. REFER TO PLAN FOR LOCATION.

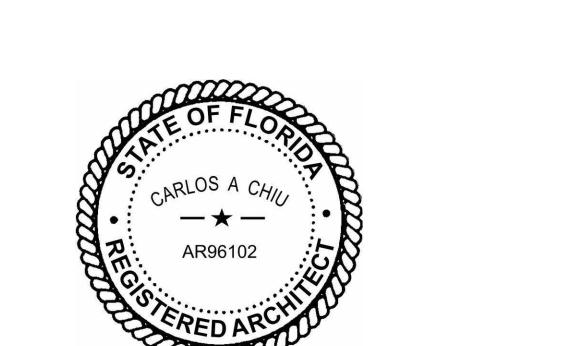
## CODE COMPLIANCE PLAN LEGEND



CONTRACTOR  
OWNER  
Facility

Florida International University  
Miami, Florida

FACILITY



PROJECT

**FIU BT-919  
ENGINEERING - 5TH  
FLOOR FIT-OUT**  
FIU BT-919 ENGINEERING  
Modesto A. Maidique Campus  
Miami, Florida 33199

**FIU** FLORIDA INTERNATIONAL UNIVERSITY

5TH FLOOR FIT-OUT 07/18/2025

Modesto A. Maidique Campus  
Miami, Florida 33199

KEYPLAN

ISSUE CHART

## OCCUPANT LOAD CALCULATION FOR LEVEL 05

OCC LOAD	EGRESS FACTOR	DOOR REQ.	NO. OF EXITS	STAIR REQ.	STAIR FACTOR	NO. OF STAIRS	STAIR REQ.	NO. OF STAIRS PROVIDED
139	0.2	27.80	2	8'-10"	0.3	41.69*	2	5'-4"
9	0.2	1.74	1	3'-6"	0.3	2.62	2	5'-4"
148		29.54				44.31*		

## MIN. REQ. PLUMBING FIXTURES CALCULATION FOR LEVEL 05

OCC. LOAD	WATER CLOSET		LAVATORIES		DF
	WOM	MEN	WOM	MEN	
148	2.37	2.37	1.85	1.85	1.40
148	2.37	2.37	1.85	1.85	1.40

\*PLUMBING FIXTURES ARE EXISTING TO REMAIN AND NOT AFFECTED.

## EXIT NUMBER AND ARRANGEMENT FOR LEVEL 01

LEVEL .01	GREATEST TRAVEL DISTANCE TO AN EXIT (FROM ANY POINT IN A ROOM)
	275'-1" SHOWN - 300'-0" ALLOWED

MINIMUM NUMBER OF EXITS REQUIRED:

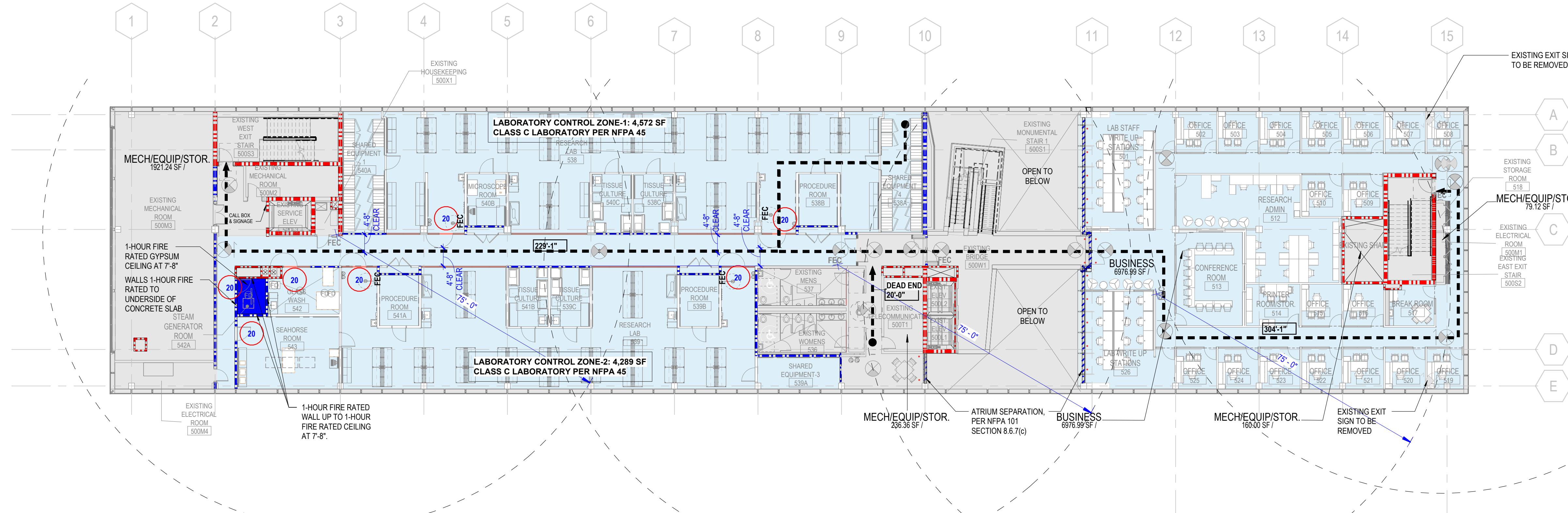
2 PROVIDED - 2 REQUIRED

MARK ISSUE DATE  
Job Number 810568.003  
TITLE

## CODE COMPLIANCE PLAN - LEVELS 05

SHEET NUMBER

**G01-05**



## CODE COMPLIANCE PLAN - LEVEL 05

1/16" = 1'-0"



**GENERAL NOTES**

- THE EXISTING HVAC SYSTEMS SHOWN HEREIN WERE TAKEN FROM DOCUMENTS FURNISHED BY OTHERS AND MAY NOT REFLECT EXACT FIELD CONDITIONS. THEREFORE, THE ENGINEER CAN NOT GUARANTEE THE ACCURACY OF THE INFORMATION. EXISTING SYSTEMS AND/OR SYSTEM COMPONENTS ARE SHOWN FOLLOWING DEMOLITION CEILINGS, BUT PRIOR TO PROCUREMENT/FABRICATION OF NEW WORK, CONTRACTOR SHALL REMOVE EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY. NOTIFY ENGINEER OF ANY DISCREPANCIES FOUND WHICH WOULD IMPEDE THE INTENT OF THE DESIGN SHOWN.
- EXISTING BUILDING ELEMENTS AND DISTRIBUTION, INCLUDING BUT NOT LIMITED TO WALLS, CEILINGS, LIGHTS, CONDUIT, DUCTS, PIPING, INSULATION, OR OTHER EXISTING CONDITIONS THAT REQUIRE REMOVAL DUE TO CONTRACTOR'S WORK SHALL BE PATCHED, REPAIRED, OR REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER, THE OWNER, AND AUTHORITIES HAVING JURISDICTION.
- DUE TO THE IMPORTANCE OF MAINTAINING OPERATIONS AT THIS FACILITY, CONTRACTOR SHALL COORDINATE WITH OWNER TO DETERMINE THAT REASONABLE SHUTDOWN OF EXISTING SYSTEMS OR PART OF NEW UTILITIES PRIOR TO START WORK MAY BE REQUIRED TO BE PERFORMED AT NIGHT, ON WEEKENDS AND/OR OVER HOLIDAYS.
- FOLLOWING DEMOLITION, CAP/RESEAL ALL OPEN ENDED DUCTS/PIPES AND RE-INSULATE OR REPAIR/SEAL INSULATION WHERE REQUIRED.
- FOR CLARITY, NOT ALL DEVICES ARE SHOWN ON FLOOR PLANS. REFER TO FLOW DIAGRAMS, CONTROL DIAGRAMS, DETAILS AND SPECIFICATIONS FOR ADDITIONAL DEVICES.
- WHERE REQUIRED, PROVIDE ADDITIONAL DEMOLITION BEYOND THAT SHOWN TO FACILITATE INSTALLATION OF NEW WORK.
- WORK SHOWN HEREIN IS INTENDED TO SHOW END RESULT AND DOES NOT FULLY INDICATE SEQUENCE OF WORK. CONTRACTOR IS RESPONSIBLE FOR DETERMINING SEQUENCE VIA COORDINATION WITH OWNER. REVIEW OF EXISTING CONDITIONS AND REVIEW OF PHASING PLANS.
- DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH DARK SOLID LINE WORK IS NEW.
- DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT SOLID LINE WORK IS EXISTING.
- DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT DASHED LINE WORK IS FUTURE.

**SHEET KEYNOTES**

- REMOVE EXISTING CAP ON SUPPLY AND RETURN GRILLES SERVING TELECOMMUNICATIONS ROOM.
- DEMO BOTTOM MOUNTED RA GRILLE AND CAP BRANCH.
- DEMO PORTION OF DUCT/BALANCING DAMPER TO ALLOW NEW CONNECTION.
- DEMO PORTION OF SA DUCT, CONTROL DAMPER AND AIR FLOW MONITOR TO ALLOW NEW CONNECTION.
- DEMO RA DUCT BRANCH AND GRILLE.
- DEMO SA DUCT BRANCH, DIFFUSER AND GRILLE AND CAP AT MAIN.
- DEMO SA DUCT BRANCH AND DIFFUSER AND CAP AT MAIN.
- DEMO PORTION OF PE DUCT BACK WITHIN SHAFT TO ALLOW NEW CONNECTION - REFER TO SHEET M20-05, SHEET KEYNOTE 8.
- DEMO PORTION OF DUCT TO ALLOW NEW CONNECTION.

Engineer of Record  
Yijun Wang  
FL P.E. No. 85688

**PROJECT**

**FIU BT-919**

**ENGINEERING - 5TH FLOOR FIT-OUT**

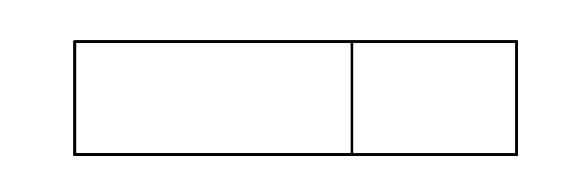
FIU BT-919 ENGINEERING  
Modesto A. Maidique Campus  
Miami, Florida 33199

**FIU** FLORIDA INTERNATIONAL UNIVERSITY

5TH FLOOR FIT-OUT 07/18/2025

Modesto A. Maidique Campus  
Miami, Florida 33199

**KEYPLAN**



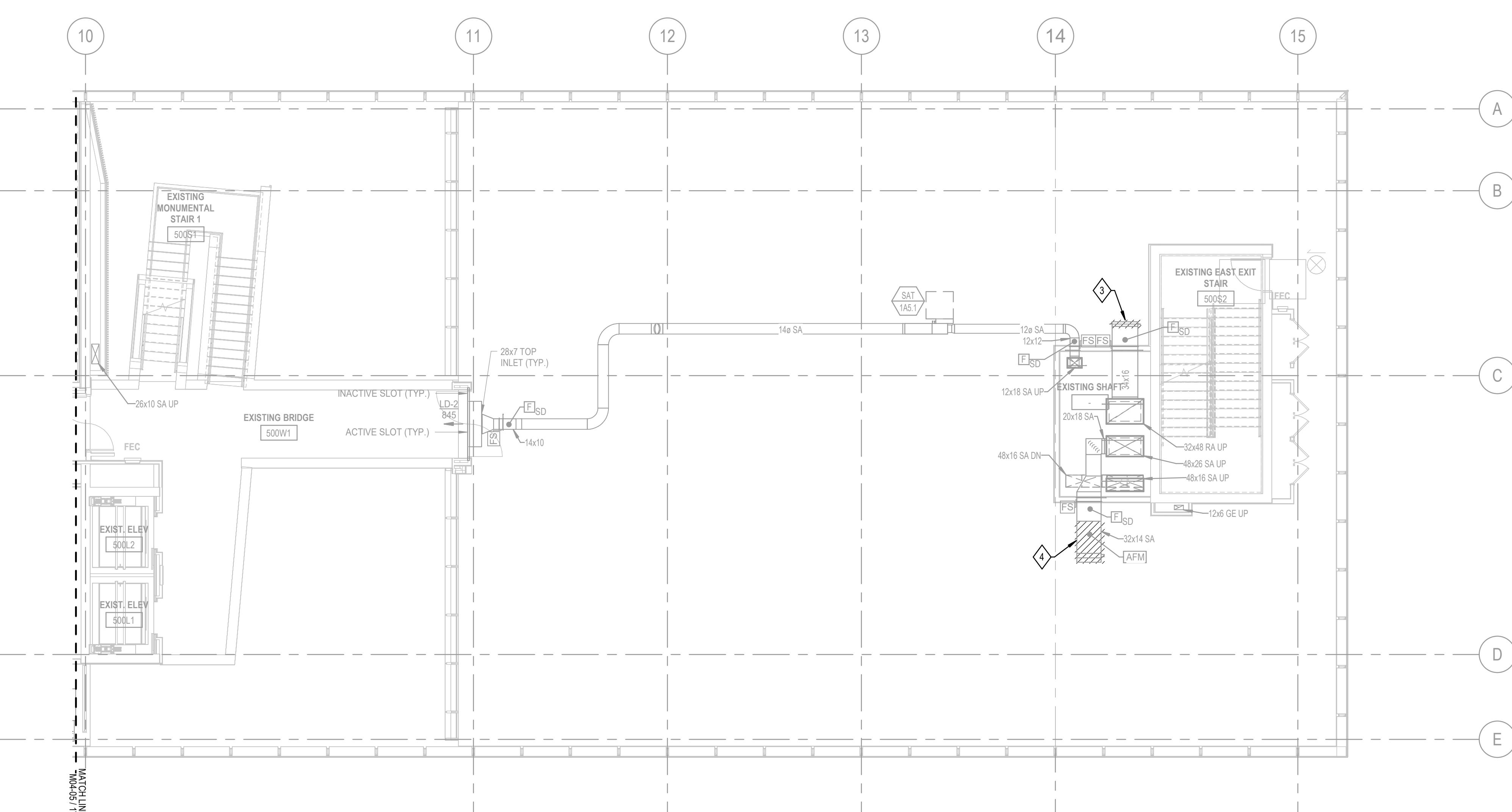
**ISSUE CHART**

Job Number 810568.003  
TITLE

**DUCT DEMOLITION PLAN LEVEL 05**

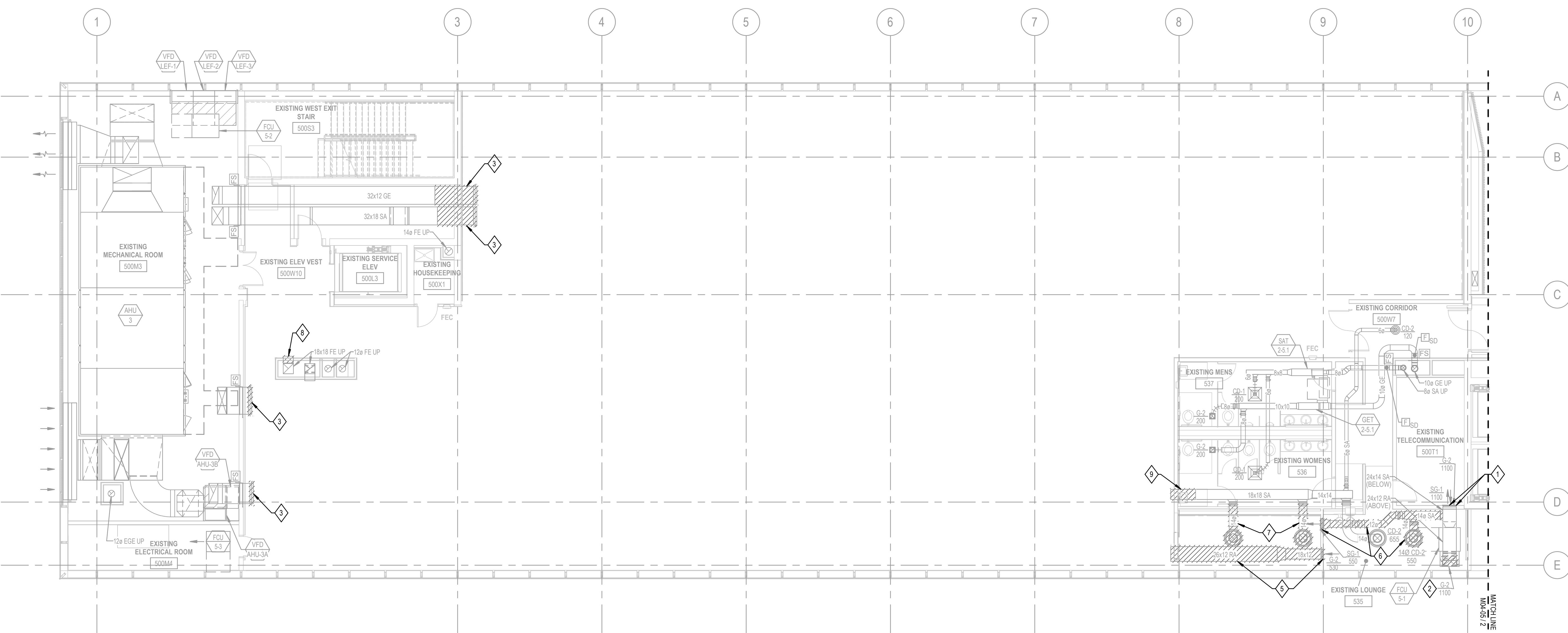
**SHEET NUMBER**

**M04-05**



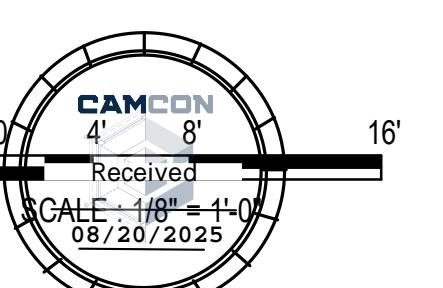
**1 LEVEL 5 MECHANICAL DUCT DEMOLITION PLAN - EAST**

SCALE: 1'8" = 1'-0"



**2 LEVEL 5 MECHANICAL DUCT DEMOLITION PLAN - WEST**

SCALE: 1'8" = 1'-0"

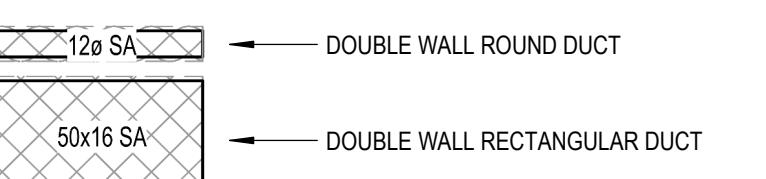


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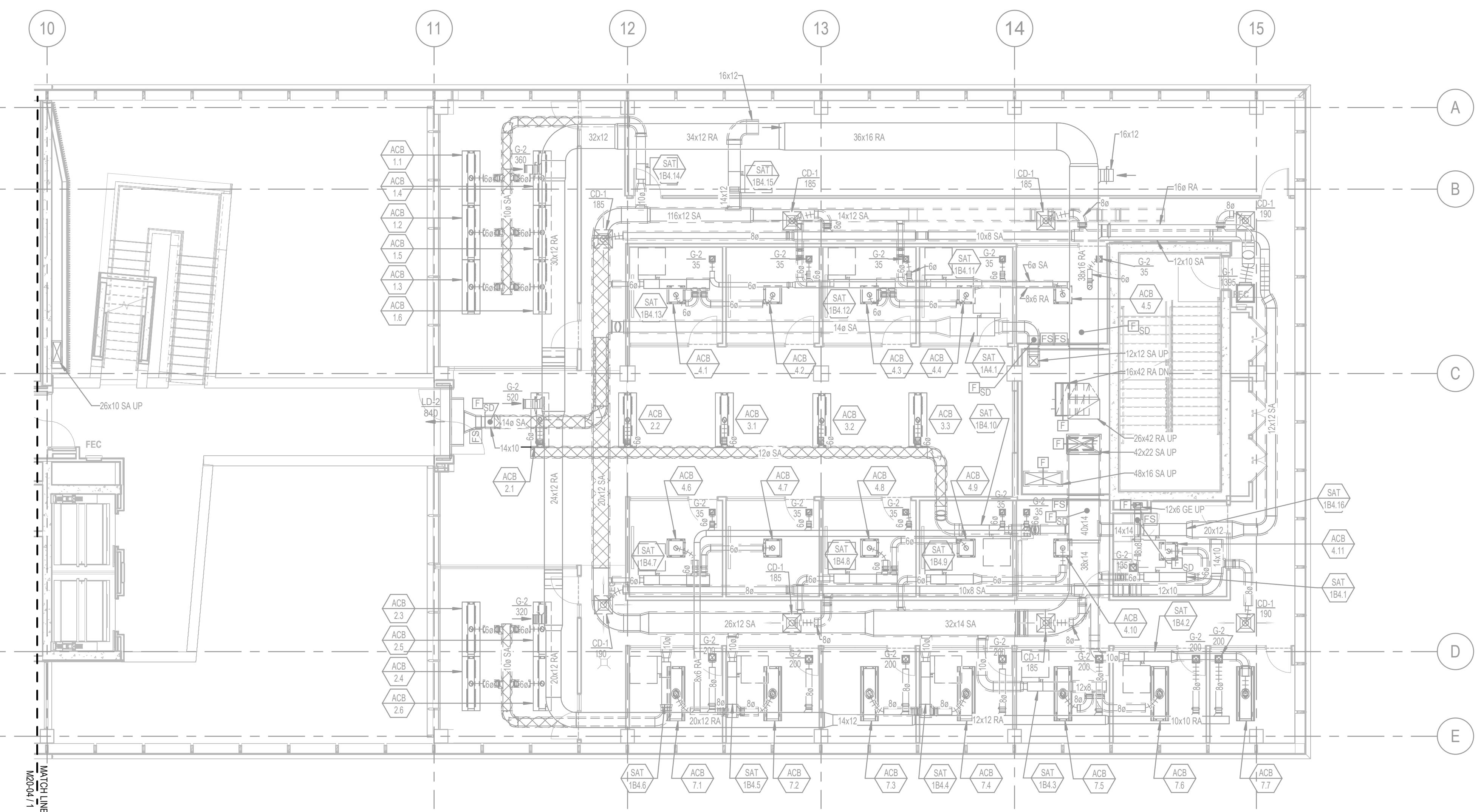
**GENERAL NOTES**

- DUE TO CEILING SPACE LIMITATIONS, IT IS IMPERATIVE THAT DUCTPIPE/EQUIPMENT INSTALLATION BE COORDINATED WITH ALL TRADES PRIOR TO INSTALLATION.
- CONTRACTOR TO COORDINATE WITH ALL TRADES TO ENSURE ADEQUATE ACCESS IS PROVIDED TO PROPERLY MAINTAIN ALL AIR TERMINAL DEVICES, DUCT SMOKE DEVICES, DIFFUSERS, GRILLES, VOLUME CONTROL DAMPERS, AIR FLOW STATIONS AND SIMILAR EQUIPMENT. PROVIDE CEILING ACCESS PANELS TO SERVICE EQUIPMENT LOCATED ABOVE HARD CEILING AREAS. PROVIDE DAMPER PANELS LOCATED ABOVE HARD CEILING AREAS. PROVIDE REMOTE OPERATED VOLUME CONTROL DAMPERS - REFER TO SPECIFICATIONS.
- ALL DIFFUSERS, GRILLES, CHILLED BEAMS, ETC. SHALL HAVE MANUAL VOLUME DAMPERS INSTALLED IN DUCTWORK FOR BALANCING EACH DEVICE. SPACES DOWNSTREAM OF THE DEVICE GRILLE, VOLUME, ETC. DOWNSTREAM OF AIR TERMINAL DEVICE DO NOT REQUIRE THE MANUAL VOLUME DAMPER. FOLLOWING FINAL T&S LOCK OR FIX IN PLACE ALL DAMPER SETTINGS AND MARK SETTING WITH INDELIBLE INK OR PAINT.
- FOR CLARITY, NOT ALL DEVICES ARE SHOWN ON FLOOR PLANS. REFER TO FLOW DIAGRAMS, DETAILS, CONTROL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIRED DEVICES.
- DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH DARK SOLID LINE WORK IS NEW.
- DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT SOLID LINE WORK IS EXISTING.
- DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT DASHED LINE WORK IS FUTURE.
- SUPPLY DUCT WORK SHOWN WITH CROSS HATCHED PATTERN SHALL BE DOUBLE WALL INSULATED DUCTWORK (FOR USE ON SUPPLY DUCT IN EXPOSED PUBLIC AREAS).



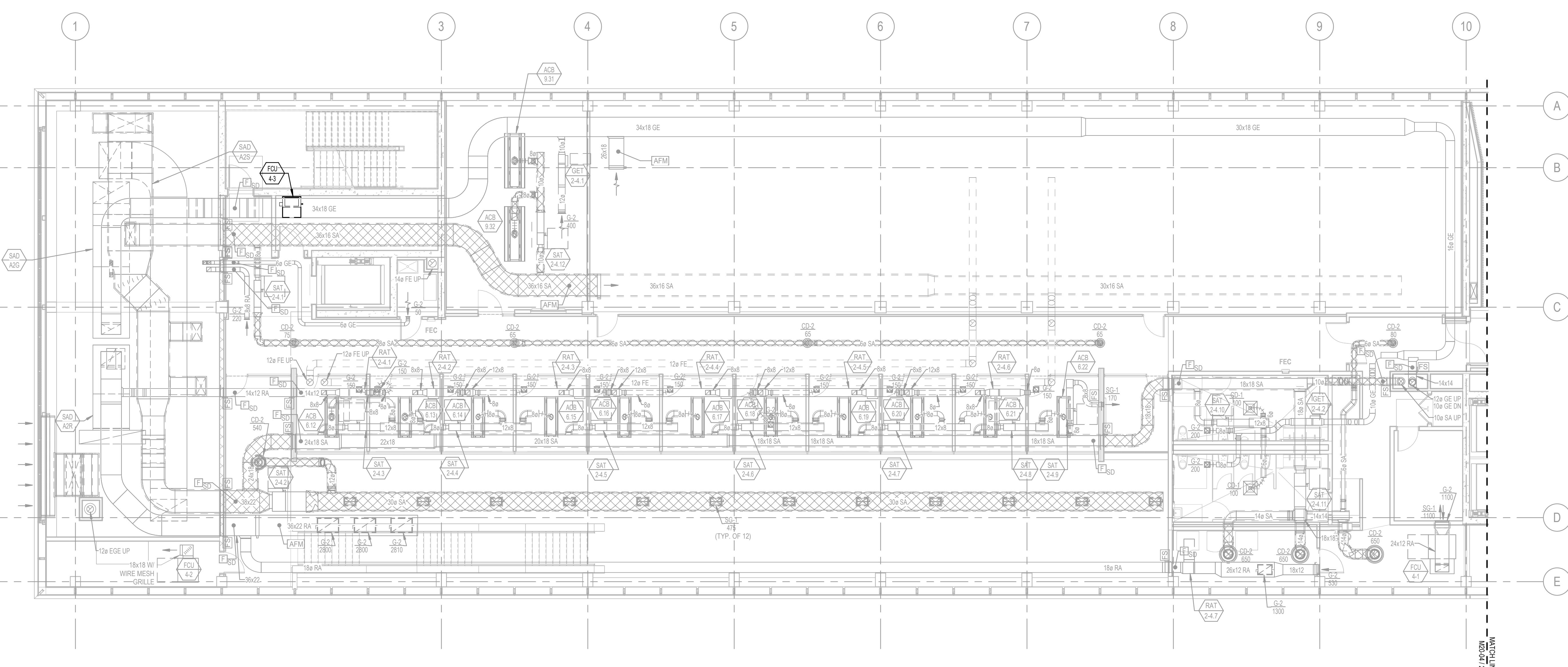
**1 LEVEL 4 MECHANICAL DUCT PLAN - EAST**

SCALE: 1/8" = 1'-0"



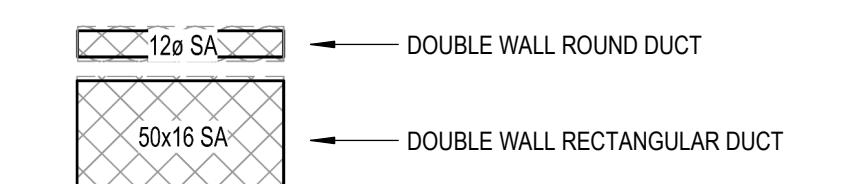
**2 LEVEL 4 MECHANICAL DUCT PLAN - WEST**

SCALE: 1/8" = 1'-0"



**GENERAL NOTES**

1. DUE TO CEILING SPACE LIMITATIONS, IT IS IMPERATIVE THAT DUCTPIPE/EQUIPMENT INSTALLATION BE COORDINATED WITH ALL TRADES PRIOR TO INSTALLATION.
2. CONTRACTOR TO COORDINATE WITH ALL TRADES TO ENSURE ADEQUATE ACCESS IS PROVIDED TO MAINTAIN ALL AIR TERMINAL DEVICES, DUCT SMOKE DEVICES, CEILING GRILLE, DIFFUSERS, VOLUME CONTROL DAMPERS, AIR FLOW STATIONS AND SIMILAR EQUIPMENT. PROVIDE CEILING ACCESS PANELS TO SERVICE EQUIPMENT LOCATED ABOVE HARD CEILING AREA. PROVIDE MANUFACTURED DAMPERS LOCATED ABOVE HARD CEILING AREAS. PROVIDE REMOTE OPERATED VOLUME CONTROL DAMPERS - REFER TO SPECIFICATIONS.
3. ALL DIFFUSERS, GRILLES, CHILLED BEAMS, ETC. SHALL HAVE MANUAL VOLUME DAMPERS INSTALLED IN DUCTWORK FOR BALANCING EACH DEVICE. SPACES BETWEEN DIFFUSERS, GRILLES, CHILLED BEAM, ETC. DOWNSTREAM OF AIR TERMINAL DEVICE DO NOT REQUIRE THE MANUAL VOLUME DAMPER. FOLLOWING FINAL T&S LOCK OR FIX IN PLACE ALL DAMPER SETTINGS AND MARK SETTING WITH INDELIBLE INK OR PAINT.
4. FOR CLARITY, NOT ALL DEVICES ARE SHOWN ON FLOOR PLANS. REFER TO FLOW DIAGRAMS, DETAILS, CONTROL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIRED DEVICES.
5. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH DARK SOLID LINE WORK IS NEW.
6. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT SOLID LINE WORK IS EXISTING.
7. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT DASHED LINE WORK IS FUTURE.
8. SUPPLY DUCT WORK SHOWN WITH CROSS HATCHED PATTERN IS SIMPLY DOUBLE WALL INSULATED DUCTWORK (FOR USE ON SUPPLY DUCT IN EXPOSED PUBLIC AREAS).



**SHEET KEYNOTES**

1. 120 FE DN WITH CONNECTION TO FUME HOOD.
2. PROVIDE MULTIPLE ACTIVE AND INACTIVE SLOT DIFFUSER SECTIONS JOINED END TO END TO FORM CONTINUOUS LINEAR DIFFUSER (APPROX. 18' LONG). INSTALL EXTERNALLY INSULATED PLENUMS ON ALL ACTIVE DIFFUSER SECTIONS. BLANK OFF ALL INACTIVE DIFFUSER SECTIONS.
3. 2 FT. / 4 FT. INACTIVE DIFFUSER SECTION.
4. 4 FT. ACTIVE DIFFUSER SECTION.
5. PROVIDE MIN 1 HOUR HORIZONTAL RATED DUCT ASSEMBLY EQUAL TO FLUEBAR-BW11 FOR PORTION OF FE DN IN EXISTING EXHAUST SHAFT TO INSIDE FACE OF SHARED EQUIPMENT ROOM. REFER TO DUCTWORK SPECIFICATIONS.
6. PROVIDE FIRE RATED CEILING GRILLE AT RATED CEILING EQUAL TO PRICE 530FR, 8x8 NECK - BALANCE TO 160 CFM.
7. 40 GE DN WITH THIMBLE CONNECTION AT CEILING FOR GAS MANIFOLD VENT - BALANCE TO 50 CFM.
8. REBALANCE EXISTING DIFFUSER TO FLOW INDICATED.

Engineer of Record  
Yijun Wang  
FL P.E. No. 05688

PROJECT

FIU BT-919

ENGINEERING - 5TH  
FLOOR FIT-OUT

FIU BT-919 ENGINEERING  
Modesto A. Maidique Campus  
Miami, Florida 33199

**FIU**  
FLORIDA  
INTERNATIONAL  
UNIVERSITY

5TH FLOOR FIT-OUT 07/18/2025  
Modesto A. Maidique Campus  
Miami, Florida 33199

KEYPLAN

West East

ISSUE CHART

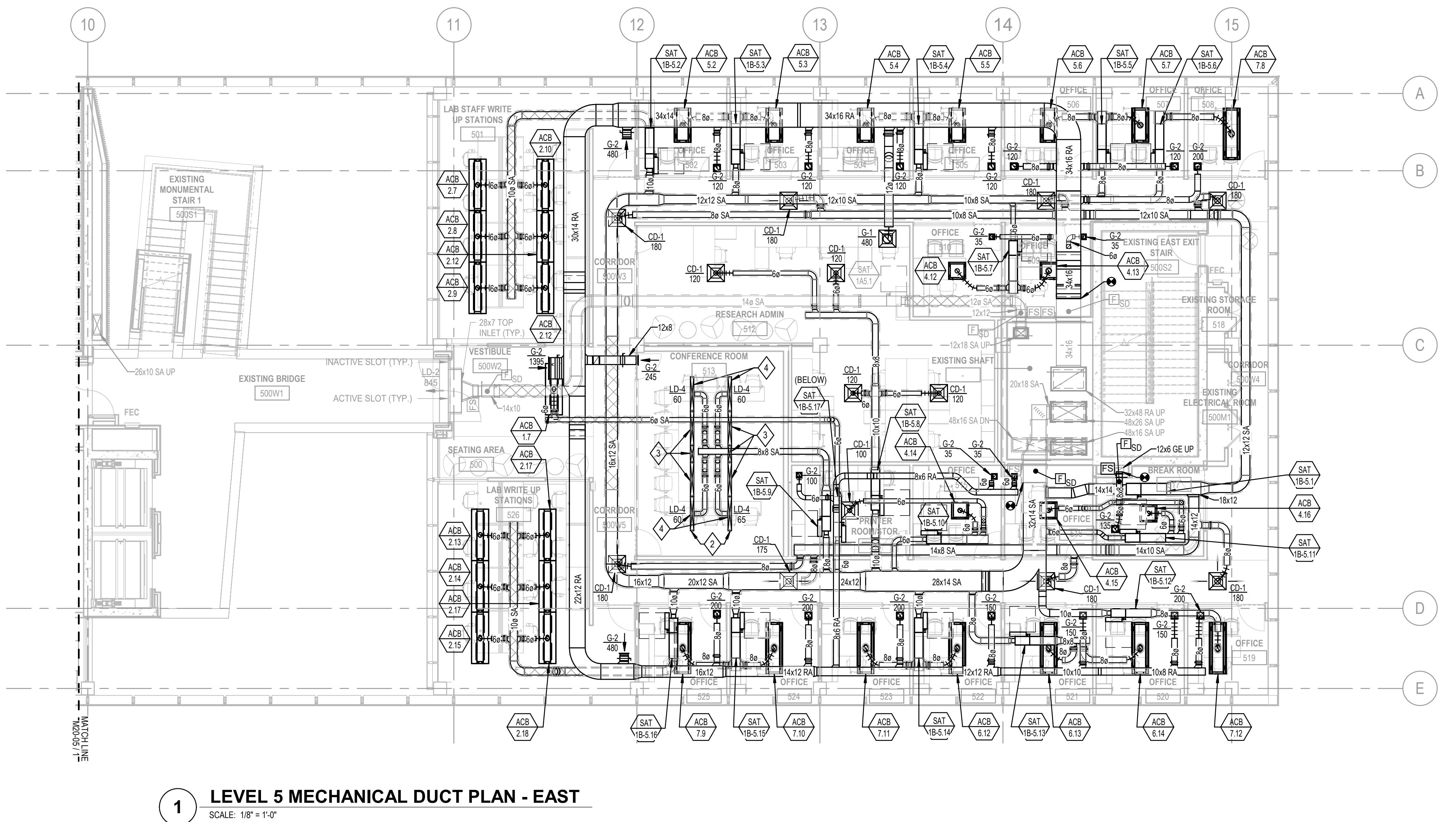
Job Number  
810568.003  
TITLE

DUCT PLAN LEVEL 05

SHEET NUMBER

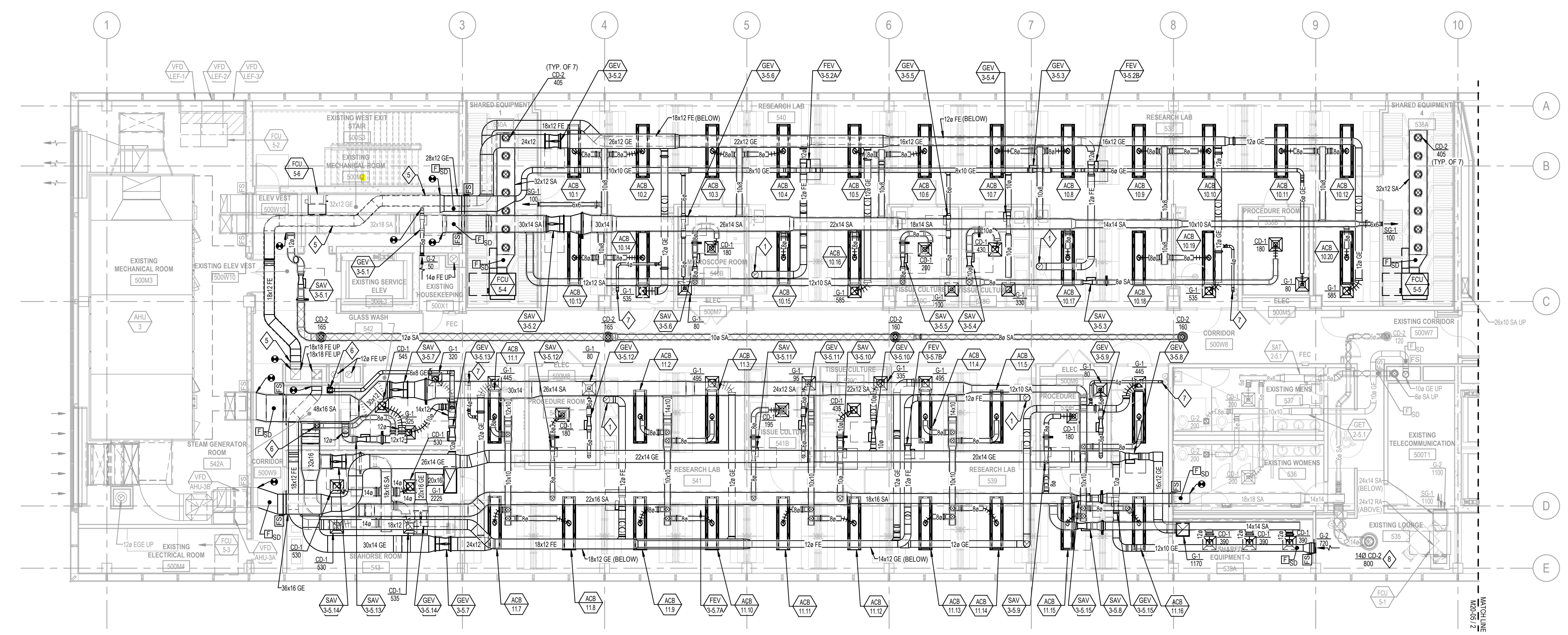
**M20-05**

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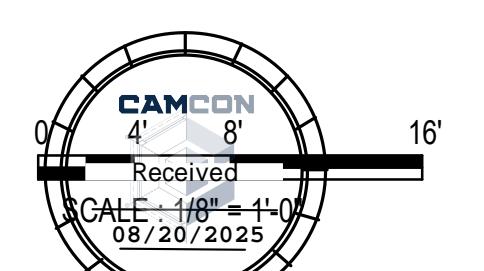
**1 LEVEL 5 MECHANICAL DUCT PLAN - EAST**

SCALE: 1/8" = 1'-0"



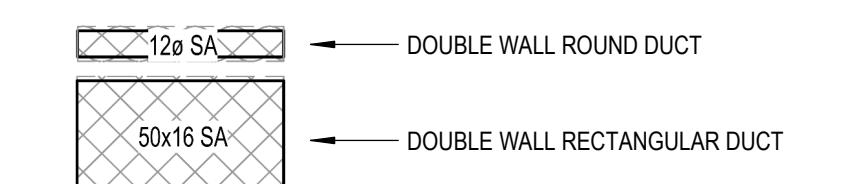
**2 LEVEL 5 MECHANICAL DUCT PLAN - WEST**

SCALE: 1/8" = 1'-0"



**GENERAL NOTES**

- DOUE TO CEILING SPACE LIMITATIONS, IT IS IMPERATIVE THAT DUCTPIPE/EQUIPMENT INSTALLATION BE COORDINATED WITH ALL TRADES PRIOR TO INSTALLATION.
- CONTRACTOR TO COORDINATE WITH ALL TRADES TO ENSURE ADEQUATE ACCESS IS PROVIDED TO PROPERLY MAINTAIN ALL AIR TERMINAL DEVICES, DUCT SMOKE DEVICES, DIFFUSERS, GRILLES, CHILLED BEAMS, VOLUME DAMPERS, AIR FLOW STATIONS AND SIMILAR EQUIPMENT. PROVIDE CEILING ACCESS PANELS TO SERVICE EQUIPMENT LOCATED ABOVE HARD CEILING AREAS. PROVIDE VOLUME DAMPERS LOCATED ABOVE HARD CEILING AREAS. PROVIDE REMOTE OPERATED VOLUME CONTROL DAMPERS - REFER TO SPECIFICATIONS.
- ALL DIFFUSERS, GRILLES, CHILLED BEAMS, ETC. SHALL HAVE MANUAL VOLUME DAMPERS INSTALLED IN DUCTWORK FOR BALANCING EACH DEVICE. SPACES BETWEEN DIFFUSERS, GRILLES, CHILLED BEAMS, ETC. DOWNSTREAM OF AIR TERMINAL DEVICE DO NOT REQUIRE THE MANUAL VOLUME DAMPER. FOLLOWING FINAL T&S LOCK OR FIX IN PLACE ALL DAMPER SETTINGS AND MARK SETTING WITH INDELIBLE INK OR PAINT.
- FOR CLARITY, NOT ALL DEVICES ARE SHOWN ON FLOOR PLANS. REFER TO FLOW DIAGRAMS, DETAILS, CONTROL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIRED DEVICES.
- DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH DARK SOLID LINE WORK IS NEW.
- DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT SOLID LINE WORK IS EXISTING.
- DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT DASHED LINE WORK IS FUTURE.
- SUPPLY DUCT WORK SHOWN WITH CROSS HATCHED PATTERN SHALL BE DOUBLE WALL INSULATED DUCTWORK (FOR USE ON SUPPLY DUCT IN EXPOSED PUBLIC AREAS).



**SHEET KEYNOTES**

- TERMINATE DUCT WITH WIRE MESH GRILLE.

Engineer of Record  
Yijun Wang  
FL P.E No. 85688

**PROJECT**

**FIU BT-919**

**ENGINEERING - 5TH**

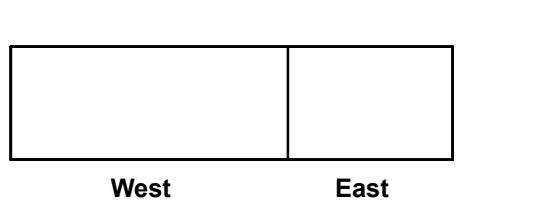
**FLOOR FIT-OUT**

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Modesto A. Maidique Campus  
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**KEYPLAN**



**ISSUE CHART**

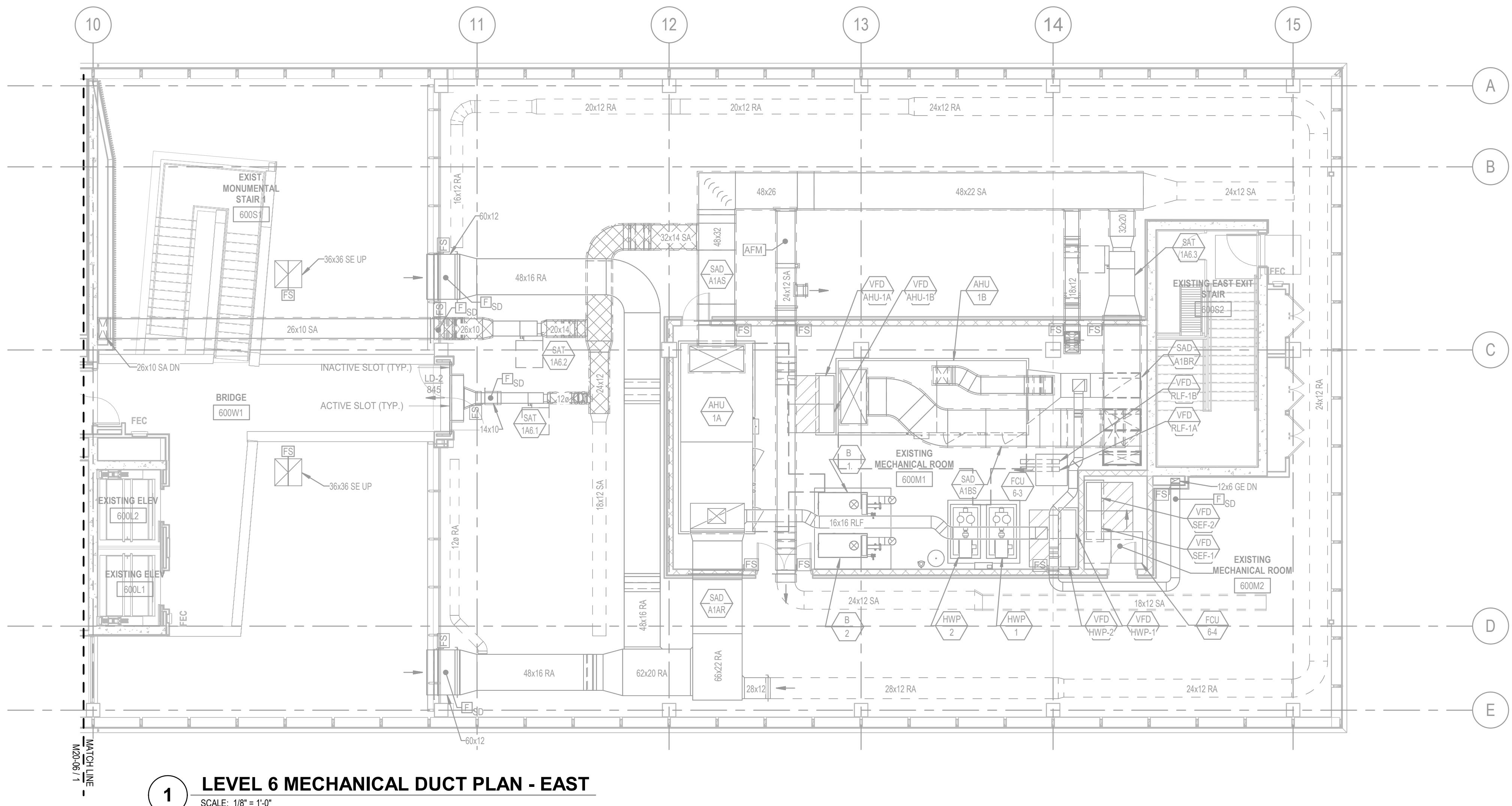
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810568.003  
TITLE

**DUCT PLAN LEVEL 06**

**SHEET NUMBER**

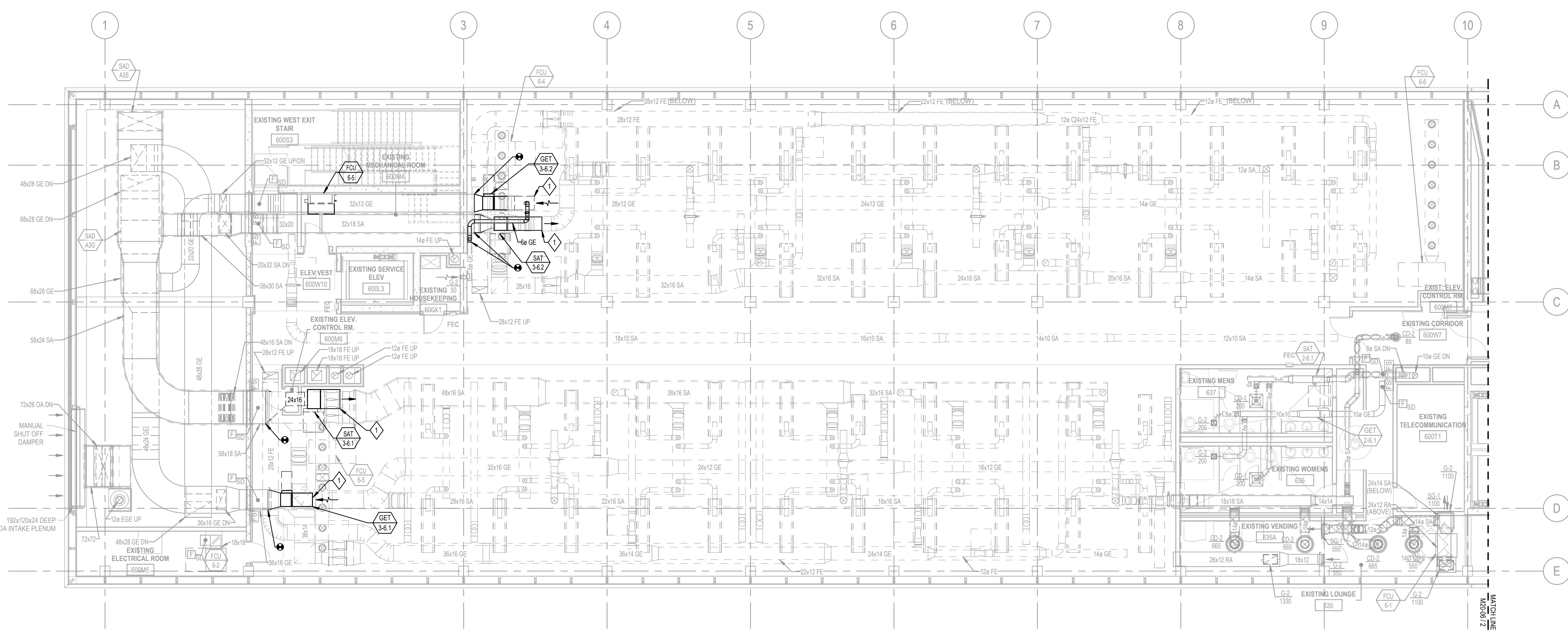
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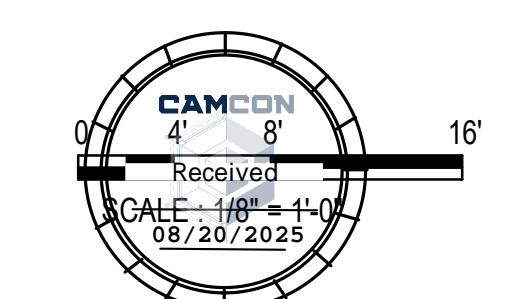
**1 LEVEL 6 MECHANICAL DUCT PLAN - EAST**

SCALE: 1/8" = 1'-0"



**2 LEVEL 6 MECHANICAL DUCT PLAN - WEST**

SCALE: 1/8" = 1'-0"



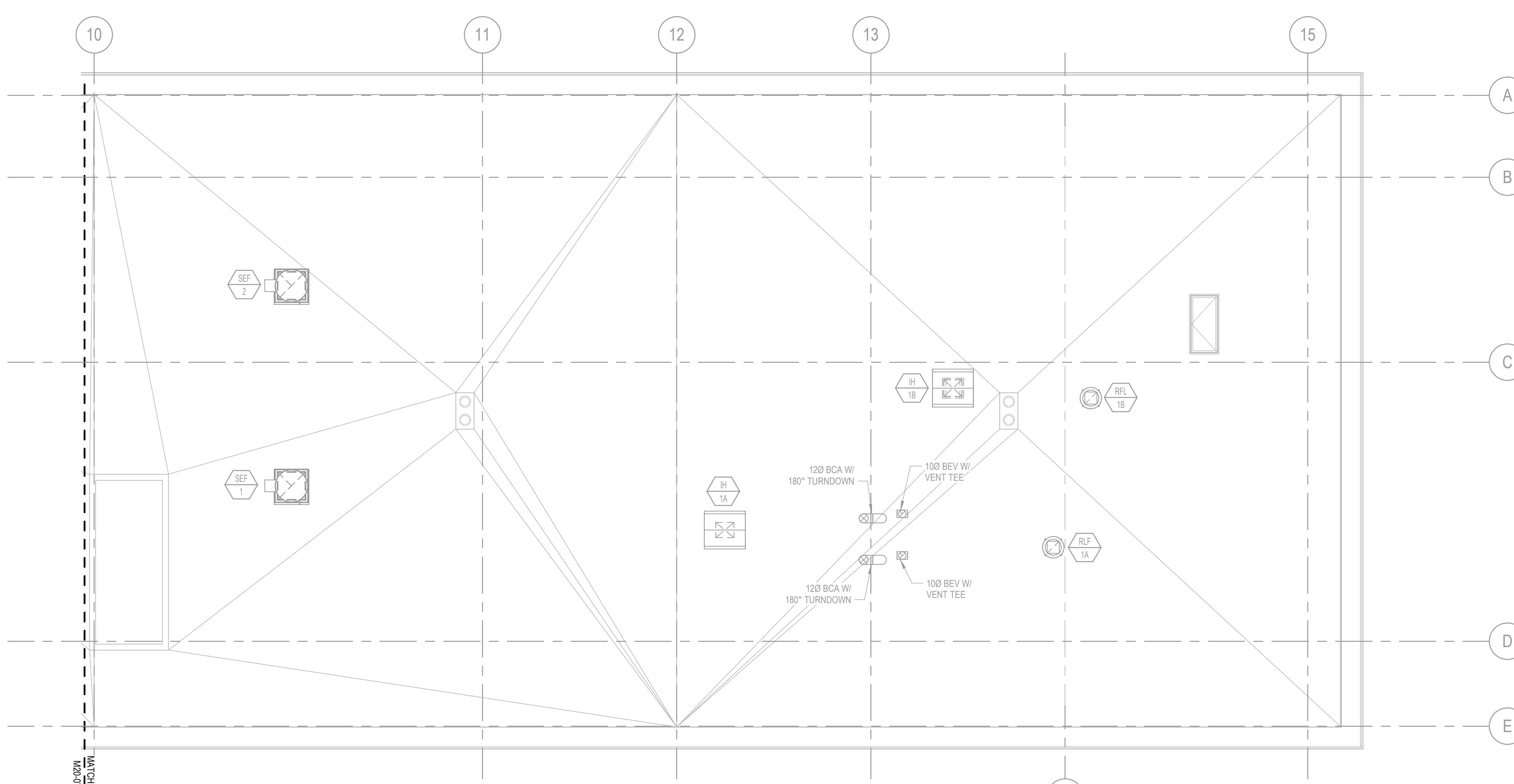
Received  
SCALE: 1/8" = 1'-0"  
08/20/2025

**GENERAL NOTES**

1. CONTRACTOR TO COORDINATE WITH ALL TRADES TO ENSURE ADEQUATE ACCESS IS PROVIDED TO PROPERLY MAINTAIN ALL AIR TERMINAL DEVICES, DUCT SMOKE DETECTORS, FIRE/SMOKE DAMPERS, CONTROL DAMPERS, AND OTHER AIR TERMINAL EQUIPMENT. PROVIDE CEILING ACCESS PANELS TO SERVICE EQUIPMENT LOCATED ABOVE HARD CEILING AREAS. FOR BALANCING DAMPER LOCATED ABOVE HARD CEILING, PROVIDE ACCESS PANELS TO OPERATED VOLUME CONTROL DAMPERS - REFER TO SPECIFICATIONS.
2. FOR CLARITY, NOT ALL DEVICES ARE SHOWN ON FLOOR PLANS. REFER TO FLOW DIAGRAMS, DETAILS, CONTROL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIRED DEVICES.
3. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH DARK SOLID LINE WORK IS NEW.
4. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT SOLID LINE WORK IS EXISTING.
5. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT DASHED LINE WORK IS FUTURE.

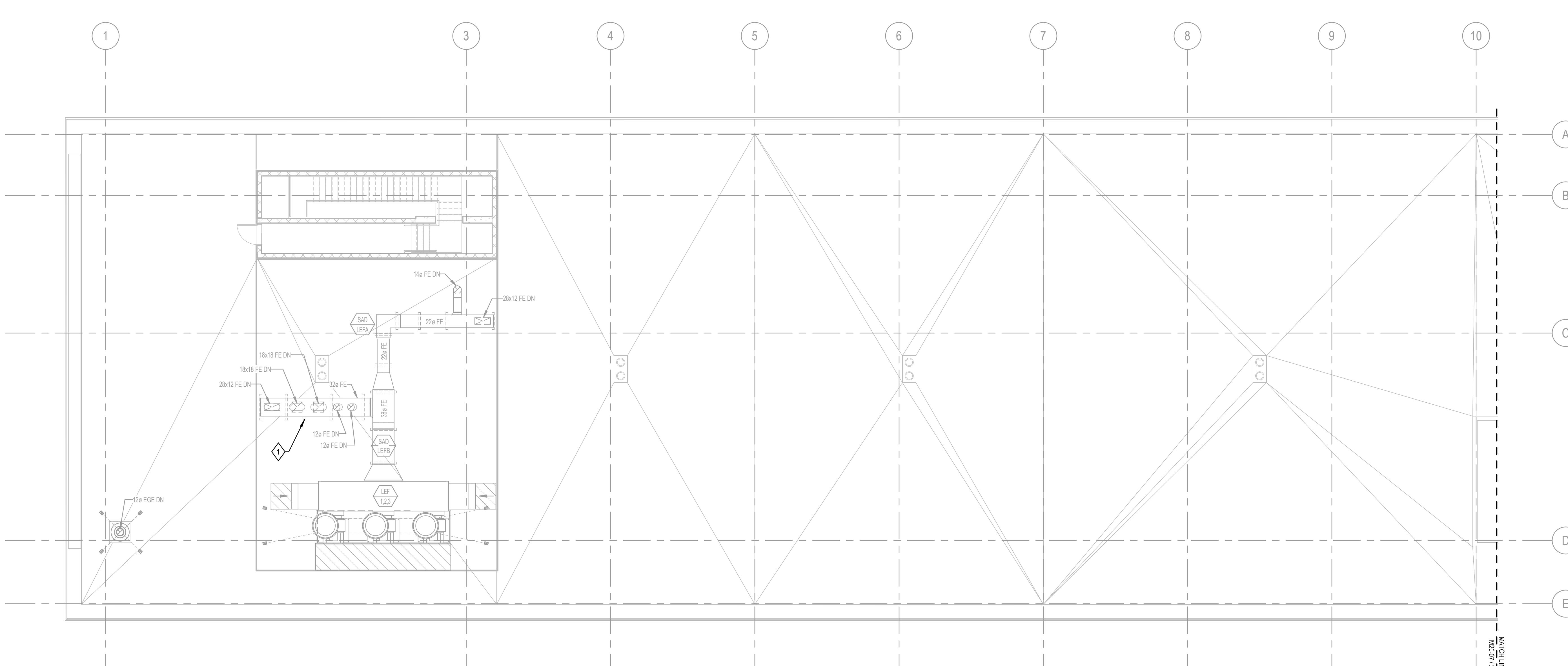
**SHEET KEYNOTES**

1. 1-1/4" DN TO LEVEL 5 STEAM GENERATOR ROOM.



**1 ROOF MECHANICAL PLAN - EAST**

SCALE: 1'0" = 1'-0"



**2 ROOF MECHANICAL PLAN - WEST**

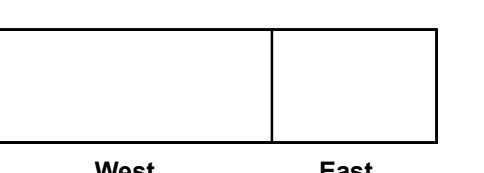
SCALE: 1'0" = 1'-0"

**FIU BT-919**  
**ENGINEERING - 5TH**  
**FLOOR FIT-OUT**  
FIU BT-919 ENGINEERING  
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**FIU** FLORIDA INTERNATIONAL UNIVERSITY

5TH FLOOR FIT-OUT 07/18/2025  
Modesto A. Maidique Campus  
Miami, Florida 33199

KEYPLAN



ISSUE CHART



Autodesk Doc/FIU BT-919 PHASE1.MECH\_FIUBT-919-LEVEL05.dwg

Job Number 810568.003

TITLE

**MECHANICAL PLAN**  
**ROOF**

SHEET NUMBER

**M20-07**



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Miami, Florida 33199



Modesto A. Maidique Campus  
Miami, Florida 33199

KEYPLAN

West East

ISSUE CHART

MARK	ISSUE	DATE
Job Number		810568.003
TITLE		

PIPING PLAN LEVEL 04

SHEET NUMBER

**M30-04**

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**GENERAL NOTES**

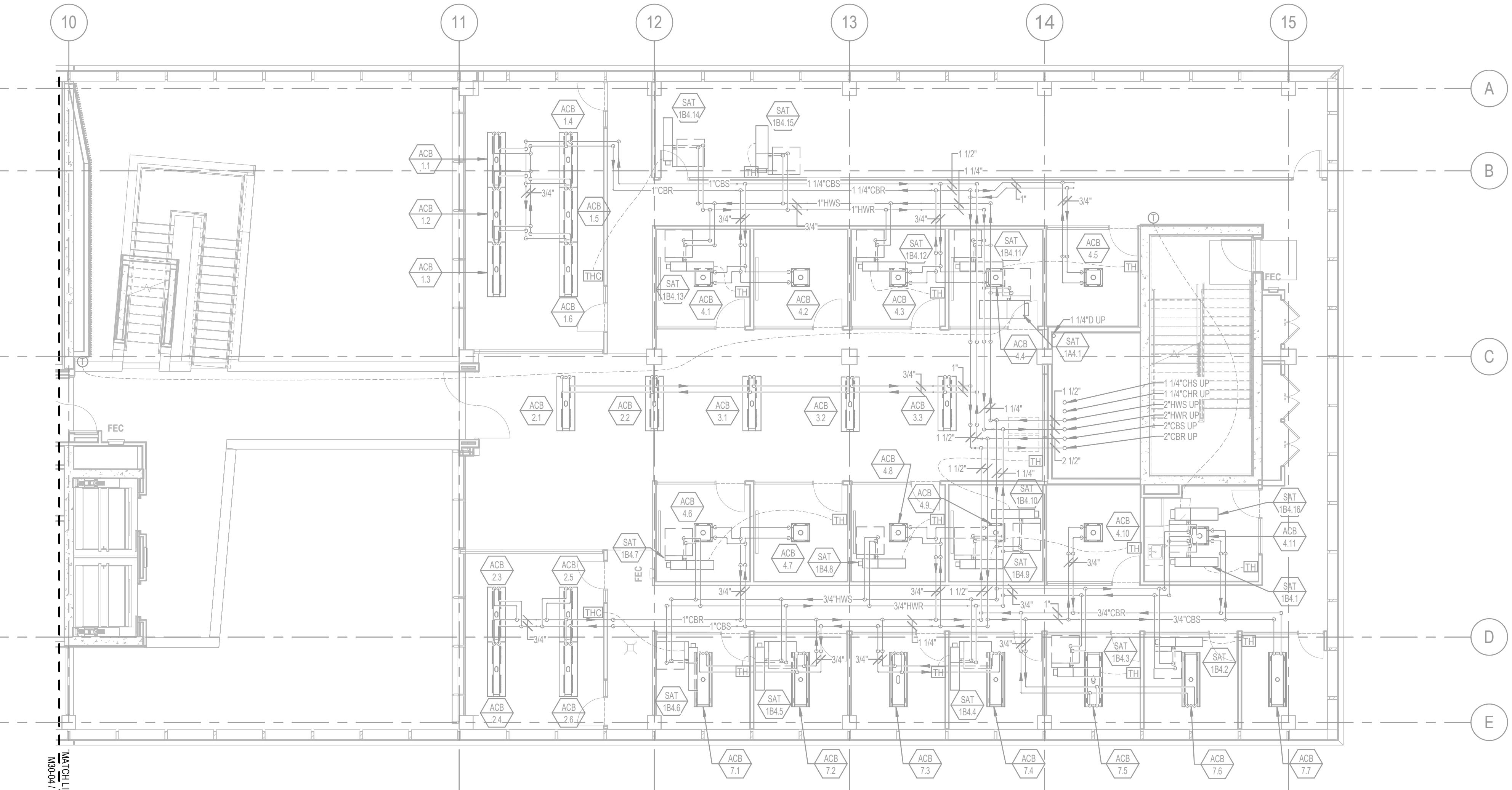
1. DUE TO CEILING SPACE LIMITATIONS, IT IS IMPERATIVE THAT DUCTPIPE/EQUIPMENT INSTALLATION BE COORDINATED WITH ALL TRADES PRIOR TO INSTALLATION.
2. CONTRACTOR TO COORDINATE WITH ALL TRADES TO ENSURE ADEQUATE ACCESS IS PROVIDED TO PROPERLY MAINTAIN ALL AIR TERMINAL DEVICES, DUCT SMOKE DETECTORS, FIRE/SMOKE DAMPERS, CONTROL DAMPERS, AND OTHER EQUIPMENT. CONTRACTOR EQUIPMENT PROVIDE CEILING ACCESS PANELS TO SERVICE VALVES/EQUIPMENT LOCATED ABOVE HARD CEILING AREAS.
3. BRANCH PIPING NOT IDENTIFIED BY SIZE SHALL BE 3/4". ALL OTHER PIPING SHALL BE SIZED AS INDENTIFIED.
4. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH DARK SOLID LINE WORK IS NEW.
5. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT SOLID LINE WORK IS EXISTING.
6. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT DASHED LINE WORK IS FUTURE.
7. COORDINATE AND ALIGN ALL CONTROL DEVICES (THERMOSTATS / SENSORS) WITH ADJACENT DEVICES ON WALL.
8. FOR CLARITY, NOT ALL DEVICES ARE SHOWN ON FLOOR PLANS. REFER TO FLOW DIAGRAMS, DETAILS, CONTROL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIRED DEVICES.

**SHEET KEYNOTES**

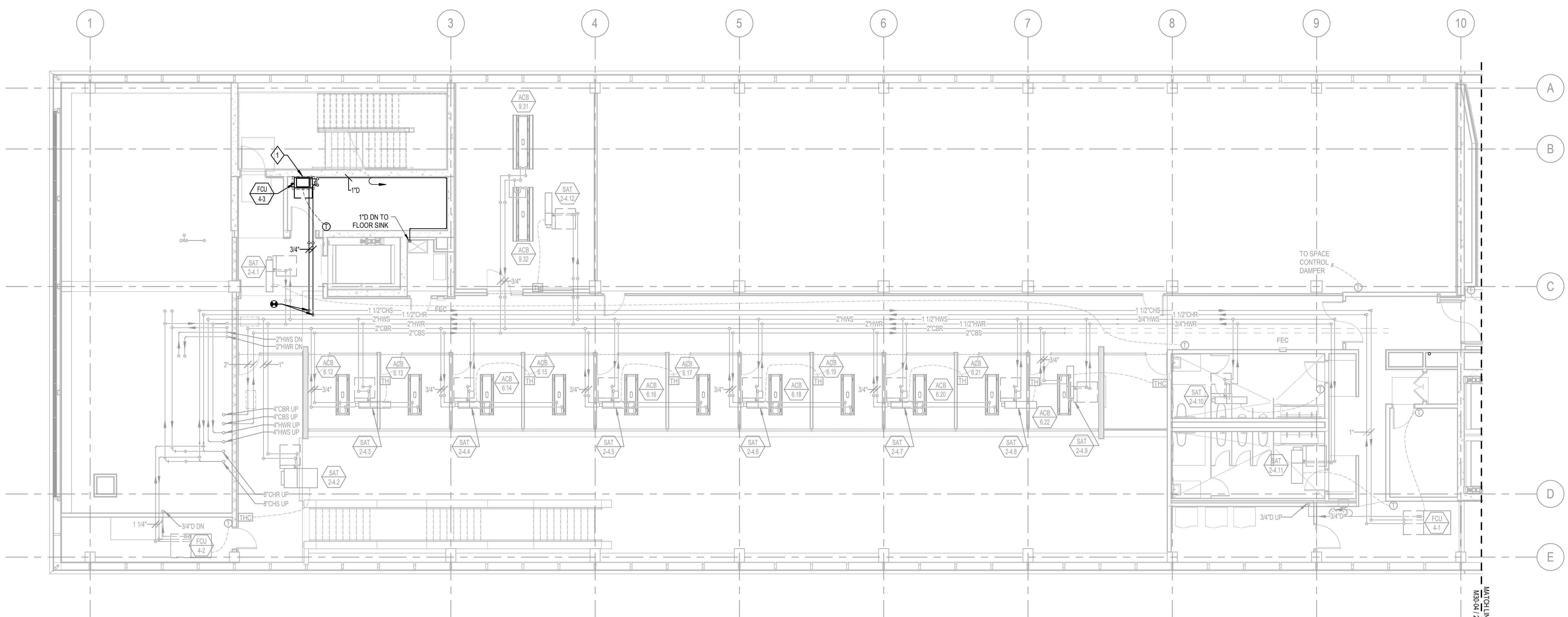
1. PROVIDE FLOOR MOUNTED SECONDARY DRAIN PAN LARGE ENOUGH TO FULLY FIT FCU WITHIN PAN.

**1 LEVEL 4 MECHANICAL PIPING PLAN - EAST**

SCALE: 1/8" = 1'-0"

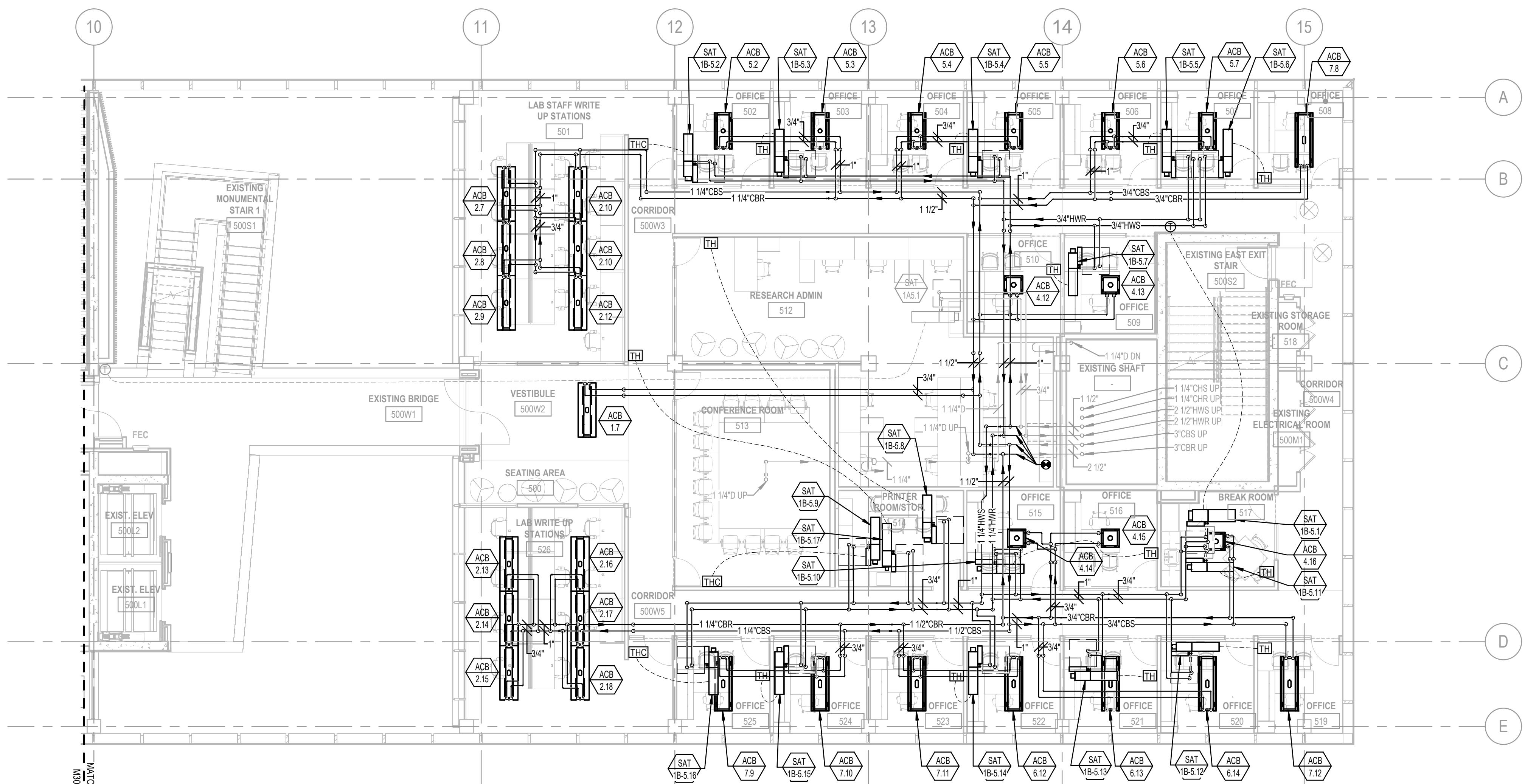
**2 LEVEL 4 MECHANICAL PIPING PLAN - WEST**

SCALE: 1/8" = 1'-0"



SCALE: 1/8" = 1'-0"

08/20/2025



1 LEVEL 5 MECHANICAL PIPING PLAN - EAST

SCALE: 1/8" = 1'-0"

## GENERAL NOTES

1. DUE TO CEILING SPACE LIMITATIONS, IT IS IMPERATIVE THAT DUCTWORK/EQUIPMENT INSTALLATION BE COORDINATED WITH ALL TRADES PRIOR TO INSTALLATION.
2. CONTRACTOR TO COORDINATE WITH ALL TRADES TO ENSURE ADEQUATE ACCESS IS PROVIDED TO PROPERLY MAINTAIN ALL AIR TERMINAL DEVICES, DUCT SMOKE DETECTORS, FIRE/SMOKE DAMPERS, CONTROL VALVES, AND OTHER EQUIPMENT. ALL MACHINERY/EQUIPMENT PROVIDE CEILING ACCESS PANELS TO SERVICE VALVES/EQUIPMENT LOCATED ABOVE HARD CEILING AREAS.
3. BRANCH PIPING NOT IDENTIFIED BY SIZE SHALL BE 3/4". ALL OTHER PIPING SHALL BE SIZED AS INDENTIFIED.
4. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH DARK SOLID LINE WORK IS NEW.
5. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT SOLID LINE WORK IS EXISTING.
6. DUCTWORK, EQUIPMENT AND PIPING SHOWN WITH LIGHT DASHED LINE WORK IS FUTURE.
7. COORDINATE AND ALIGN ALL CONTROL DEVICES (THERMOSTATS / SENSORS) WITH ADJACENT DEVICES ON WALL.
8. FOR CLARITY, NOT ALL DEVICES ARE SHOWN ON FLOOR PLANS. REFER TO FLOW DIAGRAMS, DETAILS, CONTROL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIRED DEVICES.

## SHEET KEYNOTES #

1. 2 1/4" DN WITH CONNECTION TO CONDENSATE DRAIN RISER ON FLOOR BELOW, CONTINUING DN TO LEVEL 1.
2. 1" HPS DN WITH CONNECTION TO STEAM GENERATOR - REFER TO DETAIL FOR ADDITIONAL REQUIREMENTS.
3. 1" HPS DN WITH CONNECTION TO STERILIZER - REFER TO DETAIL FOR ADDITIONAL REQUIREMENTS.
4. 1" CHW DN WITH CONNECTION TO HX-1 - REFER TO DETAIL FOR ADDITIONAL REQUIREMENTS.
5. 1 1/4" CHW DN WITH CONNECTION TO STERILIZER - REFER TO DETAIL FOR ADDITIONAL REQUIREMENTS.
6. 1" CHW DN WITH CONNECTION TO HX-2 - REFER TO DETAIL FOR ADDITIONAL REQUIREMENTS.
7. 1" DN TO FLOOR DRAIN.
8. PROVIDE FLOOR MOUNTED SECONDARY DRAIN PAN LARGE ENOUGH TO FULLY FIT FCU WITHIN PAN.

PROJECT

FIU BT-919

ENGINEERING - 5TH  
FLOOR FIT-OUTFIU BT-919 ENGINEERING  
Modesto A. Maidique Campus  
Miami, Florida 33199**FIU** FLORIDA INTERNATIONAL UNIVERSITY

5TH FLOOR FIT-OUT 07/18/2025

Modesto A. Maidique Campus  
Miami, Florida 33199

KEYPLAN

West East

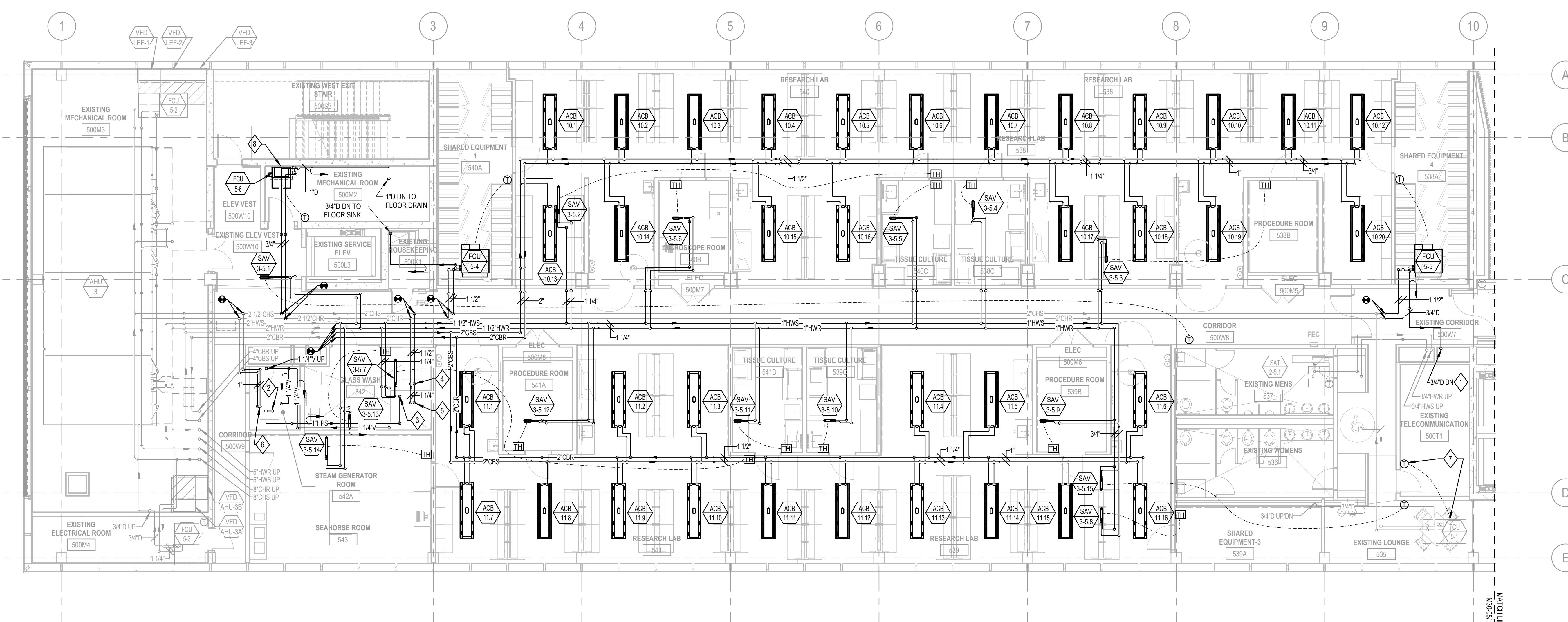
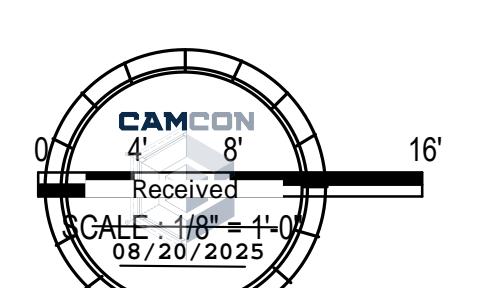
ISSUE CHART

Job Number 810568.003

TITLE

PIPING PLAN LEVEL 05

SHEET NUMBER

**M30-05**

2 LEVEL 5 MECHANICAL PIPING PLAN - WEST

SCALE: 1/8" = 1'-0"



## GENERAL NOTES

- COORDINATE THE INSTALLATION AND FINAL LOCATION OF INSTRUMENTS WITH OTHER TRADES.
- VERIFY ALL CABLE REQUIREMENTS PRIOR TO TERMINATING.
- AIR HANDLER IS INSTALLED IN BUILDING AND OPERATING IN A TEMPORARY RECIRCULATING CONFIGURATION. UNDER THIS PROJECT, AIR HANDLER IS TO BE MODIFIED TO OPERATE WITH 100% OUTSIDE AIR AND EXHAUST AIRSTREAMS AS CHILLED/WATER COOLED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL CONTROL INSTRUMENTATION AND PROGRAMMING IS INCLUDED AS SHOWN ON THIS DIAGRAM/SEQUENCE. CONTRACTOR SHALL PROVIDE ADDITIONAL PROGRAMMING AND EQUIPMENT AS NEEDED TO ACCOMPLISH CONTROLS INTENT AS DESCRIBED.

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CIVIL

STRUCTURAL

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LANDSCAPING

CONTRACTOR

OWNER  
Florida International University  
Miami, Florida  
FACILITY

Engineer of Record  
Yijun Wang  
FL P.E. No. 85688

PROJECT

**FIU BT-919**  
**ENGINEERING - 5TH**  
**FLOOR FIT-OUT**  
FIU BT-919 ENGINEERING  
Modesto A. Maidique Campus  
Miami, Florida 33199

5TH FLOOR FIT-OUT 07/18/2025

**FIU** FLORIDA INTERNATIONAL UNIVERSITY

Modesto A. Maidique Campus  
Miami, Florida 33199

KEYPLAN

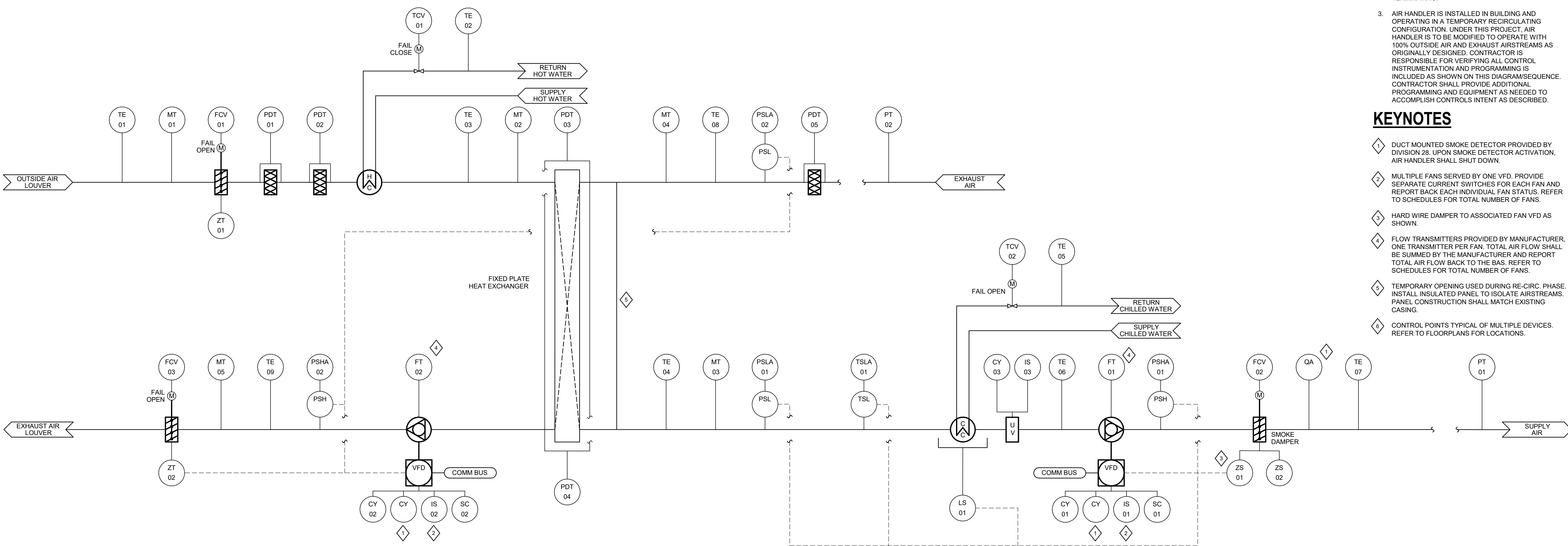
ISSUE CHART

MECHANICAL CONTROLS

SHEET NUMBER

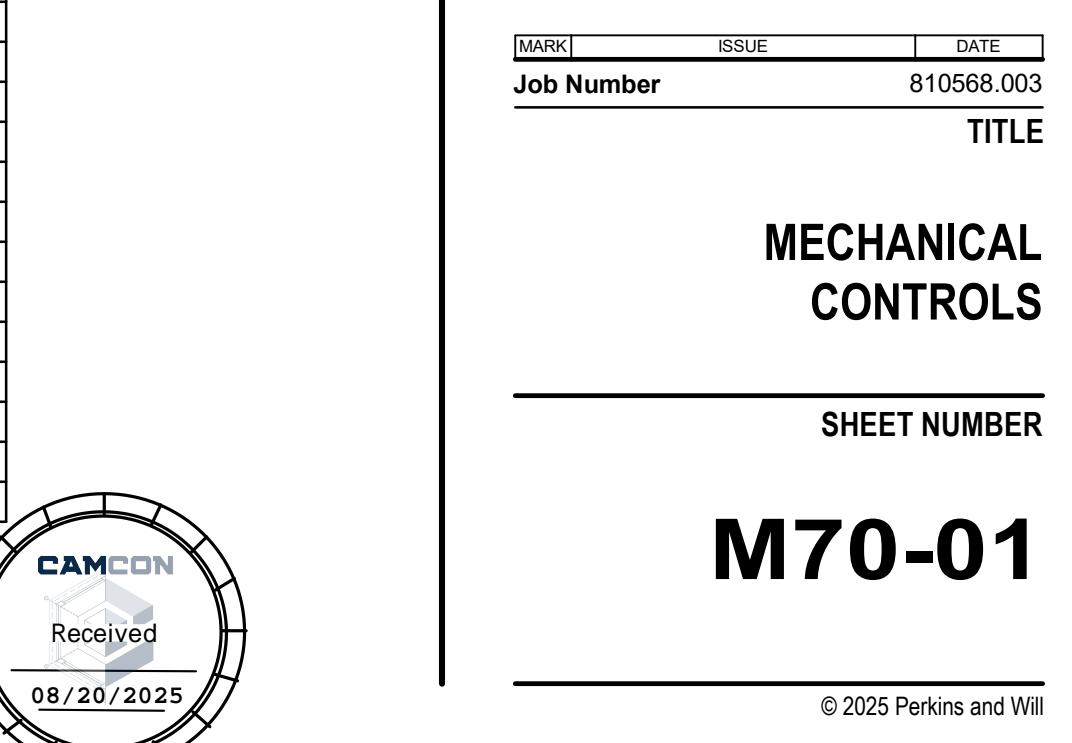
**M70-01**

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WORKSTATION	USER INFORMATION				
	POINT TYPE	ALARM			
		CONDITION			
TAG	POINT DESCRIPTION	UNITS	ANALOG	DIGITAL	INTEGRATED EQUI ALARM HIGH LIMIT LOW LIMIT
CY 01	SUPPLY FAN COMMAND	ON/OFF		X	
CY 02	EXHAUST FAN COMMAND	ON/OFF		X	
CY 03	UV LIGHT COMMAND	ON/OFF		X	
FCV 01	OUTSIDE AIR DAMPER COMMAND	% OPEN	X		
FCV 02	SUPPLY ISOLATION SMOKE DAMPER COMMAND	OPEN/CLOSED	X		
FCV 03	EXHAUST AIR DAMPER COMMAND	% OPEN	X		
FT 01	SUPPLY AIR FLOW	CFM	X		
FT 02	EXHAUST AIR FLOW	CFM	X		
IS 01	SUPPLY FAN STATUS	ON/OFF		X	
IS 02	EXHAUST FAN STATUS	ON/OFF		X	
IS 03	UV LIGHT STATUS	ON/OFF		X	
LS 01	DRAIN PAN FLOAT SWITCH	NORMAL/ALARM	X		
MT 01	OUTSIDE AIR HUMIDITY	% RH	X		
MT 02	HX SUPPLY ENTERING AIR HUMIDITY	% RH	X		
MT 03	HX SUPPLY LEAVING AIR HUMIDITY	% RH	X		
MT 04	HX EXHAUST ENTERING AIR HUMIDITY	% RH	X		
MT 05	HX EXHAUST LEAVING AIR HUMIDITY	% RH	X		
PDT 01	OUTSIDE AIR PRE-FILTER DIFFERENTIAL PRESSURE	IN. WG.	X		
PDT 02	OUTSIDE AIR FINAL FILTER DIFFERENTIAL PRESSURE	IN. WG.	X		
PDT 03	HX SUPPLY DIFFERENTIAL PRESSURE	IN. WG.	X		
PDT 04	HX EXHAUST DIFFERENTIAL PRESSURE	IN. WG.	X		
PDT 05	EXHAUST AIR FILTER DIFFERENTIAL PRESSURE	IN. WG.	X		
PSHA 01	SUPPLY AIR HIGH STATIC ALARM	NORMAL/ALARM	X	X	X
PSHA 02	EXHAUST AIR HIGH STATIC ALARM	NORMAL/ALARM	X	X	X
PSLA 01	SUPPLY AIR LOW STATIC ALARM	NORMAL/ALARM	X	X	X
PSLA 02	EXHAUST AIR LOW STATIC ALARM	NORMAL/ALARM	X	X	X
PT 01	SUPPLY AIR PRESSURE	IN. WG.	X		
PT 02	EXHAUST AIR PRESSURE	IN. WG.	X		
SC 01	SUPPLY FAN SPEED COMMAND	%	X		
SC 02	EXHAUST FAN SPEED COMMAND	%	X		
TCV 01	PREEHAT COIL CONTROL VALVE	% OPEN	X		
TCV 02	CHILLED WATER CONTROL VALVE	% OPEN	X		
TE 01	OUTSIDE AIR TEMPERATURE	DEG F	X		
TE 02	RETURN HOT WATER TEMPERATURE	DEG F	X		
TE 03	PREEHAT COIL LEAVING AIR TEMPERATURE	DEG F	X		
TE 04	COOLING COIL ENTERING AIR TEMPERATURE	DEG F	X		
TE 05	RETURN CHILLED WATER TEMPERATURE	DEG F	X		
TE 06	COOLING COIL LEAVING AIR TEMPERATURE	DEG F	X		
TE 07	SUPPLY AIR TEMPERATURE	DEG F	X		
TE 08	EXHAUST AIR TEMPERATURE (PREEHAT EXCHANGER)	DEG F	X		
TE 09	EXHAUST AIR TEMPERATURE (POST HEAT EXCHANGER)	DEG F	X		
TSLA 01	FREEZE STAT ALARM	NORMAL/ALARM	X	X	X
ZS 01	SUPPLY ISOLATION SMOKE DAMPER OPEN STATUS	OPEN/CLOSED	X		
ZS 02	SUPPLY ISOLATION SMOKE DAMPER CLOSED STATUS	OPEN/CLOSED	X		
ZT 01	OUTSIDE AIR DAMPER POSITION	% OPEN	X		
ZT 02	EXHAUST AIR DAMPER POSITION	% OPEN	X		
<b>SOFTWARE</b>					
SDP	PREEHAT COIL LEAVING AIR TEMPERATURE SETPOINT	DEG F	X		
SDP	STATIC PRESSURE SETPOINT (DEFAULT)	IN. WG.	X		
SDP	STATIC PRESSURE SETPOINT (RESET VALUE)	IN. WG.	X		1.5 0.5
SDP	SUPPLY AIR TEMPERATURE SETPOINT (DEFAULT)	DEG F	X		
SDP	SUPPLY AIR TEMPERATURE SETPOINT (RESET VALUE)	DEG F	X		58 51
SDP	SYSTEM ENABLE	ON/OFF	X		
SDP	SUPPLY FAN VFD POINTS (1)	-		X	
SDP	EXHAUST FAN VFD POINTS (1)	-		X	

NOTES:  
(1) REFER TO SHEET M70-02 FOR REQUIRED POINTS TO INTEGRATE.



1 AHU-3 CONTROL DIAGRAM

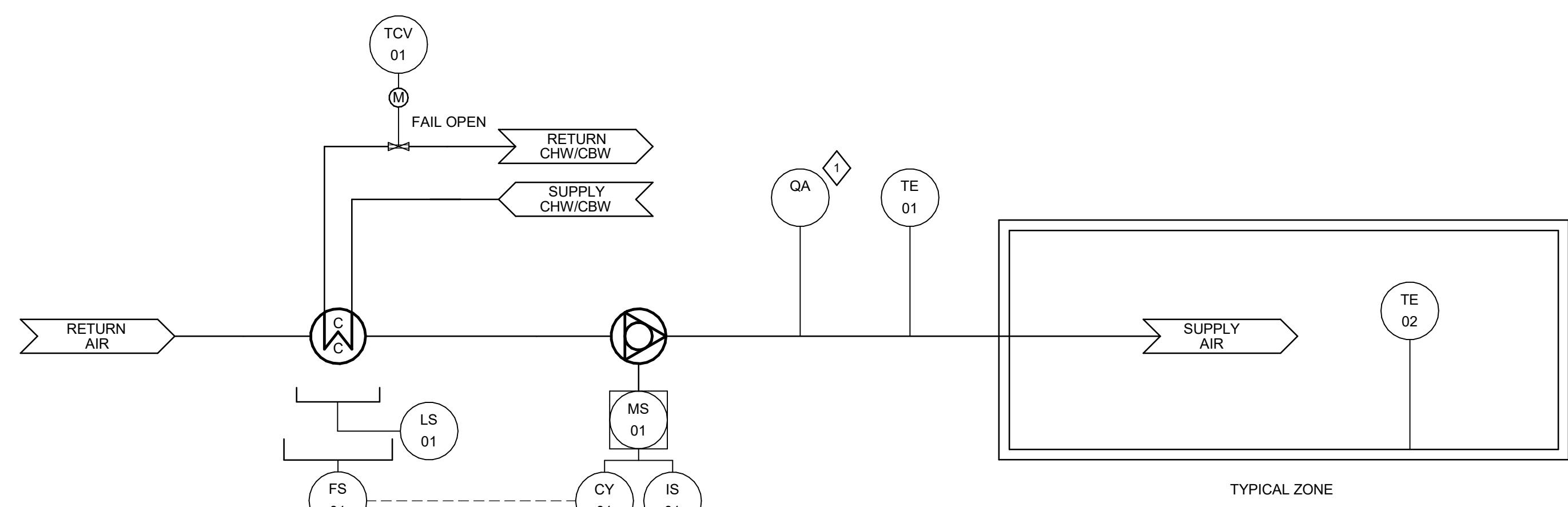
SCALE: NONE

## GENERAL NOTES

- DRAWING IS TYPICAL AND REPRESENTS MORE THAN ONE SYSTEM.
- FOR CLARITY, NOT ALL DEVICES ARE SHOWN HERE. REFER TO FLOOR PLANS, FLOW DIAGRAMS, AND DETAIL DRAWINGS FOR ADDITIONAL DEVICES.
- COORDINATE THE INSTALLATION AND FINAL LOCATION OF INSTRUMENTS WITH OTHER TRADES.
- VERIFY ALL CABLE REQUIREMENTS PRIOR TO TERMINATING.

## SHEET KEYNOTES

 SMOKE DETECTOR APPLIES TO SELECT FAN COIL UNITS. DUCT MOUNTED SMOKE DETECTOR PROVIDED BY DIVISION 24. DUCT MOUNTED DETECTOR ACTIVATION, FAN COIL UNIT SHALL SHUT DOWN. REFER TO FLOORPLANS FOR LOCATIONS.



WORKSTATION			USER INFORMATION					
TAG	POINT DESCRIPTION	UNITS	POINT TYPE			ALARM CONDITION		
			ANALOG	DIGITAL	INTEGRATED	EQUIP ALARM	HIGH LIMIT	LOW LIMIT
<b>HARDWARE</b>								
CY 01	SUPPLY FAN COMMAND	ON/OFF	X					
FS 01	AUXILIARY DRAIN PAN WATER DETECTION SENSOR	NORMAL/ALARM	X	X				
IS 01	SUPPLY FAN STATUS	ON/OFF	X					
LS 01	PRIMARY DRAIN PAN FLOAT SWITCH	NORMAL/ALARM	X	X				
TCV 01	COOLING COIL VALVE OUTPUT	% OPEN	X					
TE 01	SUPPLY AIR TEMPERATURE	DEG F	X			(1)		
TE 02	ZONE TEMPERATURE	DEG F	X			(1)		
<b>SOFTWARE</b>								
SDP	SYSTEM ENABLED	ON/OFF		X				
SDP	MINIMUM RUN TIME SETPOINT	MINUTES	X					
SDP	ZONE COOLING TEMPERATURE SETPOINT (1)	DEG F	X					
SDP	SUPPLY FAN RUNTIME	HOURS	X					

NOTES:

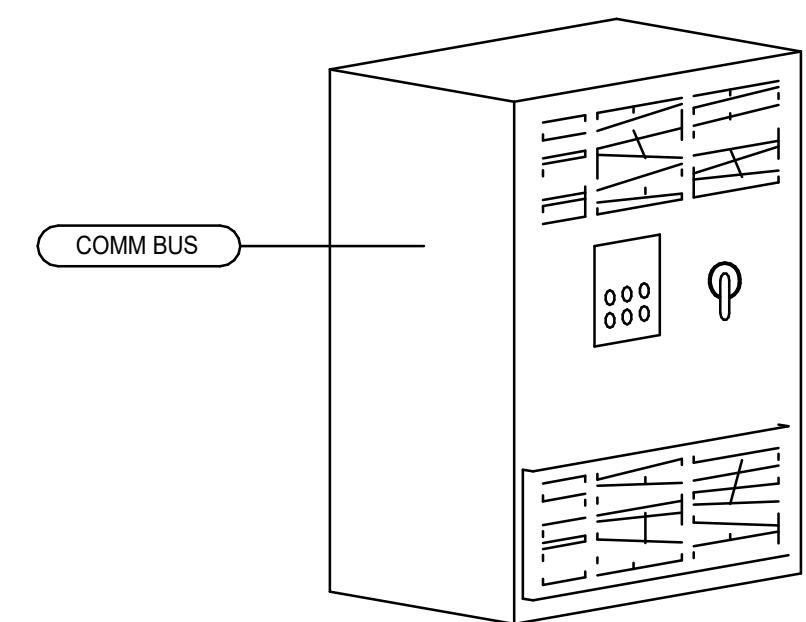
(1) REFER TO SCHEDULE FOR SETPOINTS.

## GENERAL FAN COIL UNIT - CONTROL SEQUENCE

- GENERAL:
  - CONSTANT AIR VOLUME RE-CIRCULATING FAN COIL DISTRIBUTES AIR TO SPACE.
  - SYSTEM OPERATION:
    - SYSTEM SHALL OPERATE CONTINUOUSLY.
    - SYSTEM SHALL RESTART AUTOMATICALLY ONCE NORMAL POWER IS RESTORED FOLLOWING A POWER OUTAGE.
  - START UP:
    - UPON START UP COMMAND:
      - SUPPLY FAN STARTS AND IS PROVEN.
      - TEMPERATURE CONTROL SEQUENCE ACTIVATES.
    - UPON SHUT DOWN COMMAND:
      - SUPPLY FAN STOPS.
      - TEMPERATURE CONTROL SEQUENCE DEACTIVATES AND VALVES CLOSE.
      - ALL TEMPERATURE ALARMS ARE SUPPRESSED.
  - TEMPERATURE CONTROL SEQUENCE:
    - COOLING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE.
  - SAFETY:
    - THE FOLLOWING SAFETIES SHUT DOWN SUPPLY FAN AND ACTIVATE SHUT DOWN SEQUENCE:
      - AUXILIARY DRAIN PAN WATER DETECTION SENSOR.
      - BUILDING FIRE ALARM: UNITS SHALL NOT SHUT DOWN DURING BUILDING FIRE ALARM.

3 GENERAL FAN COIL UNIT CONTROL DIAGRAM

SCALE: NONE



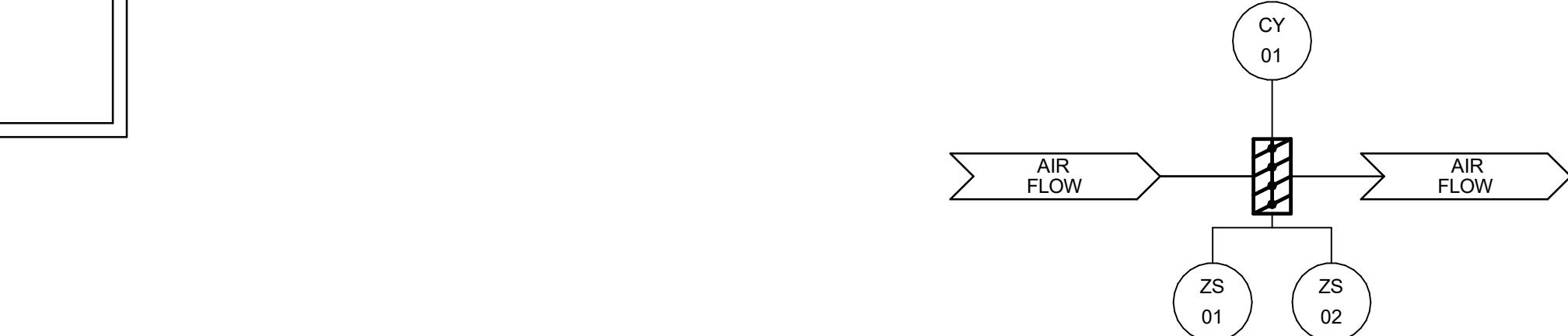
VARIABLE FREQUENCY DRIVE (VFD)

WORKSTATION			USER INFORMATION					
TAG	POINT DESCRIPTION	UNITS	POINT TYPE			ALARM CONDITION		
			ANALOG	DIGITAL	INTEGRATED	EQUIP ALARM	HIGH LIMIT	LOW LIMIT
<b>INTEGRATED</b>								
SDP	SPEED FEEDBACK	% OF FULL SPEED (1)	X					
SDP	VOLTAGE	V	X					
SDP	ALARM	NORMAL/ALARM	X	X				
SDP	EQUIPMENT RUN TIME	HOURS	X					
SDP	POWER CONSUMPTION	KW	X					
SDP	TOTALIZED POWER CONSUMPTION	KWH	X					
SDP	SETPOINT	HZ	X					
SDP	DRIVE SPEED	RPM	X					
SDP	CURRENT	A	X					
SDP	LAST FAULT NUMBER	NUMBER	X					
SDP	STOP/RUN STATUS	STOP/RUN	X					
SDP	MAXIMUM SPEED LIMIT	Hz		X				
SDP	HAND-OFF/AUTO STATUS	H/O/A	X					

NOTES:  
(1) FULL SPEED HZ IS DEFINED AS THE HZ OF THE FAN OPERATING AT DESIGN CONDITIONS AS SHOWN ON EQUIPMENT SUBMITTAL, OR 60 HZ, WHICHEVER IS LARGER.

5 TYPICAL VARIABLE FREQUENCY DRIVE (VFD) - INTEGRATED SOFTWARE POINTS

SCALE: NONE

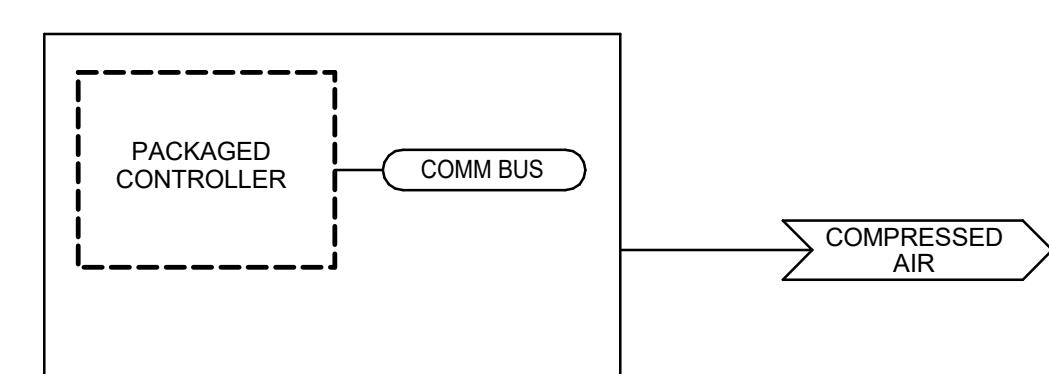


WORKSTATION			USER INFORMATION					
TAG	POINT DESCRIPTION	UNITS	POINT TYPE			ALARM CONDITION		
			ANALOG	DIGITAL	INTEGRATED	EQUIP ALARM	HIGH LIMIT	LOW LIMIT
<b>HARDWARE</b>								
CY 01	DAMPER OPEN COMMAND (1)	OPEN/CLOSED		X				
ZS 01	DAMPER OPEN STATUS (2)	OPENCLOSED		X				
ZS 02	DAMPER CLOSED STATUS (2)	OPENCLOSED		X				

NOTES:  
(1) BAS COMMAND SHALL NOT OVERRIDE FIRE ALARM COMMAND. REFER TO ELECTRICAL FOR WIRING DIAGRAMS.  
(2) FOR DAMPERS WITH MULTIPLE SECTIONS, WIRE EACH DAMPER POSITION SWITCH FOR EACH SECTION IN SERIES WITH THE NEXT SECTION.

1 FIRE/SMOKE DAMPER CONTROL DIAGRAM

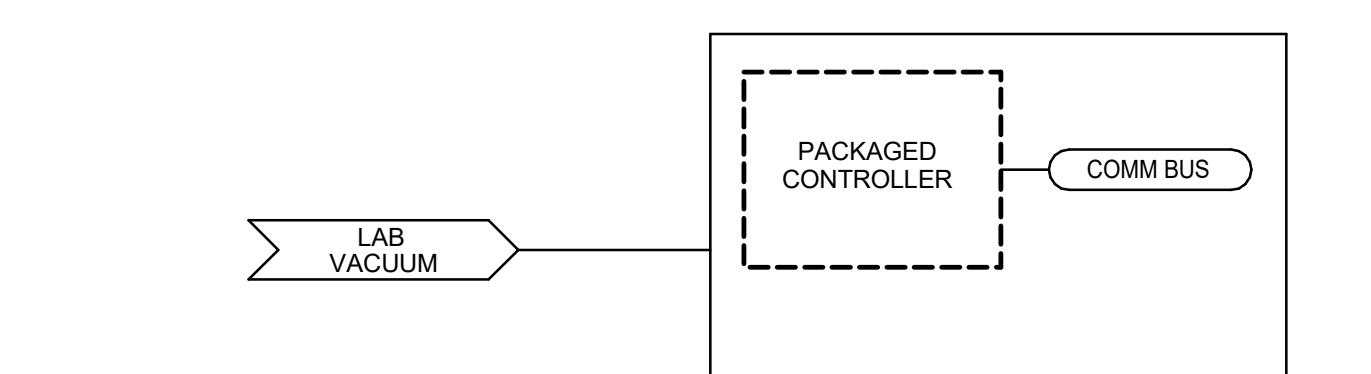
SCALE: NONE



WORKSTATION			USER INFORMATION					
TAG	POINT DESCRIPTION	UNITS	POINT TYPE			ALARM CONDITION		
			ANALOG	DIGITAL	INTEGRATED	EQUIP ALARM	HIGH LIMIT	LOW LIMIT
<b>SOFTWARE</b>								
SDP	GENERAL FAULT	NORMAL/ALARM		X				

4 AIR COMPRESSOR MONITORING

SCALE: NONE



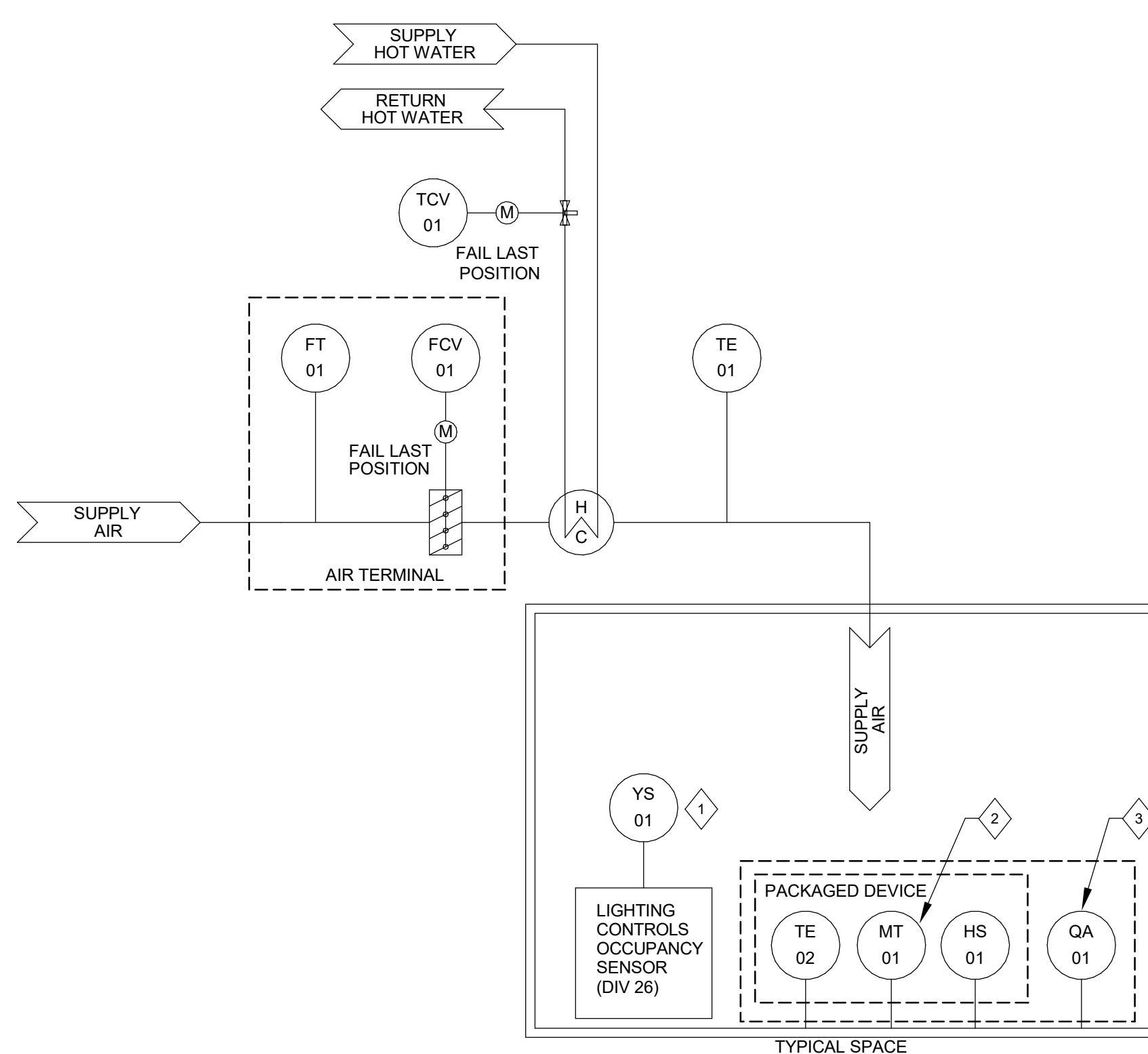
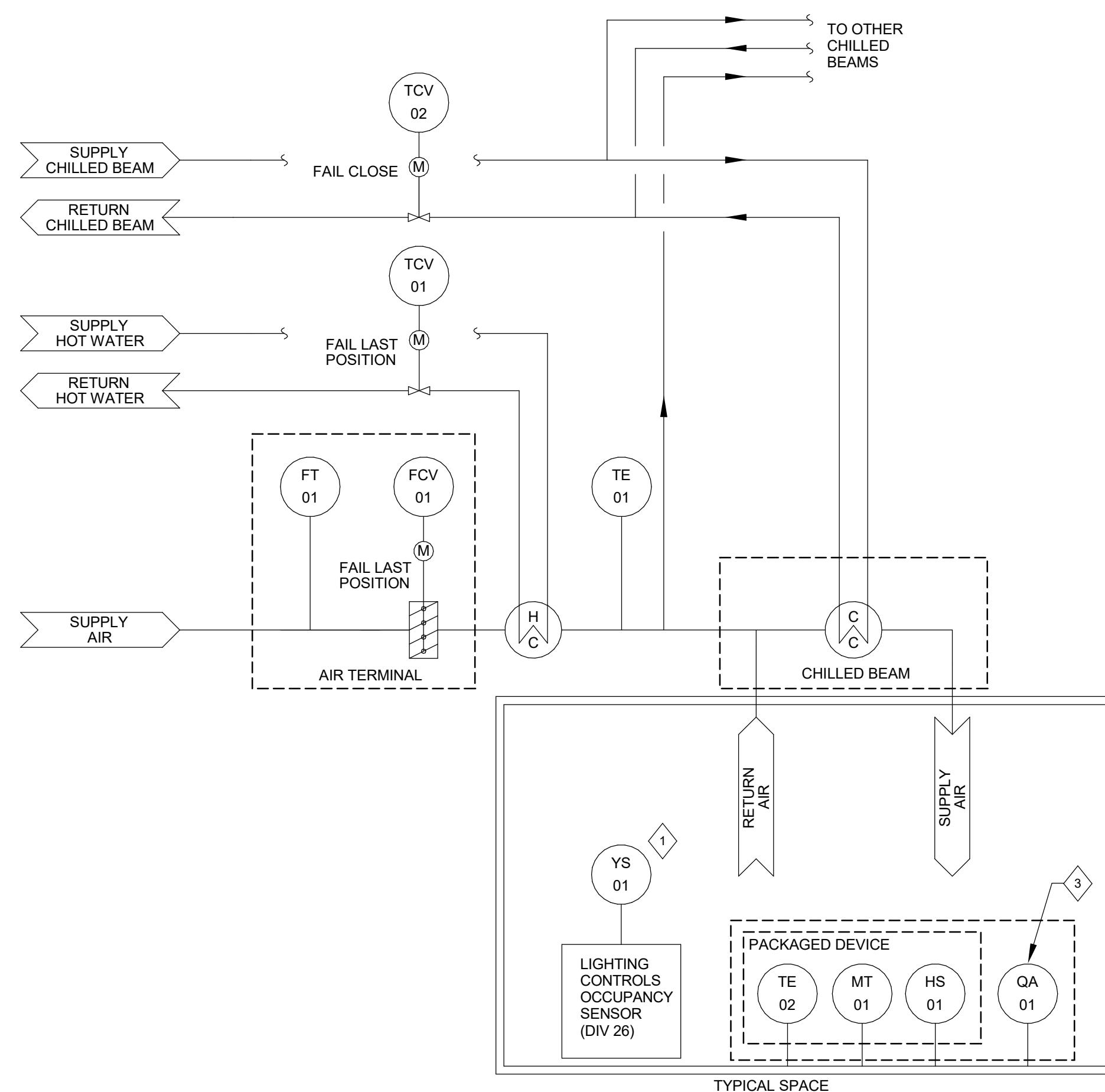
WORKSTATION			USER INFORMATION					
TAG	POINT DESCRIPTION	UNITS						

## GENERAL NOTES

- DRAWING IS TYPICAL AND REPRESENTS MORE THAN ONE SYSTEM.
- FOR CLARITY, NOT ALL DEVICES ARE SHOWN HERE. REFER TO FLOOR PLANS, FLOW DIAGRAMS, AND DETAIL DRAWINGS FOR ADDITIONAL DEVICES.
- COORDINATE THE INSTALLATION AND FINAL LOCATION OF INSTRUMENTS WITH OTHER TRADES.
- VERIFY ALL CABLE REQUIREMENTS PRIOR TO TERMINATING.

## SHEET KEYNOTES

- (1) TYPICAL FOR EACH LIGHTING CONTROLS OCCUPANCY SENSOR IN THE ZONE SERVED BY THE AIR TERMINAL DEVICE. REFER TO ELECTRICAL PLANS FOR QUANTITY AND LOCATION OF LIGHTING CONTROLS OCCUPANCY SENSORS.
- (2) HUMIDITY SENSOR DOES NOT APPLY TO EACH ZONE. REFER TO FLOOR PLANS FOR QUANTITY AND LOCATION.
- (3) CO2 SENSOR DOES NOT APPLY TO EACH ZONE. REFER TO FLOOR PLANS FOR QUANTITY AND LOCATION.



WORKSTATION			USER INFORMATION					
	POINT DESCRIPTION	UNITS	ANALOG	DIGITAL	INTEGRATED	EQUIP ALARM	HIGH LIMIT	LOW LIMIT
<b>HARDWARE</b>								
FCV/01	SUPPLY AIR DAMPER COMMAND	% OPEN	X					
FT/01	SUPPLY AIR FLOW	CFM	X					
HS/01	TEMPORARY PUSHBUTTON OVERRIDE	NORMAL/OVERRIDE	X					
MT/01	SPACE RELATIVE HUMIDITY	% RH	X					
TCV/01	REHEAT COIL CONTROL VALVE COMMAND	% OPEN	X					
TE/02	CHILLED BEAM COOLING COIL CONTROL VALVE COMMAND	% OPEN	X					
TE/01	DISCHARGE AIR TEMPERATURE	DEG F	X					
TE/02	SPACE TEMPERATURE	DEG F	X					
YS/01	LIGHTING CONTROLS OCCUPANCY SENSOR	OCCUPIED/UNOCCUPIED	X					
<b>SOFTWARE</b>								
SDP	OCCUPIED SPACE COOLING SETPOINT (1)	DEG F	X					
SDP	OCCUPIED SPACE HEATING SETPOINT (1)	DEG F	X					
SDP	UNOCCUPIED SPACE COOLING SETPOINT (2)	DEG F	X					
SDP	UNOCCUPIED SPACE HEATING SETPOINT (2)	DEG F	X					
SDP	SUPPLY MAX AIRFLOW SETPOINT	CFM	X					
SDP	STARVED SUPPLY AT BOX ALARM	NORMAL/ALARM	X	X				
SDP	TEMPORARY OVERRIDE SETPOINT	HOURS	X					1
SDP	MAXIMUM SPACE DEW POINT LIMIT (3)	DEG F	X					
SDP	DEW POINT ALARM	NORMAL/ALARM	X	X				
SDP	SUPPLY MIN OCC. AIRFLOW SETPOINT	CFM	X					
SDP	SUPPLY MIN UNOCC. AIRFLOW SETPOINT	CFM	X					
SDP	CALCULATED SPACE DEW POINT	DEG F	X					
SDP	OCCUPANCY MODE	OCCUPIED/UNOCCUPIED	X					

NOTES:  
(1) REFER TO HVAC DESIGN CONDITIONS SCHEDULE.  
(2) UNOCCUPIED SPACE COOLING SETPOINT SHALL BE 80 DEGREES (ADJ) AND UNOCCUPIED SPACE HEATING SETPOINT SHALL BE 65 DEGREES (ADJ).  
(3) MAXIMUM SPACE DEWPOINT LIMIT SHALL BE 56 DEGREES (ADJ).

- A. GENERAL:  
1. SPACE TEMPERATURE IS MONITORED BY A SPACE TEMPERATURE SENSOR. DURING TEMPERATURE CONTROL SEQUENCE, REHEAT COIL CONTROL VALVE AND CHILLED BEAM COOLING COIL CONTROL VALVE MODULATE TO MAINTAIN SPACE TEMPERATURE. ONE CHILLED BEAM COOLING COIL CONTROL VALVE CONTROLS THE ENTIRE GROUP OF CHILLED BEAMS THAT ARE FED FROM A SINGLE COMMON AIR TERMINAL DEVICE.  
2. CHILLED BEAM COOLING COIL CONTROL VALVE SHALL REMAIN CLOSED FOR 45 MINUTES (ADJ) AFTER THE ASSOCIATED AIR HANDLING UNIT STARTS UP.
- B. OCCUPANCY MODE:  
1. UPON OCCUPIED COMMAND VIA AIR HANDLING UNIT SCHEDULE, PUSHBUTTON OVERRIDE, OR ACTIVATION OF ANY SINGLE ASSOCIATED LIGHTING CONTROLS OCCUPANT SENSOR:  
a. ACTIVATE OCCUPIED TEMPERATURE SETPOINTS.  
b. ACTIVATE OCCUPIED AIRFLOW SETPOINTS.  
c. ACTIVATE TEMPERATURE CONTROL SEQUENCE.
- C. UNOCCUPIED MODE:  
1. UPON UNOCCUPIED COMMAND VIA AIR HANDLING UNIT SCHEDULE, EXPIRATION OF TEMPORARY OVERRIDE, OR DEACTIVATION OF ALL ASSOCIATED LIGHTING CONTROLS OCCUPANT SENSORS:  
a. ACTIVATE UNOCCUPIED TEMPERATURE SETPOINTS.  
b. AS SPACE AIR TEMPERATURE INCREASES ABOVE UNOCCUPIED COOLING SETPOINT OR DECREASES BELOW UNOCCUPIED HEATING SETPOINT, OR IF SPACE HUMIDITY EXCEEDS HUMIDITY LIMIT (60% ADJ), ASSOCIATED AIR HANDLING UNIT OPERATES A TEMPORARY OVERRIDE. THIS SEQUENCE ACTIVATES AND AIR HANDLING UNIT OPERATES FOR A MINIMUM OF ONE HOUR (ADJ).  
c. IF ASSOCIATED AIR HANDLING UNIT IS OPERATING, TEMPERATURE CONTROL SEQUENCE FOR AIR TERMINAL IS ACTIVATED USING UNOCCUPIED SETPOINTS. IF AIR TERMINAL IS WITHIN UNOCCUPIED TEMPERATURE SETPOINT RANGE, INITIALLY USE SUPPLY MIN UNOCCUPIED AIRFLOW SETPOINT AND REHEAT VALVE REMAINS CLOSED.  
d. WHEN ASSOCIATED AIR HANDLING UNIT IS NOT OPERATING DURING UNOCCUPIED MODE, AIR TERMINAL AIRFLOW SETPOINTS AND TEMPERATURE CONTROL SEQUENCE ARE DEACTIVATED.
- D. TEMPERATURE CONTROL:  
1. AIR TERMINAL DAMPER MODULATES TO MAINTAIN SPACE AIRFLOW SETPOINT. SINCE ALL SUPPLY AIR TERMINALS SERVING CHILLED BEAMS ARE CONSTANT VOLUME:  
a. IN OCCUPIED MODE, SUPPLY AIR FLOW SETPOINT = SUPPLY MAX. OCCUPIED AIRFLOW SETPOINT = SUPPLY MIN. UNOCCUPIED AIRFLOW SETPOINT.  
b. AS SPACE AIR TEMPERATURE INCREASES ABOVE SPACE COOLING SETPOINT:  
i. CHILLED BEAM COOLING COIL CONTROL VALVE MODULATES CLOSED.  
ii. REHEAT COIL CONTROL VALVE REMAINS CLOSED.  
3. AS SPACE TEMPERATURE DECREASES BELOW SPACE COOLING SETPOINT:  
a. REHEAT COIL CONTROL VALVE MODULATES TO MAINTAIN SPACE HEATING SETPOINT.  
b. CHILLED BEAM COOLING COIL CONTROL VALVE REMAINS CLOSED.  
5. AS SPACE TEMPERATURE INCREASES ABOVE SPACE HEATING SETPOINT:  
a. REHEAT COIL CONTROL VALVE MODULATES CLOSED.  
b. CHILLED BEAM COOLING COIL CONTROL VALVE REMAINS CLOSED.
- F. DEWPOINT CONTROL:  
1. IF SPACE DEWPOINT TEMPERATURE RISES ABOVE MAXIMUM SPACE DEWPOINT LIMIT:  
e. GENERATE ALARM AT BAS WORKSTATION.  
f. IF SPACE IS IN UNOCCUPIED MODE, INCREASE SUPPLY AIRFLOW TO SUPPLY MAX. AIRFLOW SETPOINT. WHEN DEWPOINT DECREASES BELOW MAXIMUM SPACE DEWPOINT LIMIT, RESET ALARM AND DECREASE SUPPLY AIR FLOW TO SUPPLY MIN. UNOCCUPIED AIRFLOW SETPOINT.  
2. IF DEWPOINT REMAINS ABOVE MAXIMUM SPACE DEWPOINT LIMIT FOR 5 MINUTES (ADJ) OR LONGER:  
a. CLOSED CHILLED BEAM COOLING COIL CONTROL VALVE.  
b. GENERATE ALARM AT BAS WORKSTATION.  
c. ALARM REQUIRES MANUAL RESET.
- G. SAFETIES:  
1. CLOSE CHILLED BEAM COOLING COIL CONTROL VALVE IF ASSOCIATED AIR HANDLING UNIT SHUTS DOWN FOR ANY REASON.  
H. ALARMS:  
1. GENERATE ALARM IF SUPPLY AIR DAMPER COMMAND IS AT 100% AND SUPPLY AIR FLOW DOES NOT MEET SETPOINT.

WORKSTATION			USER INFORMATION					
	POINT DESCRIPTION	UNITS	ANALOG	DIGITAL	INTEGRATED	EQUIP ALARM	HIGH LIMIT	LOW LIMIT
<b>HARDWARE</b>								
FCV/01	SUPPLY AIR DAMPER COMMAND	% OPEN	X					
FT/01	SUPPLY AIR FLOW	CFM	X					
HS/01	TEMPORARY PUSHBUTTON OVERRIDE	NORMAL/OVERRIDE	X					
MT/01	SPACE RELATIVE HUMIDITY	% RH	X					
QA/01	SPACE CO2 SENSOR	PPM	X					
TCV/01	REHEAT COIL CONTROL VALVE COMMAND	% OPEN	X					
TE/01	DISCHARGE AIR TEMPERATURE	DEG F	X					
TE/02	SPACE TEMPERATURE	DEG F	X					
YS/01	LIGHTING CONTROLS OCCUPANCY SENSOR	OCCUPIED/UNOCCUPIED	X					
<b>SOFTWARE</b>								
SDP	OCCUPIED SPACE COOLING SETPOINT (1)	DEG F	X					
SDP	OCCUPIED SPACE HEATING SETPOINT (1)	DEG F	X					
SDP	UNOCCUPIED SPACE COOLING SETPOINT (2)	DEG F	X					
SDP	UNOCCUPIED SPACE HEATING SETPOINT (2)	DEG F	X					
SDP	SUPPLY MAX AIRFLOW SETPOINT	CFM	X					
SDP	STARVED SUPPLY AT BOX ALARM	NORMAL/ALARM	X	X				
SDP	TEMPORARY OVERRIDE SETPOINT	HOURS	X					1
SDP	MAXIMUM SPACE HUMIDITY LIMIT	%RH	X					
SDP	MAXIMUM SPACE CO2 LIMIT	PPM	X					800
SDP	SUPPLY MIN OCC. AIRFLOW SETPOINT	CFM	X					
SDP	SUPPLY MIN UNOCC. AIRFLOW SETPOINT	CFM	X					
SDP	OCCUPANCY MODE	OCCUPIED/UNOCCUPIED	X					

- NOTES:  
1. REFER TO SCHEDULE FOR SETPOINTS.  
2. FOR NON-CLASSROOM ZONES, UNOCCUPIED SPACE COOLING SETPOINT SHALL BE 78 DEGREES (ADJ) AND UNOCCUPIED SPACE HEATING SETPOINT SHALL BE 65 DEGREES (ADJ). FOR CLASSROOM ZONES, UNOCCUPIED SETPOINTS SHALL BE EQUAL TO OCCUPIED SETPOINTS.  
3. MAXIMUM SPACE DEWPOINT LIMIT SHALL BE 56 DEGREES (ADJ).
- GENERAL AIR TERMINAL DEVICE - CONTROL SEQUENCE
- A. GENERAL:  
1. SPACE TEMPERATURE IS MONITORED BY A SPACE TEMPERATURE SENSOR. DURING TEMPERATURE CONTROL SEQUENCE, SUPPLY AIR DAMPER AND REHEAT COIL CONTROL VALVE MODULATE TO MAINTAIN SPACE TEMPERATURE.
- B. ZONE OCCUPIED MODE:  
1. UPON OCCUPIED COMMAND VIA AIR HANDLING UNIT SCHEDULE, PUSHBUTTON OVERRIDE, OR ACTIVATION OF ANY SINGLE ASSOCIATED LIGHTING CONTROLS OCCUPANT SENSOR:  
a. ACTIVATE OCCUPIED TEMPERATURE SETPOINTS.  
b. ACTIVATE OCCUPIED AIRFLOW SETPOINTS.  
c. ACTIVATE TEMPERATURE CONTROL SEQUENCE USING OCCUPIED SETPOINTS.
- C. ZONE UNOCCUPIED MODE:  
1. UPON UNOCCUPIED COMMAND VIA AIR HANDLING UNIT SCHEDULE, EXPIRATION OF TEMPORARY OVERRIDE, OR DEACTIVATION OF ALL ASSOCIATED LIGHTING CONTROLS OCCUPANT SENSORS:  
a. ACTIVATE UNOCCUPIED TEMPERATURE SETPOINTS.  
b. AS SPACE AIR TEMPERATURE INCREASES ABOVE UNOCCUPIED COOLING SETPOINT OR DECREASES BELOW UNOCCUPIED HEATING SETPOINT, OR IF SPACE HUMIDITY EXCEEDS HUMIDITY LIMIT (60% ADJ), ASSOCIATED AIR HANDLING UNIT OPERATES A TEMPORARY OVERRIDE. THIS SEQUENCE ACTIVATES AND AIR HANDLING UNIT OPERATES FOR A MINIMUM OF ONE HOUR (ADJ).  
c. IF ASSOCIATED AIR HANDLING UNIT IS OPERATING, TEMPERATURE CONTROL SEQUENCE FOR ASSOCIATED AIR TERMINALS IS ACTIVATED USING UNOCCUPIED SETPOINTS.  
d. WHEN ASSOCIATED AIR HANDLING UNIT IS NOT OPERATING DURING UNOCCUPIED MODE, AIR TERMINAL AIRFLOW SETPOINTS AND TEMPERATURE CONTROL SEQUENCE ARE DEACTIVATED.
- D. TEMPORARY OVERRIDE:  
1. TEMPORARY OVERRIDE SHALL FUNCTION WHETHER THE ASSOCIATED AIR HANDLING UNIT IS IN OCCUPIED OR UNOCCUPIED MODE.
- E. TEMPERATURE CONTROL:  
1. TEMPERATURE CONTROL SEQUENCE IMPLEMENTS OCCUPIED OR UNOCCUPIED TEMPERATURE AND AIRFLOW SETPOINTS, DEPENDING ON ZONE OCCUPANCY MODE.  
2. AS SPACE TEMPERATURE DECREASES BELOW SPACE COOLING SETPOINT:  
a. SUPPLY AIRFLOW SETPOINT INCREASES TOWARD SUPPLY MAX. AIRFLOW SETPOINT.  
b. REHEAT COIL CONTROL VALVE REMAINS CLOSED.
- F. AS SPACE TEMPERATURE INCREASES ABOVE SPACE HEATING SETPOINT:  
a. SUPPLY AIRFLOW SETPOINT DECREASES TOWARD SUPPLY MIN. AIRFLOW SETPOINT.  
b. REHEAT COIL CONTROL VALVE REMAINS CLOSED.
- G. ALARMS:  
1. GENERATE STARVED SUPPLY AT BOX ALARM IF SUPPLY AIR DAMPER COMMAND IS AT 100% AND SUPPLY AIRFLOW DOES NOT MEET SETPOINT.

- H. ALARMS:  
1. GENERATE ALARM IF SUPPLY AIR DAMPER COMMAND IS AT 100% AND SUPPLY AIR FLOW DOES NOT MEET SETPOINT.
- I. SAFETIES:  
1. CLOSE CHILLED BEAM COOLING COIL CONTROL VALVE IF ASSOCIATED AIR HANDLING UNIT SHUTS DOWN FOR ANY REASON.
- J. ALARMS:  
1. GENERATE ALARM IF SUPPLY AIR DAMPER COMMAND IS AT 100% AND SUPPLY AIR FLOW DOES NOT MEET SETPOINT.

2 AIR TERMINAL UNIT WITH CHILLED BEAM CONTROL DIAGRAM

SCALE: NONE

1 AIR TERMINAL UNIT CONTROL DIAGRAM

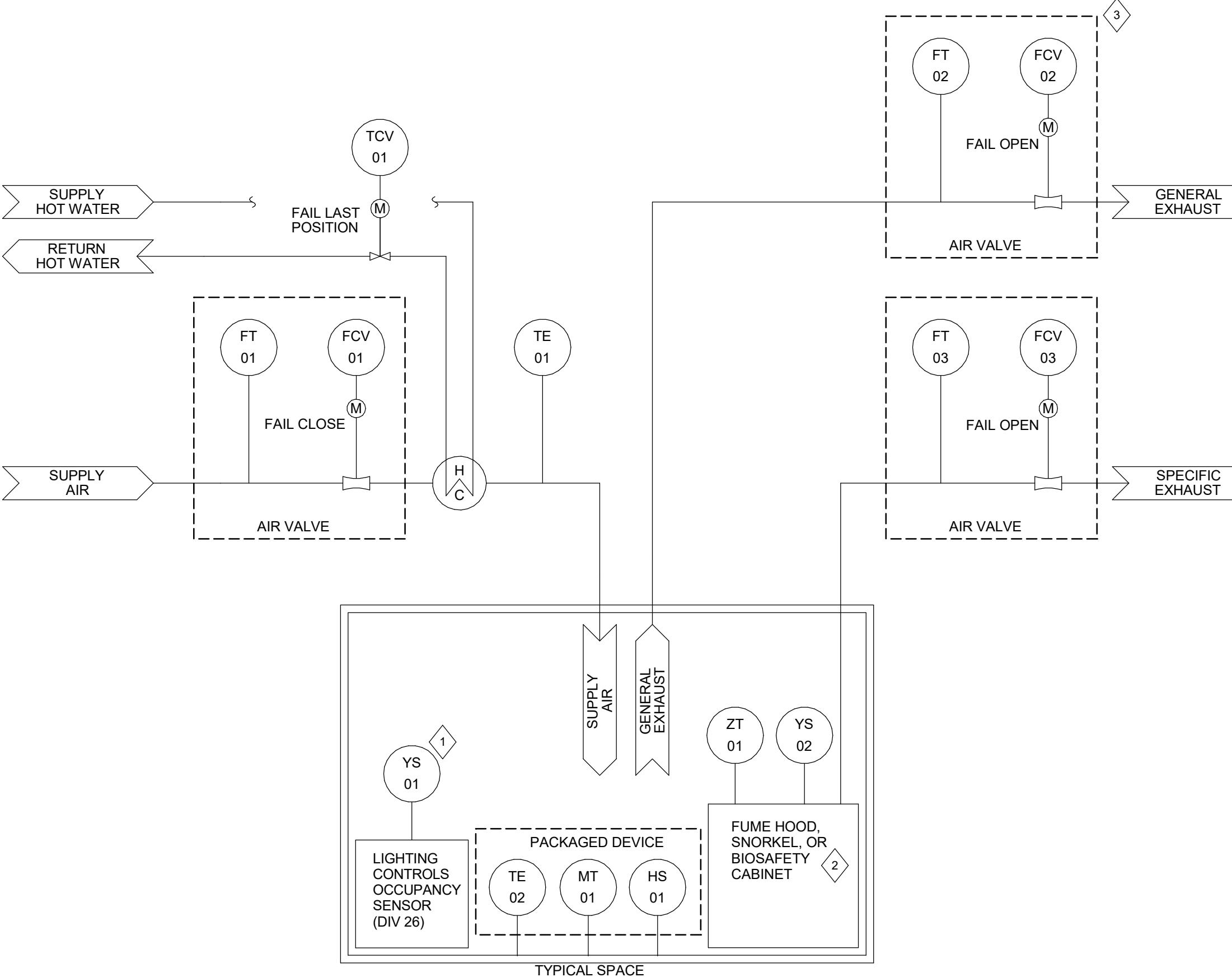
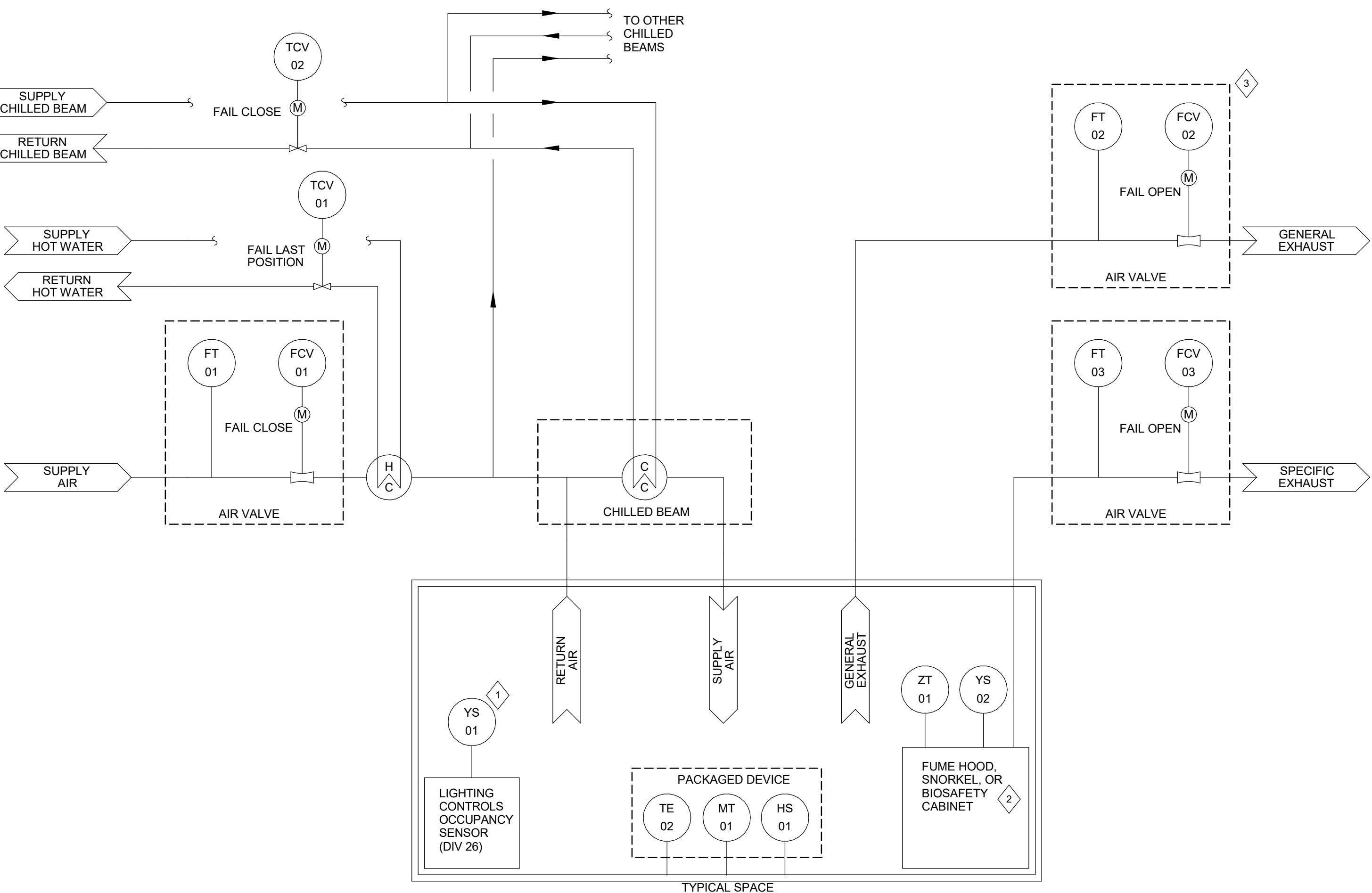
SCALE: NONE</p

## GENERAL NOTES

- DRAWING IS TYPICAL AND REPRESENTS MORE THAN ONE SYSTEM.
- FOR CLARITY, NOT ALL DEVICES ARE SHOWN HERE. REFER TO FLOOR PLANS, FLOW DIAGRAMS, AND DETAIL DRAWINGS FOR ADDITIONAL DEVICES.
- COORDINATE THE INSTALLATION AND FINAL LOCATION OF INSTRUMENTS WITH OTHER TRADES.
- VERIFY ALL CABLE REQUIREMENTS PRIOR TO TERMINATING.

## SHEET KEYNOTES

- 1** TYPICAL FOR EACH LIGHTING CONTROLS OCCUPANCY SENSOR IN THE ZONE SERVED BY THE AIR TERMINAL DEVICE. REFER TO ELECTRICAL PLANS FOR QUANTITY AND LOCATION OF LIGHTING CONTROLS OCCUPANT SENSORS.
- 2** FUME HOODS AND ASSOCIATED EXHAUST VALVES ONLY APPLY TO SPECIFIC ROOMS. MORE THAN ONE EXHAUST VALVE MAY BE ASSOCIATED WITH A SINGLE SUPPLY VALVE. REFER TO PLANS FOR QUANTITY AND LOCATION.
- 3** EXHAUST AIR VALVES DO NOT APPLY TO ALL ZONES. REFER TO FLOORPLANS FOR LOCATIONS.



WORKSTATION			USER INFORMATION					
TAG	POINT DESCRIPTION	UNITS	POINT TYPE		ALARM CONDITION		HIGH LIMIT	LOW LIMIT
			ANALOG	DIGITAL	INTEGRATED	EQUIP ALARM		
<b>HARDWARE</b>								
FCV 01	SUPPLY AIR DAMPER COMMAND	% OPEN	X					
FCV 02	GENERAL EXHAUST AIR DAMPER COMMAND	% OPEN	X					
FCV 03	SPECIFIC EXHAUST AIR DAMPER COMMAND	% OPEN	X					
FT 01	SUPPLY AIR FLOW	CFM	X					
FT 02	GENERAL EXHAUST AIR FLOW	CFM	X					
FT 03	SPECIFIC EXHAUST AIR FLOW	CFM	X					
HS 01	TEMPORARY PUSHBUTTON OVERRIDE	NORMAL/OVERRIDE		X				
MT 01	SPACE RELATIVE HUMIDITY	%	X					
TCV 01	HEATING COIL VALVE COMMAND	% OPEN	X					
TCV 02	CHILLED BEAM COIL VALVE COMMAND	% OPEN	X					
TE 01	DISCHARGE AIR TEMPERATURE	DEG F	X					
TE 02	SPACE TEMPERATURE	DEG F	X					
YS 01	LIGHTING CONTROLS OCCUPANCY SENSOR	OCCUPIED/UNOCCUPIED	X					
YS 02	FUME HOOD OCCUPANCY SENSOR	OCCUPIED/UNOCCUPIED	X					
ZT 01	FUME HOOD SASH POSITION SENSOR	% OPEN	X					
<b>SOFTWARE</b>								
SDP	OCCUPIED SPACE COOLING SETPOINT (1)	DEG F	X					
SDP	OCCUPIED SPACE HEATING SETPOINT (1)	DEG F	X					
SDP	UNOCCUPIED SPACE COOLING SETPOINT (2)	DEG F	X					
SDP	UNOCCUPIED SPACE HEATING SETPOINT (2)	DEG F	X					
SDP	SUPPLY AIR FLOW SETPOINT	CFM	X					
SDP	SUPPLY REHEAT AIR FLOW SETPOINT	CFM	X					
SDP	GENERAL EXHAUST AIR FLOW SETPOINT	CFM	X					
SDP	SPECIFIC EXHAUST AIR FLOW SETPOINT	CFM	X					
SDP	STARVED SUPPLY AT BOX ALARM	NORMAL/ALARM	X					
SDP	TEMPORARY OVERRIDE SETPOINT	HOURS	X					
SDP	CALCULATED SPACE DEW POINT	DEG F	X					
SDP	SPACE DEWPOINT ALARM SETPOINT (3)	DEG F	X					
SDP	SPACE DEWPOINT ALARM	NORMAL/ALARM	X					

## NOTES:

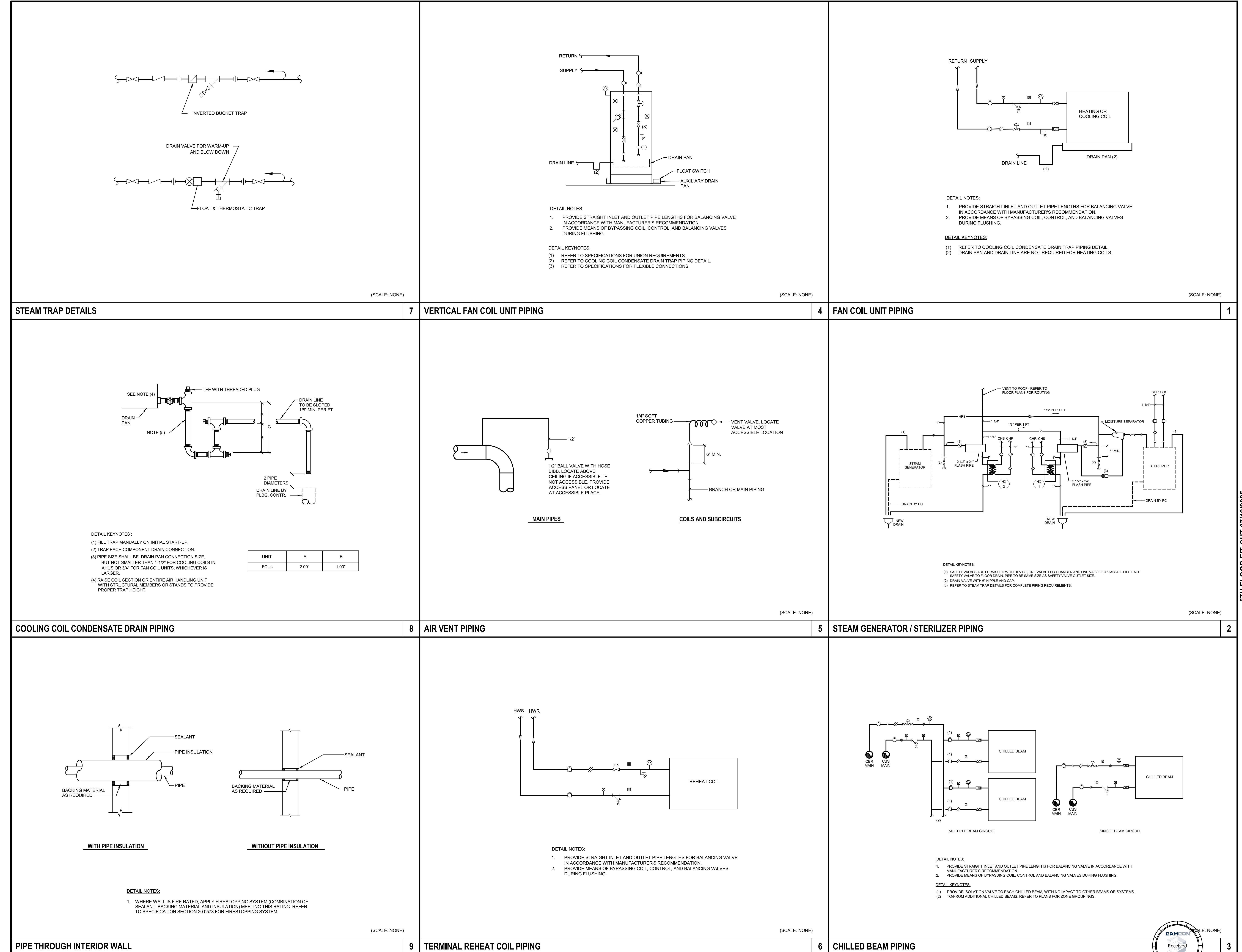
- REFER TO SCHEDULE FOR SETPOINTS.
- UNOCCUPIED SPACE COOLING SETPOINT SHALL BE 75 DEGREES (ADJ) AND UNOCCUPIED SPACE HEATING SETPOINT SHALL BE 70 DEGREES (ADJ).
- MAXIMUM SPACE DEWPOINT LIMIT SHALL BE 56 DEGREES (ADJ).

- A. GENERAL  
1. SPACE TEMPERATURE IS MONITORED BY A SPACE TEMPERATURE SENSOR. SUPPLY AIR VALVE, CHILLED BEAM CONTROL VALVE, AND REHEAT COIL CONTROL VALVE MODULATE TO MAINTAIN SPACE TEMPERATURE. ONE CHILLED BEAM COIL CONTROL VALVE CONTROLS THE ENTIRE GROUP OF CHILLED BEAMS THAT ARE FED FROM A SINGLE AIR VALVE. CHILLED BEAM COOLING CONTROL VALVE SHALL REMAIN CLOSED FOR 45 MINUTES AFTER THE ASSOCIATED AIR HANDLING UNIT STARTS UP.
- B. GENERAL EXHAUST, FUME EXHAUST AIR VALVES MODULATE AIRFLOW BETWEEN MINIMUM AND MAXIMUM AIR FLOW RATES AND MAINTAIN OFFSET AIRFLOW SETPOINTS AS SCHEDULED.
- C. UPON OCCUPIED COMMAND VIA AIR HANDLING UNIT SCHEDULE, PUSHBUTTON OVERRIDE, OR ACTIVATION OF ANY SINGLE ASSOCIATED LIGHTING CONTROLS OCCUPANT SENSOR:
- ACTIVATE OCCUPIED TEMPERATURE SETPOINTS.
  - ACTIVATE OCCUPIED AIR FLOW SETPOINTS.
  - ACTIVATE OCCUPIED AIR FLOW SETPOINTS.
  - IF ALL LIGHTING CONTROLS OCCUPANT SENSORS ASSOCIATED WITH THE ZONE INDICATE UNOCCUPIED STATUS, ACTIVATE UNOCCUPIED MODE FOR THE SPECIFIC ZONE.
- D. UNOCCUPIED MODE:
- UPON UNOCCUPIED COMMAND VIA AIR HANDLING UNIT SCHEDULE, EXPIRATION OF TEMPORARY OVERRIDE, OR DEACTIVATION OF ALL ASSOCIATED LIGHTING CONTROLS OCCUPANT SENSORS:
    - ACTIVATE UNOCCUPIED TEMPERATURE SETPOINTS.
    - ACTIVATE UNOCCUPIED AIR FLOW SETPOINTS.
    - UPON MANUAL ACTIVATION OF PUSHBUTTON OVERRIDE AT THE ZONE LEVEL, TEMPORARILY ACTIVATE OCCUPIED MODE IN THE ASSOCIATED ZONE.  - TEMPORARY OVERRIDE SHALL FUNCTION WHETHER THE CORRESPONDING AIR HANDLING UNIT IS IN OCCUPIED OR UNOCCUPIED MODE.
  - SUSPEND AIR FLOW SETPOINTS WHEN THE ASSOCIATED AIR HANDLING UNIT IS COMMANDED OFF.
  - AIR FLOW CONTROL:  
1. CHILLED BEAM COOLING COIL CONTROL VALVE MODULATES BASED ON FUME HOOD SASH POSITION.  
2. SUPPLY AIR VALVE MODULATES TO MAINTAIN SUPPLY AIR FLOW SETPOINT.  
3. GENERAL EXHAUST AIR VALVE MODULATES OPPOSITE OF FUME HOOD EXHAUST AIR VALVE TO MAINTAIN SCHEDULED ROOM OFFSET.
  - TEMPERATURE CONTROL:  
1. AIR VALVE MODULATES TO MAINTAIN SUPPLY AIR FLOW SETPOINT.  
2. AS ROOM TEMPERATURE INCREASES ABOVE COOLING SETPOINT:  
a. CHILLED BEAM COIL CONTROL VALVE MODULATES OPEN TO MAINTAIN SPACE COOLING SETPOINT.  
b. HEATING CONTROL VALVE REMAINS CLOSED.  
3. AS ROOM TEMPERATURE DECREASES BELOW COOLING SETPOINT:  
a. CHILLED BEAM COIL CONTROL VALVE MODULATES CLOSED TO MAINTAIN SPACE COOLING SETPOINT.  
b. HEATING CONTROL VALVE MODULATES OPEN.
  - AS ROOM TEMPERATURE DECREASES BELOW HEATING SETPOINT:  
a. CHILLED BEAM COIL CONTROL VALVE REMAINS CLOSED.  
b. HEATING CONTROL VALVE MODULATES OPEN TO MAINTAIN SPACE TEMPERATURE SETPOINT.
  - DEWPOINT CONTROL:  
1. IF SPACE DEWPOINT TEMPERATURE IS GREATER THAN MAXIMUM SPACE DEWPOINT LIMIT:  
a. GENERATE ALARM AT BAS WORKSTATION.  
2. SPACE DEWPOINT REMAINS ABOVE MAXIMUM SPACE DEWPOINT LIMIT FOR 5 MINUTES (ADJ) OR LONGER:  
a. CLOSE CHILLED BEAM COIL CONTROL VALVE.  
b. GENERATE ALARM AT BAS WORKSTATION.  
c. ALARM REQUIRES MANUAL RESET.
  - CLOSE CHILLED BEAM COOLING COIL CONTROL VALVE IF ASSOCIATED AIR HANDLING UNIT SHUTS DOWN FOR ANY REASON.
- E. ALARMS:  
1. GENERATE ALARM IF SUPPLY AIR VALVE COMMAND IS AT 100% AND SUPPLY AIR FLOW DOES NOT MEET SETPOINT.

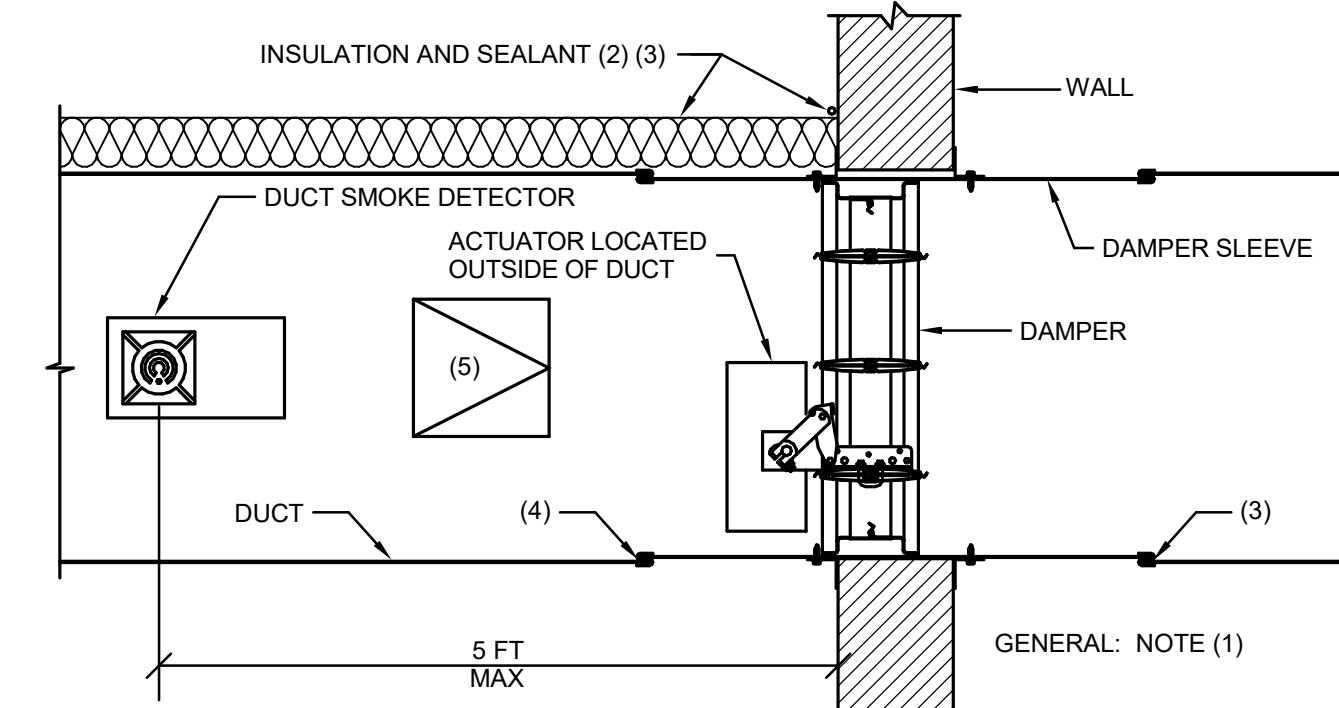
WORKSTATION			USER INFORMATION					
TAG	POINT DESCRIPTION	UNITS	POINT TYPE		ALARM CONDITION		HIGH LIMIT	LOW LIMIT
			ANALOG	DIGITAL	INTEGRATED	EQUIP ALARM		
<b>HARDWARE</b>								
FCV 01	SUPPLY AIR DAMPER COMMAND	% OPEN	X					
FCV 02	GENERAL EXHAUST AIR DAMPER COMMAND	% OPEN	X					
FCV 03	SPECIFIC EXHAUST AIR DAMPER COMMAND	% OPEN	X					
FT 01	SUPPLY AIR FLOW	CFM	X					
FT 02	GENERAL EXHAUST AIR FLOW	CFM	X					
FT 03	SPECIFIC EXHAUST AIR FLOW	CFM	X					
HS 01	TEMPORARY PUSHBUTTON OVERRIDE	NORMAL/OVERRIDE		X				
MT 01	SPACE RELATIVE HUMIDITY	%	X					
TCV 01	HEATING COIL VALVE COMMAND	% OPEN	X					
TCV 02	DISCHARGE AIR TEMPERATURE	DEG F	X					
TE 01	SPACE TEMPERATURE	DEG F	X					
YS 01	LIGHTING CONTROLS OCCUPANCY SENSOR	OCCUPIED/UNOCCUPIED	X					
YS 02	FUME HOOD OCCUPANCY SENSOR	OCCUPIED/UNOCCUPIED	X					
ZT 01	FUME HOOD SASH POSITION SENSOR	% OPEN	X					
<b>SOFTWARE</b>								
SDP	OCCUPIED SPACE COOLING SETPOINT (1)	DEG F	X					
SDP	OCCUPIED SPACE HEATING SETPOINT (1)	DEG F	X					
SDP	UNOCCUPIED SPACE COOLING SETPOINT (2)	DEG F	X					
SDP	UNOCCUPIED SPACE HEATING SETPOINT (2)	DEG F	X					
SDP	SUPPLY AIR FLOW SETPOINT	CFM	X					
SDP	SUPPLY REHEAT AIR FLOW SETPOINT	CFM	X					
SDP	GENERAL EXHAUST AIR FLOW SETPOINT	CFM	X					
SDP	SPECIFIC EXHAUST AIR FLOW SETPOINT	CFM	X					
SDP	STARVED SUPPLY AT BOX ALARM	NORMAL/ALARM	X					
SDP	TEMPORARY OVERRIDE SETPOINT	HOURS	X					
SDP	CALCULATED SPACE DEW POINT	DEG F	X					

NOTES:  
(1) REFER TO SCHEDULE FOR SETPOINTS.  
(2) UNOCCUPIED SPACE COOLING SETPOINT SHALL BE 75 DEGREES (ADJ) AND UNOCCUPIED SPACE HEATING SETPOINT SHALL BE 70 DEGREES (ADJ).

- A. GENERAL:  
1. SPACE TEMPERATURE IS MONITORED BY A SPACE TEMPERATURE SENSOR. SUPPLY AIR VALVE, CHILLED BEAM CONTROL VALVE, AND REHEAT COIL CONTROL VALVE MODULATE TO MAINTAIN SPACE TEMPERATURE.  
2. SUPPLY, GENERAL EXHAUST, FUME EXHAUST AIR VALVES MODULATE AIRFLOW BETWEEN MINIMUM AND MAXIMUM AIR FLOW RATES AND MAINTAIN OFFSET AIRFLOW SETPOINTS AS SCHEDULED.
- B. OCCUPIED MODE:  
1. UPON OCCUPIED COMMAND VIA AIR HANDLING UNIT SCHEDULE, PUSHBUTTON OVERRIDE, OR ACTIVATION OF ANY SINGLE ASSOCIATED LIGHTING CONTROLS OCCUPANT SENSOR:  
a. ACTIVATE OCCUPIED TEMPERATURE SETPOINTS.  
b. ACTIVATE OCCUPIED AIR FLOW SETPOINTS.  
c. IF ALL LIGHTING CONTROLS OCCUPANT SENSORS ASSOCIATED WITH THE ZONE INDICATE UNOCCUPIED STATUS, ACTIVATE UNOCCUPIED MODE FOR THE SPECIFIC ZONE.
- C. UNOCCUPIED MODE - GENERAL AREAS:  
1. UPON UNOCCUPIED COMMAND VIA AIR HANDLING UNIT SCHEDULE, EXPIRATION OF TEMPORARY OVERRIDE, OR DEACTIVATION OF ALL ASSOCIATED LIGHTING CONTROLS OCCUPANT SENSORS:  
a. ACTIVATE UNOCCUPIED TEMPERATURE SETPOINTS.  
b. ACTIVATE UNOCCUPIED AIR FLOW SETPOINTS.  
c. UPON MANUAL ACTIVATION OF PUSHBUTTON OVERRIDE AT THE ZONE LEVEL, TEMPORARILY ACTIVATE OCCUPIED MODE IN THE ASSOCIATED ZONE.  
2. TEMPORARY OVERRIDE SHALL FUNCTION WHETHER THE CORRESPONDING AIR HANDLING UNIT IS IN OCCUPIED OR UNOCCUPIED MODE.  
3. SUSPEND AIR FLOW SETPOINTS WHEN THE ASSOCIATED AIR HANDLING UNIT IS COMMANDED OFF.
- D. AIR FLOW CONTROL:  
1. FUME EXHAUST AIR VALVE DAMPER MODULATES BASED ON FUME HOOD SASH POSITION.  
2. SUPPLY AIR







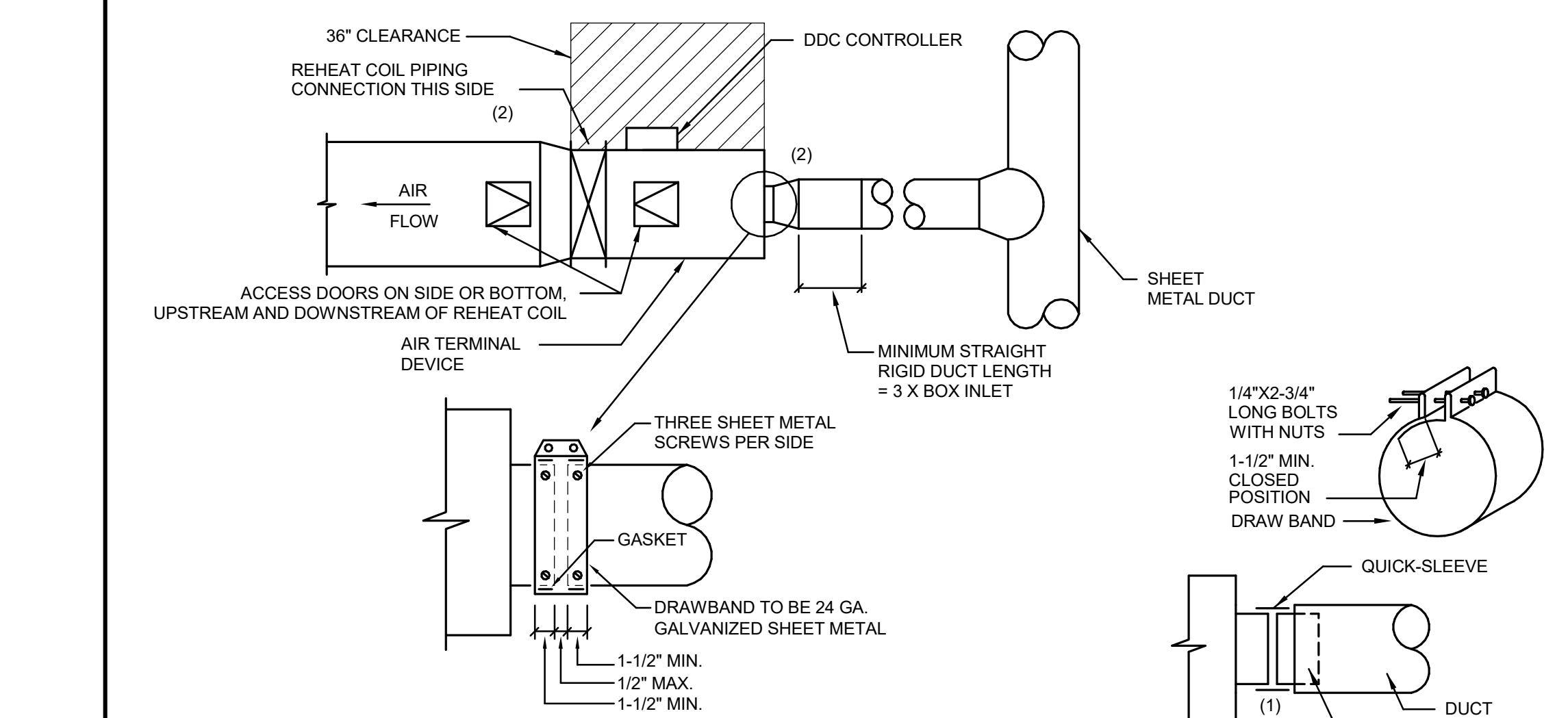
## DETAIL KEYNOTES:

- (1) INSTALL DAMPER PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- (2) FOR DUCTWORK REQUIRING INSULATION, INSTALL INSULATION AND JACKET TO WALL (ALL SIDES) AND APPLY VAPOR BARRIER TAPE TO PREVENT CONDENSATION. TAPE SHALL BE COILED AND APPLIED ON JACKET SIDE OF WALL SURFACE. APPLY INSULATION OVER FIRE DAMPER AFTER INSPECTION HAS BEEN COMPLETED.
- (3) WHERE DOUBLE WALL DUCT IS SHOWN TO BE CONNECTED TO THE DAMPER SLEEVE (SUPPLY DUCTS IN EXPOSED PUBLIC SPACES), PROVIDE TYPE A-J JACKETING IN ADDITION TO INSULATION AND JACKETING SPECIFIED. FROM THE START OF THE DOUBLE WALL DUCT BACK TO THE SUITE SO AS TO MATCH THE METAL FINISHES OF THE DUCT. FINISHED DUCT INSTALLATION SHALL HAVE A VISIBLE METAL LOOK FROM THE WALL ON PENETRATION TO THE START OF THE DOUBLE WALL DUCT. PROVIDE JACKET SEAMS ON DUCT TOP SIDE OUT OF VIEW.
- (4) DUCT TO SLEEVE CONNECTION PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND NOTIFICATION.
- (5) ACTUATOR, SMOKE DETECTOR AND ACCESS DOOR SHALL ALL BE LOCATED ON SAME SIDE OF WALL AND SHALL BE EASILY ACCESSIBLE. INSTALL ACCESS DOOR AT SIDE OR BOTTOM OF DUCT FOR BEST ACCESS TO DAMPER AND SMOKE DETECTOR. ACCESS DOOR SIZE SHALL BE PER SPECIFICATIONS.

(GENERAL: NOTE (1))

(SCALE: NONE)

7 VERTICAL SMOKE AND FIRE/SMOKE DAMPER INSTALLATION

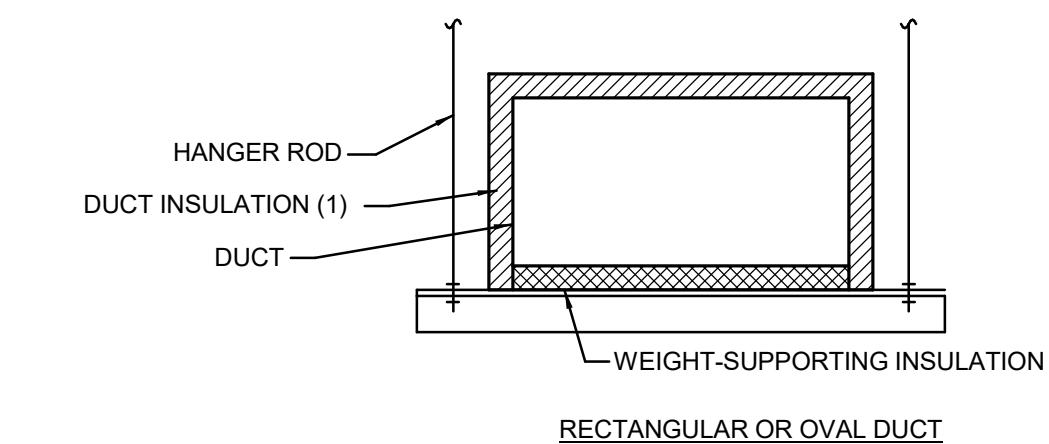


## DETAIL KEYNOTES:

- (1) DUCTMADE QUICK-SLEEVE MAY BE USED USE CENTER BEAD SLIP COUPLING FOR DUCTWORK CONNECTION WITH MINIMUM 3 SHEET METAL SCREWS.
- (2) TRANSITION AS REQUIRED ON INLET AND DISCHARGE OF AIR TERMINAL DEVICE. SEE PLANS FOR DUCT CONNECTION SIZE.

(SCALE: NONE)

4 AIR TERMINAL DEVICE DUCT CONNECTION

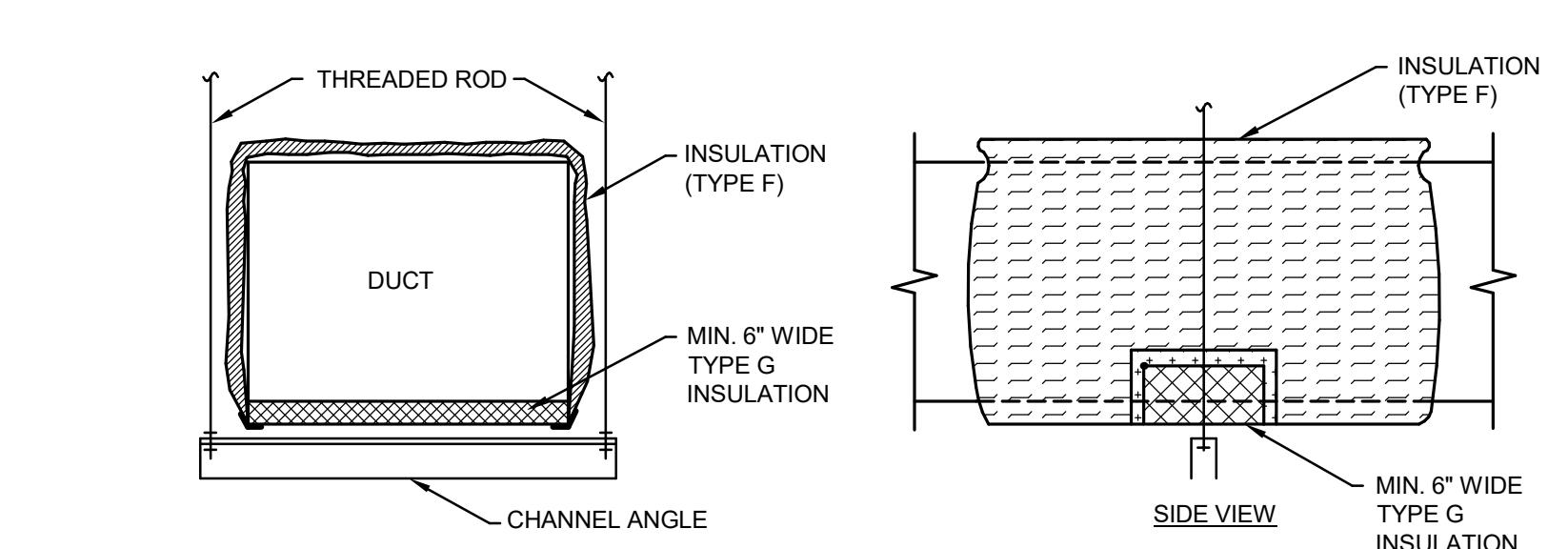
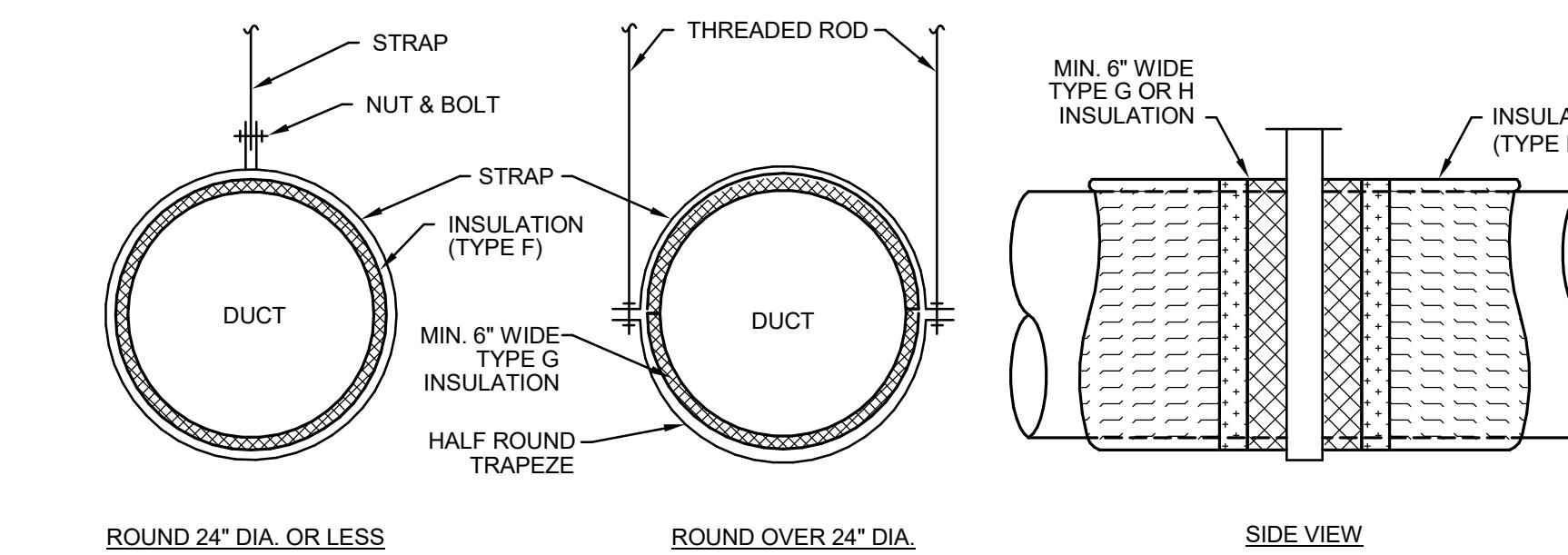


## DETAIL KEYNOTES:

- (1) INSULATION AND JACKET MUST RUN CONTINUOUSLY BETWEEN DUCT AND DUCT SUPPORTS.
- (2) REFER TO SPECIFICATION SECTION 20 0700 FOR WEIGHT-SUPPORTING INSULATION REQUIREMENTS.

(SCALE: NONE)

5 RECTANGULAR/ROUND DUCT SUPPORTS WITH TYPE R INSULATION (EXPOSED DUCTS)



## DETAIL NOTES:

1. TYPE F INSULATION OVERLAPS TYPE G INSULATION.
2. TYPE G INSULATION TO HAVE SAME TYPE OF JACKETING AS TYPE F JACKETING.

(SCALE: NONE)

9

6 RECTANGULAR/ROUND DUCT SUPPORTS WITH TYPE F INSULATION (CONCEALED DUCTS)

## AIR DISTRIBUTION DEVICES

MARK	TYPE	CFM	NOMINAL DUCT CONNECTION SIZE	REMARKS
CD-1	SUPPLY AIR SQUARE PLAQUE DIFFUSER 24x24 MODULE SIZE	0-120	60	SUPPLY DIFFUSERS SHALL BE EQUAL TO PRICE ASPD MAX. NECK VELOCITY 700 FPM MAX. NC = 30 MAX. PRESSURE DROP 0.10" CEILING LAY-IN OR SURFACE MOUNT PROVIDE ARCHITECT SELECTED WHITE FINISH
		125-245	80	
		250-380	100	
		385-475	120	
		480-550	140	
CD-2	SUPPLY AIR ROUND PLAQUE DIFFUSER VARIABLE SIZE	0-120	60	SUPPLY DIFFUSERS SHALL BE EQUAL TO PRICE RPD MAX. NECK VELOCITY 700 FPM MAX. NC = 30 MAX. PRESSURE DROP 0.10" DUCT MOUNT EXPOSED PROVIDE ARCHITECT SELECTED FINISH
		125-245	80	
		250-380	100	
		385-550	120	
		555-750	140	
SG-1	SUPPLY AIR LOUVERED GRILLE VARIABLE SIZE	0-125	6x6 or 8x4	SUPPLY GRILLES/REGISTERS SHALL BE EQUAL TO PRICE 620 L (BLADES PARALLEL TO LONG DIM.) MAX. NECK VELOCITY 700 FPM MAX. NC = 30 MAX. PRESSURE DROP 0.10" DUCT OR CEILING/WALL SURFACE MOUNT ALTERNATE SIZES WITH EQUIVALENT CORE AREA ARE ACCEPTABLE FINISH: SEE NOTE (3) BELOW.
		130-275	8x8 or 12x6	
		280-420	12x8	
		425-500	18x12	
		905-1260	24x12	
		1265-1500	24x16	
		1505-2530	30x18	
LD-2	SUPPLY AIR LINEAR SLOT 60x8 SIZE	0-845	28x7	SUPPLY LINEAR SLOTS SHALL BE EQUAL TO PRICE JS215 1-1/2" SLOT WIDTH, 2 SLOTS MAX. NECK VELOCITY 700 FPM MAX. NC = 30 MAX. PRESSURE DROP 0.10" PROVIDE 1-1/2" BORDER WITH CONCEALED FASTENINGS PROVIDE MIN. 1" TALL EXTERNALLY INSULATED PLENUM THE FULL LENGTH OF SLOT SIMILAR TO PRICE JSP WITH 28x7 TOP PLENUM INLET CONNECTION AS SHOWN USED FOR LEVEL 4, 5 & 6 ATTRIUM SUPPLY SLOTS PROVIDE ARCHITECT SELECTED WHITE FINISH
		0-845	28x7	
		0-845	28x7	
		0-845	28x7	
LD-4	SUPPLY AIR LINEAR SLOT 48x4.5 SIZE	0-100	60	SUPPLY LINEAR SLOTS SHALL BE EQUAL TO PRICE SDS75 3/4" SLOT WIDTH, 2 SLOTS MAX. NECK VELOCITY 700 FPM MAX. NC = 30 MAX. PRESSURE DROP 0.10" PROVIDE FRAME FOR INSTALLATION IN T-BAR LAY-IN CEILING PROVIDE MIN. 1" TALL EXTERNALLY INSULATED SLOT PLENUMS EQUAL TO PRICE SDS75 WITH CONNECTION FLANGE. PROVIDE ARCHITECT SELECTED WHITE FINISH
		0-100	60	
G-1	RETURN/EXHAUST AIR LOUVERED GRILLE 24x24 MODULE SIZE	0-110	60	RETURN/EXHAUST GRILLES SHALL BE EQUAL TO PRICE 630 MAX. NECK VELOCITY 700 FPM MAX. NC = 30 MAX. PRESSURE DROP 0.10" CEILING LAY-IN OR SURFACE MOUNT FINISH: SEE NOTE (3) BELOW.
		115-220	80	
		225-330	100	
		335-480	120	FOR DUCT CONNECTION SIZES UP TO 160, PROVIDE MIN. 3" TALL SQUARE TO ROUND GRILLE TRANSITION COLLARS FOR DUCT CONNECTION SIZES GREATER THAN 160, PROVIDE GRILLE PLENUM BOXES - REFER TO DETAIL
		485-645	140	
		650-880	160	
		885-1500	22x2 GRILLE PLENUM BOX	
		1505-3560	42x2 GRILLE PLENUM BOX	
		0-110	6x6	RETURN/RELIEF/EXHAUST GRILLES SHALL BE EQUAL TO PRICE 630 MAX. NECK VELOCITY 700 FPM MAX. NC = 35 MAX. PRESSURE DROP 0.10" DUCT OR CEILING/WALL SURFACE MOUNT ALTERNATE SIZES WITH EQUIVALENT CORE AREA ARE ACCEPTABLE FINISH: SEE NOTE (3) BELOW.
		115-235	8x8	
G-2	RETURN/EXHAUST AIR LOUVERED GRILLE VARIABLE SIZE	240-350	12x8 or 10x10	
		355-520	12x12	
		525-800	18x12	
		805-960	22x12	
		965-1200	24x14	
		1205-1400	30x12 OR 24x16	
		1405-1800	30x18	
		1805-2500	32x20	
		2505-2900	36x24	
		0-110	6x6	
NOTES: (1) PROVIDE DUCT TRANSITIONS AS REQUIRED TO MATCH AIR DISTRIBUTION DEVICE CONNECTION SIZE AS SCHEDULED. (2) SCHEDULE APPLIES TO ALL AIR DISTRIBUTION DEVICES EXCEPT WHERE DEVICE SIZES ARE CALLED OUT SPECIFICALLY ON PLANS. (3) UNLESS OTHERWISE INDICATED, PROVIDE ARCHITECT SELECTED WHITE FINISH FOR LAYIN & SURFACE MOUNTED DEVICES IN CEILINGS / WALLS AND ARCHITECT SELECTED FINISH FOR DUCT MOUNTED EXPOSED DEVICES. (4) UNLESS OTHERWISE INDICATED, CONFIRM AFF HEIGHT FOR ALL WALL MOUNTED AIR DISTRIBUTION DEVICES.				

MARK	LOCATION	SERVICE	TYPE	SUPPLY FAN CHARACTERISTICS								COOLING COIL								EMERGENCY POWER REQUIREMENTS	REMARKS						
				SUPPLY AIR (CFM)	ESP ("WGS") (FT)	MOTOR (HP)	VOLT (QTY)	PH	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	DB (°F)	LAT (°F)	MAX. WATER (°F)	MIN. SENSIBLE CAPACITY (MBH)	GPM	EWT	LWT				
4-3	LEVEL 04	MEP EQUIPMENT	VERTICAL DUCTED	850	0.1	0.5	277	1	-	59	55	51	50	47	42	33	80	65	54.9	54.3	10	23.5	3.0	45	63	YES	-
5-4	LEVEL 05	SHARED EQUIPMENT	HORIZONTAL DUCTED	2850	0.5	2.0	480	3	89	81	78	79	76	78	65	53.3	52.3	10	75.1	15.8	45	58	YES	-			
5-5	LEVEL 05	SHARED EQUIPMENT	HORIZONTAL DUCTED	2850	0.5	2.0	480	3	89	81	78	79	76	78	65	53.3	52.3	10	75.1	15.8	45	58	YES	-			
5-6	LEVEL 05	MEP EQUIPMENT	VERTICAL DUCTED	850	0.1	0.5	277	1	-	59	55	51	50	47	42	33	80	65	54.9	54.3	10	23.5	3.0	45	63	YES	-
6-5	LEVEL 06	MEP EQUIPMENT	VERTICAL DUCTED	1600	0.1	0.5	277	1	-	60	53	53	52	49	45	34	80	65	54.9	54.1	10	44.2	7.0	45	59.8	YES	-

NOTES:  
(1) ESP DOES NOT INCLUDE LOSSES ASSOCIATED WITH COILS, FILTERS, OR OTHER ACCESSORIES PROVIDED AS PART OF THE UNIT.  
(2) UNIT INSTALLED AT LEVEL 01 FOR TEMPORARY DAY 1 COOLING OF SHELL SPACE. UNIT TO BE RELOCATED TO LEVEL 06 IN THE FUTURE TO SERVE FREEZER FARM ROOMS.

HEAT EXCHANGERS																						
MARK	LOCATION	SERVICE	TYPE	CAPACITY	MIN. SURFACE AREA (MBH)	TUBE SIDE								SHELL SIDE								REMARKS
						FLUID	WATER FLOW (GPM)	EWT (°F)	LWT (°F)	MAX. WATER PD (FT WC)	FOULING MARGIN	FLUID	WATER FLOW (GPM)	EWT (°F)	LWT (°F)	MAX. WATER PD (FT WC)	FOULING MARGIN					
1	GLASS WASH	CHILLED WATER	SHELL & TUBE																			

Engineer of Record  
Yijun Wang  
FL P.E No. 85688

## PROJECT

FIU BT-919  
ENGINEERING - 5TH  
FLOOR FIT-OUT  
FIU BT-919 ENGINEERING  
Modesto A. Maidique Campus  
Miami, Florida 33199

**FIU** FLORIDA INTERNATIONAL UNIVERSITY

5TH FLOOR FIT-OUT 07/18/2025

Modesto A. Maidique Campus  
Miami, Florida 33199

KEYPLAN

## AHU-1B SUPPLY AIR TERMINAL DEVICES

MARK 	TYPE	MAX. AIRFLOW			MAX. UNIT PD (^WG)	MIN. INLET SP (^WG)	MIN. INLET SIZE (IN)	HEATING COIL (2)		GPM	EWT (^F)	EAT (^F)	LAT (^F)	MAX PD (FT)	SOUND ATTENUATOR (1)	REMARKS
		MIN. AIRFLOW (CFM)	OCCUPIED (CFM)	UNOCCUPIED (CFM)				REHEAT CAP. (MBH)	AIRFLOW (CFM)							
1B-5.1	VAV	1435	435	435	0.5	1.5	12	435	19.7	1.3	150	52	94	3.0	INTEGRAL	-
1B-5.2	VAV	480	480	145	0.5	1.5	8	480	24.5	1.6	150	52	100	3.0	INTEGRAL	-
1B-5.3	VAV	240	240	80	0.5	1.5	6	240	12.2	1.8	150	52	100	3.0	INTEGRAL	-
1B-5.4	VAV	240	240	80	0.5	1.5	6	240	12.2	0.8	150	52	100	3.0	INTEGRAL	-
1B-5.5	VAV	240	240	80	0.5	1.5	6	240	12.2	0.8	150	52	100	3.0	INTEGRAL	-
1B-5.6	VAV	200	200	60	0.5	1.5	6	200	10.2	0.7	150	52	100	3.0	INTEGRAL	-
1B-5.7	VAV	70	70	70	0.5	1.5	4	70	3.6	0.5	150	52	100	3.0	INTEGRAL	-
1B-5.8	VAV	480	290	145	0.5	1.5	8	290	14.8	1.0	150	52	100	3.0	INTEGRAL	-
1B-5.9	VAV	245	200	75	0.5	1.5	6	200	10.2	0.7	150	52	100	3.0	INTEGRAL	-
1B-5.10	VAV	135	135	135	0.5	1.5	6	135	6.9	0.5	150	52	100	3.0	INTEGRAL	-
1B-5.11	VAV	70	70	70	0.5	1.5	4	70	3.6	0.5	150	52	100	3.0	INTEGRAL	-
1B-5.12	VAV	200	200	60	0.5	1.5	6	200	10.2	0.7	150	52	100	3.0	INTEGRAL	-
1B-5.13	VAV	300	300	90	0.5	1.5	6	300	15.3	1.0	150	52	100	3.0	INTEGRAL	-
1B-5.14	VAV	350	350	105	0.5	1.5	6	350	17.8	1.2	150	52	100	3.0	INTEGRAL	-
1B-5.15	VAV	400	400	120	0.5	1.5	6	400	20.4	1.4	150	52	100	3.0	INTEGRAL	-
1B-5.16	VAV	480	480	145	0.5	1.5	8	480	24.5	1.6	150	52	100	3.0	INTEGRAL	-
1B-5.17	VAV	60	60	60	0.5	1.5	4	60	2.1	0.5	150	52	100	3.0	INTEGRAL	-

## NOTES:

- (1) WHERE "INTEGRAL" IS SCHEDULED, PROVIDE AIR TERMINAL UNIT WITH MANUFACTURER'S INTEGRAL SOUND ATTENUATOR SECTION.  
REFER TO SOUND ATTENUATING DEVICE SECTION OF SECTION 23 3314 FOR PERFORMANCE REQUIREMENTS FOR INTEGRAL SOUND ATTENUATORS.

- (2) PROVIDE STAND-ALONE DUCT-MOUNTED REHEAT COIL WHERE REQUIRED TO MEET SCHEDULED PERFORMANCE. REHEAT COIL FACE AREA SHALL BE SIZED FOR MAXIMUM AIRFLOW.

## AHU-3 VARIABLE VOLUME AIR VALVES

MARK 	MAX. AIRFLOW (CFM)	MIN. AIRFLOW (CFM)		MIN. INLET SIZE (IN)	HEATING COIL (2)		GENERAL EXHAUST VALVES	GENERAL EXHAUST VALVES		FUME EXHAUST AIR VALVES	NET TRANSFER AIR		REMARKS					
		OCC.	UNOCC.		REHEAT AIRFLOW (CFM)	CAP. (MBH)	GPM	EWT (^F)	EAT (^F)		MAX. AIRFLOW (CFM)	MIN. AIRFLOW (CFM)	MIN. INLET SIZE (IN)	PRESS-URIZATION (+ 0 -)	NET SPACE OFFSET (CFM)			
3-5.1	650	650	650	SINGLE 10	650	24.0	1.6	150	55	3.0	3-5.1	50	50	50	N/A	(+)	600 (1)	
3-5.2	3400	3400	2235	DUAL 14	3400	140.9	9.4	150	55	89	3.0	3-5.2	2340	2340	1175	DUAL 12	(-)	600 (1)
3-5.3	180	180	180	SINGLE 8	180	6.2	0.6	150	55	85	3.0	3-5.3	80	80	80	SINGLE 8	N/A	N/A N/A N/A N/A N/A (1)
3-5.4	430	215	215	SINGLE 10	215	7.5	0.7	150	55	85	3.0	3-5.4	330	115	115	SINGLE 8	N/A	N/A N/A N/A N/A (1)
3-5.5	200	200	200	SINGLE 8	200	6.9	0.7	150	55	85	3.0	3-5.5	100	100	100	SINGLE 8	N/A	N/A N/A N/A N/A (1)
3-5.6	180	180	180	SINGLE 8	180	6.2	0.6	150	55	85	3.0	3-5.6	80	80	80	SINGLE 8	N/A	N/A N/A N/A N/A (1)
3-5.7	3040	3040	1655	DUAL 14	3040	124.7	8.3	150	55	89	3.0	3-5.7	1980	1980	595	DUAL 12	(-)	600 (1)
3-5.8	1170	410	410	SINGLE 12	410	17.6	1.8	150	55	93	3.0	3-5.8	1170	410	410	SINGLE 10	N/A	N/A N/A N/A N/A (0)
3-5.9	180	180	180	SINGLE 8	180	6.2	0.6	150	55	85	3.0	3-5.9	80	80	80	SINGLE 8	N/A	N/A N/A N/A N/A (1)
3-5.10	435	220	220	SINGLE 10	220	7.6	0.8	150	55	85	3.0	3-5.10	335	120	120	SINGLE 8	N/A	N/A N/A N/A N/A (1)
3-5.11	195	195	195	SINGLE 8	195	6.8	0.7	150	55	85	3.0	3-5.11	95	95	95	SINGLE 8	N/A	N/A N/A N/A N/A (1)
3-5.12	180	180	180	SINGLE 8	180	6.2	0.6	150	55	85	3.0	3-5.12	80	80	80	SINGLE 8	N/A	N/A N/A N/A N/A (1)
3-5.13	705	255	215	SINGLE 10	255	9.7	1.0	150	55	88	3.0	3-5.13	805	355	355	SINGLE 10	N/A	N/A N/A N/A N/A (-)
3-5.14	2125	640	640	DUAL 12	640	28.9	2.9	150	55	95	3.0	3-5.14	2225	740	740	DUAL 12	N/A	N/A N/A N/A N/A (-)
3-5.15	920	370	370	SINGLE 12	670</													