

# GARAGE LEVEL FACILITIES AREA AIR HANDLING UNIT AHU-S9 REPLACEMENT RFB NO. 310005

CITY COUNTY BUILDING  
210 MARTIN LUTHER KING JR. BLVD.  
MADISON, WI 53703



## SHEET INDEX

### HVAC

- T100**      **TITLE SHEET**
- M100**      **PARTIAL GARAGE FLOOR PLAN - HVAC**
- M101**      **MECHANICAL ROOM FLOOR PLANS AND SECTION - HVAC**
- M102**      **HVAC SCHEDULES AND CONTROL SEQUENCES**
  
- E100**      **ELECTRICAL FLOOR PLAN, NOTES AND SCHEDULES**

Notes:

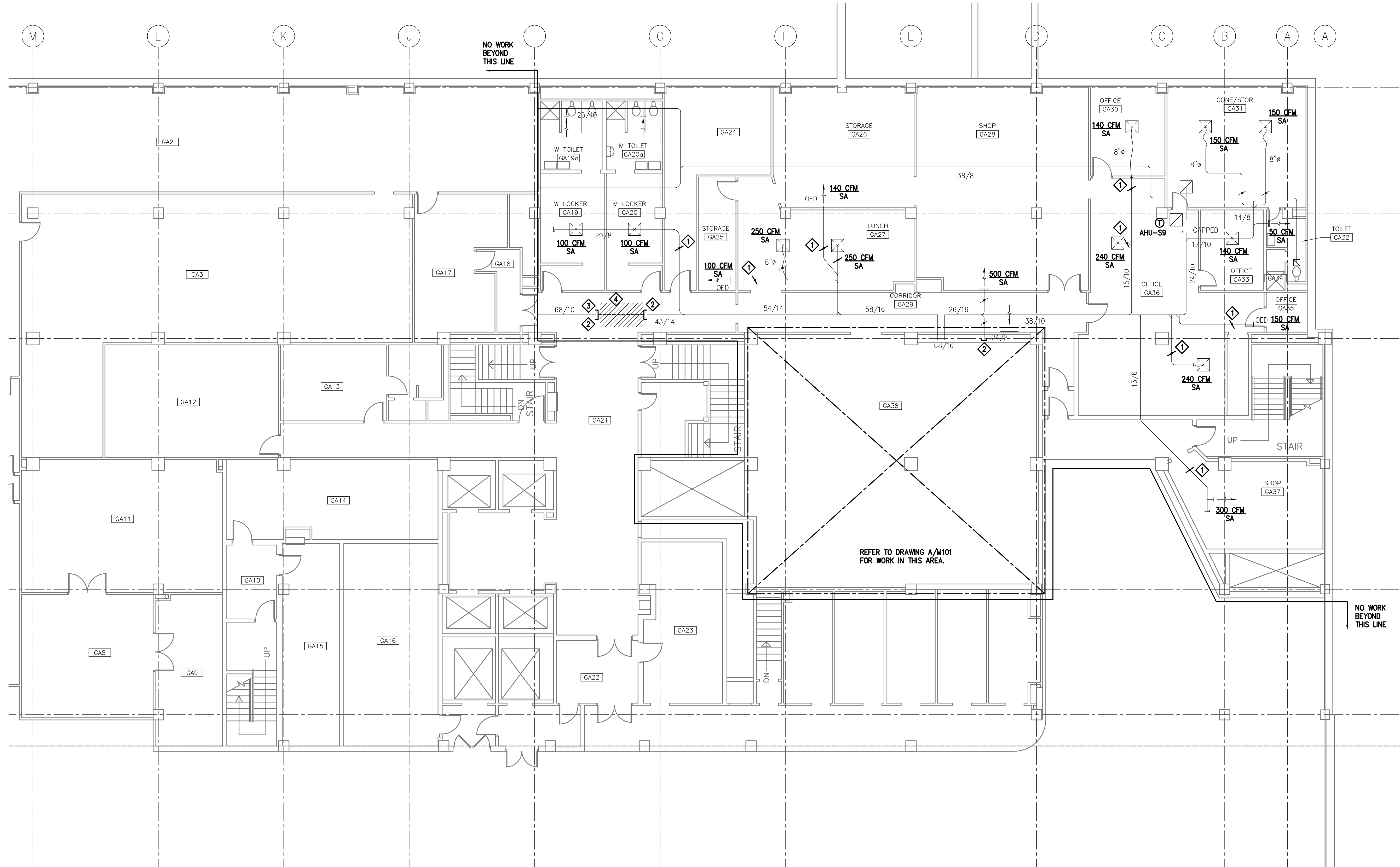
9/7/10	ISSUED FOR BIDDING	
7/23/10	95% REVIEW DRAWINGS	
Date	Issuance/Revisions	Symbol

GARAGE LEVEL FACILITIES  
AREA AIR HANDLING UNIT  
AHU-S9 REPLACEMENT  
RFB NO. 310005

CITY COUNTY BUILDING  
210 MARTIN LUTHER KING JR. BLVD.  
MADISON, WI 53703

Drawing Title:  
**TITLE SHEET**

Notes:



**A**  
M100  
PARTIAL GARAGE FLOOR PLAN - HVAC  
SCALE: 1/8" = 1'-0"

- DRAWING NOTES:**
- ① ADD DAMPER TO THE EXISTING DUCT.
  - ② CAP EXISTING DUCT.
  - ③ ABANDONE DUCT BEYOND CAP LOCATION.
  - ④ REMOVE PORTION OF DUCT SHOWN CROSSHATCHED TO ALLOW CAPPING.

- BALANCING NOTES**
1. THIS PROJECT SHALL BALANCE SUPPLY AIR TO ROOMS AS INDICATED ON THE DRAWINGS.
  2. THE GRILLES, DIFFUSERS AND OPEN END DUCTS SUPPLYING AIR INDICATED ON THE DRAWINGS ARE EXISTING.
  3. THE CFM'S INDICATED AT EACH GRILL, DIFFUSER OR OPEN END DUCT ARE THE NEW VOLUMES FOR SYSTEM BALANCING AFTER THE NEW AIR HANDLING UNIT IS INSTALLED.
  4. THERE ARE NEW BALANCING DAMPERS BEING INSTALLED AS NOTED ON THE DRAWING. OTHER DAMPERS ARE EXISTING.
  5. RETURN AIR TO THE AIR HANDLING UNIT SHALL TRANSFER THROUGH EXISTING TRANSFER GRILLES, DUCTS AND LOUVERS TO THE RETURN AIR GRILLE INDICATED ON THE DRAWINGS.

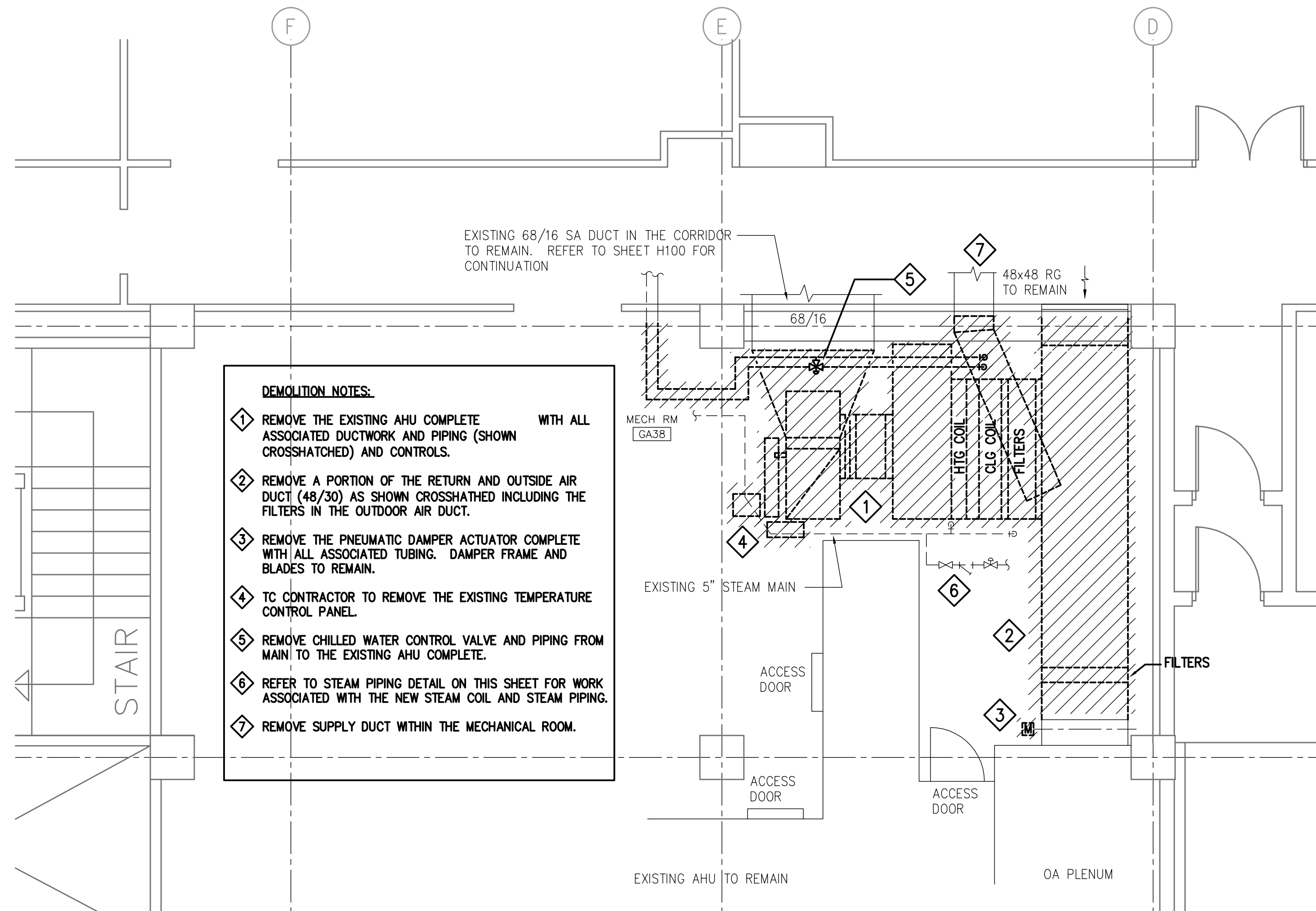
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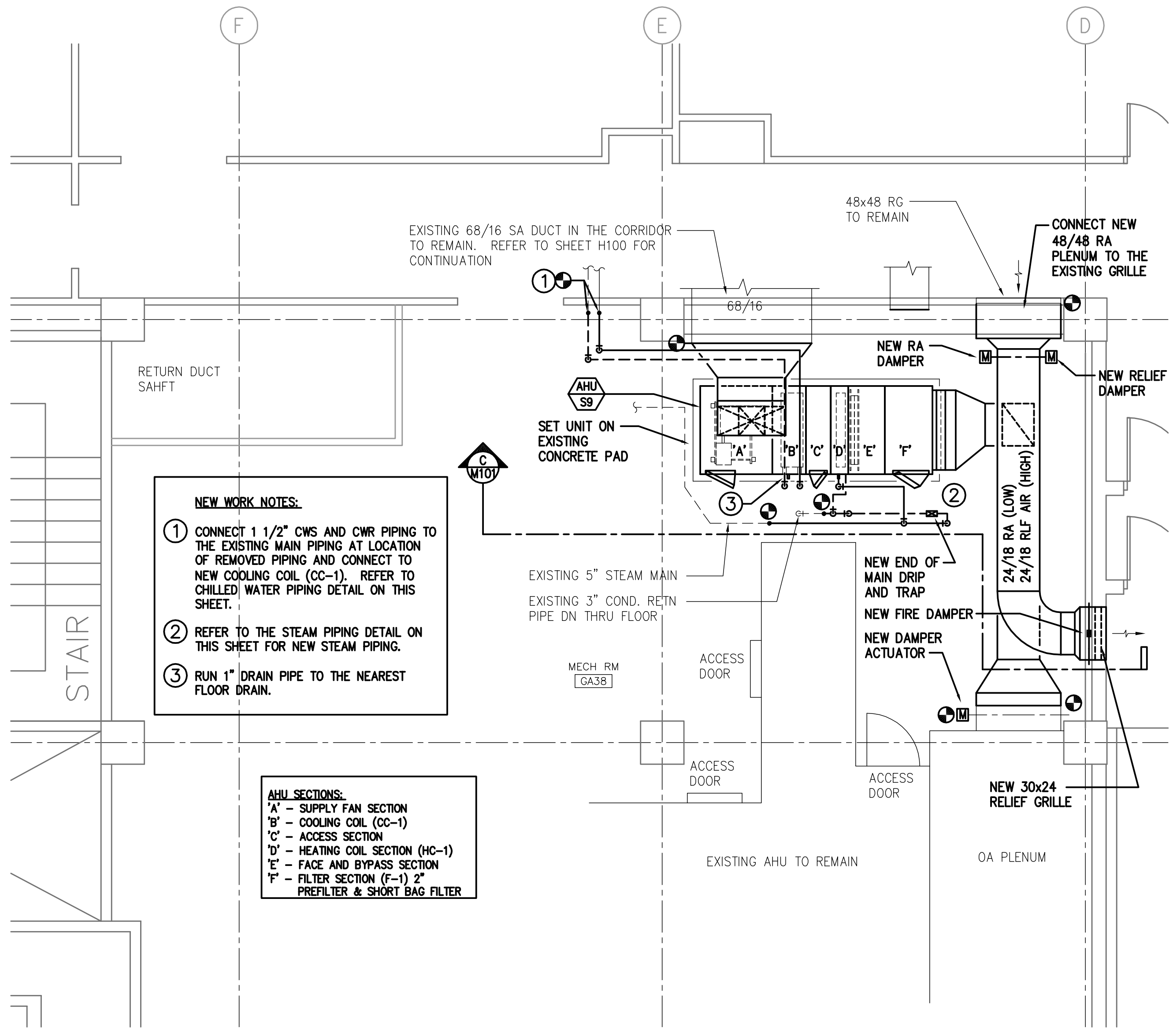
Drawing Title:  
**PARTIAL GARAGE FLOOR  
PLAN - HVAC**

Notes:



- DEMOLITION NOTES:**
- 1 REMOVE THE EXISTING AHU COMPLETE WITH ALL ASSOCIATED DUCTWORK AND PIPING (SHOWN CROSSHATCHED) AND CONTROLS.
  - 2 REMOVE A PORTION OF THE RETURN AND OUTSIDE AIR DUCT (48/30) AS SHOWN CROSSHATCHED INCLUDING THE FILTERS IN THE OUTDOOR AIR DUCT.
  - 3 REMOVE THE PNEUMATIC DAMPER ACTUATOR COMPLETE WITH ALL ASSOCIATED TUBING. DAMPER FRAME AND BLADES TO REMAIN.
  - 4 TC CONTRACTOR TO REMOVE THE EXISTING TEMPERATURE CONTROL PANEL.
  - 5 REMOVE CHILLED WATER CONTROL VALVE AND PIPING FROM MAIN TO THE EXISTING AHU COMPLETE.
  - 6 REFER TO STEAM PIPING DETAIL ON THIS SHEET FOR WORK ASSOCIATED WITH THE NEW STEAM COIL AND STEAM PIPING.
  - 7 REMOVE SUPPLY DUCT WITHIN THE MECHANICAL ROOM.

**B** MECHANICAL ROOM FLOOR PLAN – HVAC DEMOLITION  
M101 SCALE: 1/4" = 1'-0"

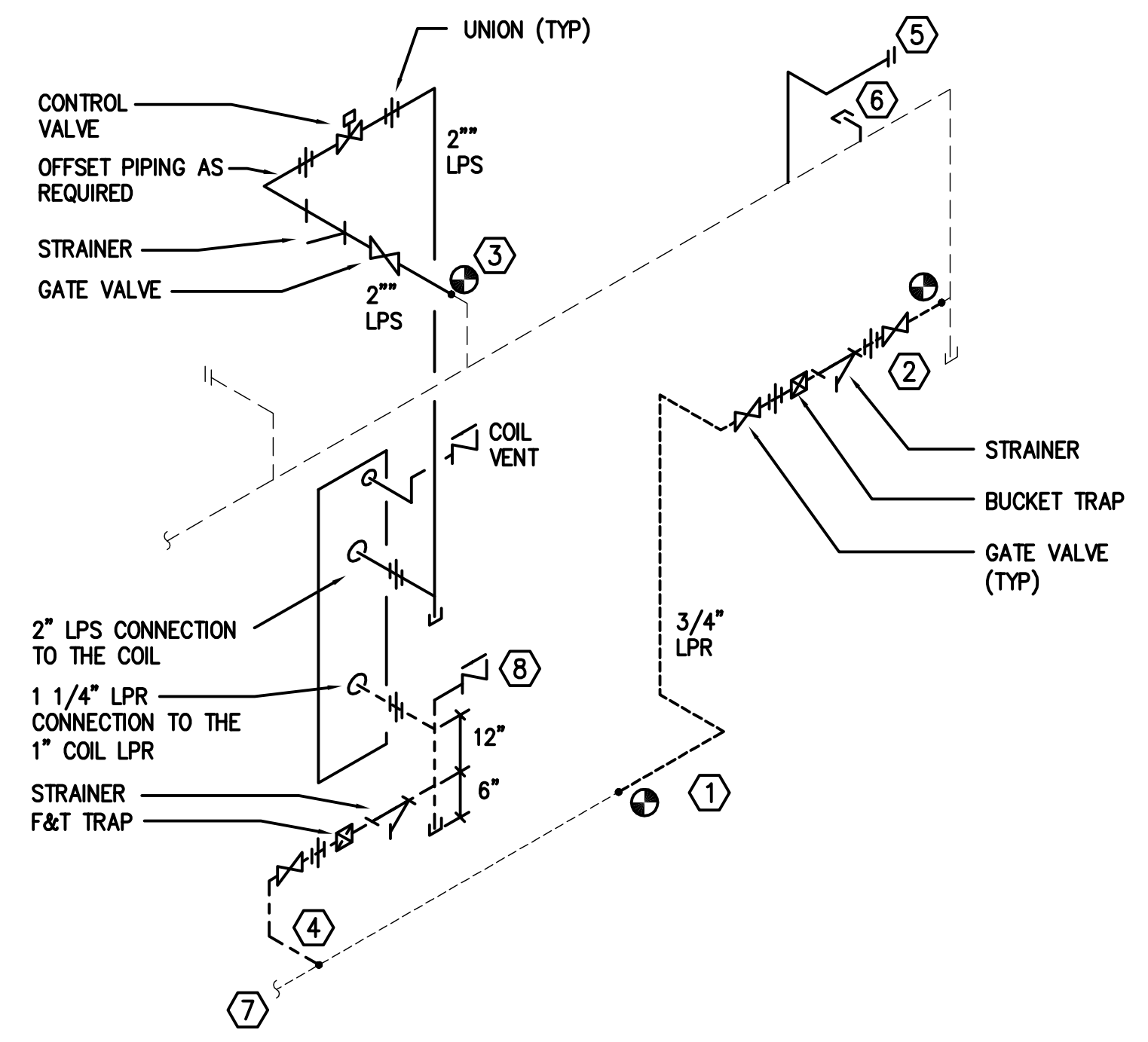


- NEW WORK NOTES:**
- 1 CONNECT 1 1/2" CWS AND CWR PIPING TO THE EXISTING MAIN PIPING AT LOCATION OF REMOVED PIPING AND CONNECT TO NEW COOLING COIL (CC-1). REFER TO CHILLED WATER PIPING DETAIL ON THIS SHEET.
  - 2 REFER TO THE STEAM PIPING DETAIL ON THIS SHEET FOR NEW STEAM PIPING.
  - 3 RUN 1" DRAIN PIPE TO THE NEAREST FLOOR DRAIN.

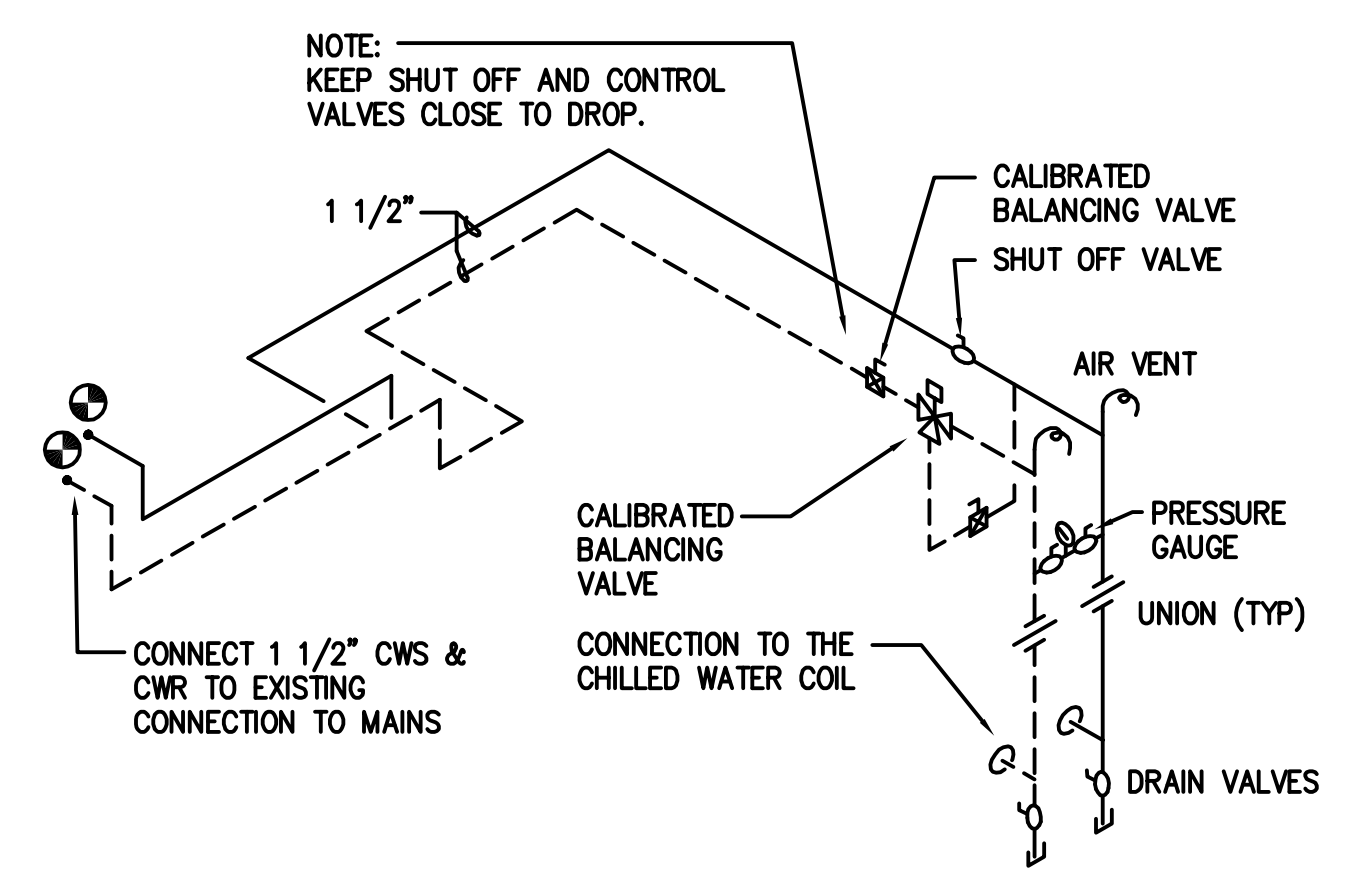
- AHU SECTIONS:**
- 'A' – SUPPLY FAN SECTION
  - 'B' – COOLING COIL (CC-1)
  - 'C' – ACCESS SECTION
  - 'D' – HEATING COIL SECTION (HC-1)
  - 'E' – FACE AND BYPASS SECTION
  - 'F' – FILTER SECTION (F-1) 2" PREFILTER & SHORT BAG FILTER

**A** MECHANICAL ROOM FLOOR PLAN – HVAC NEW WORK  
M101 SCALE: 1/4" = 1'-0"

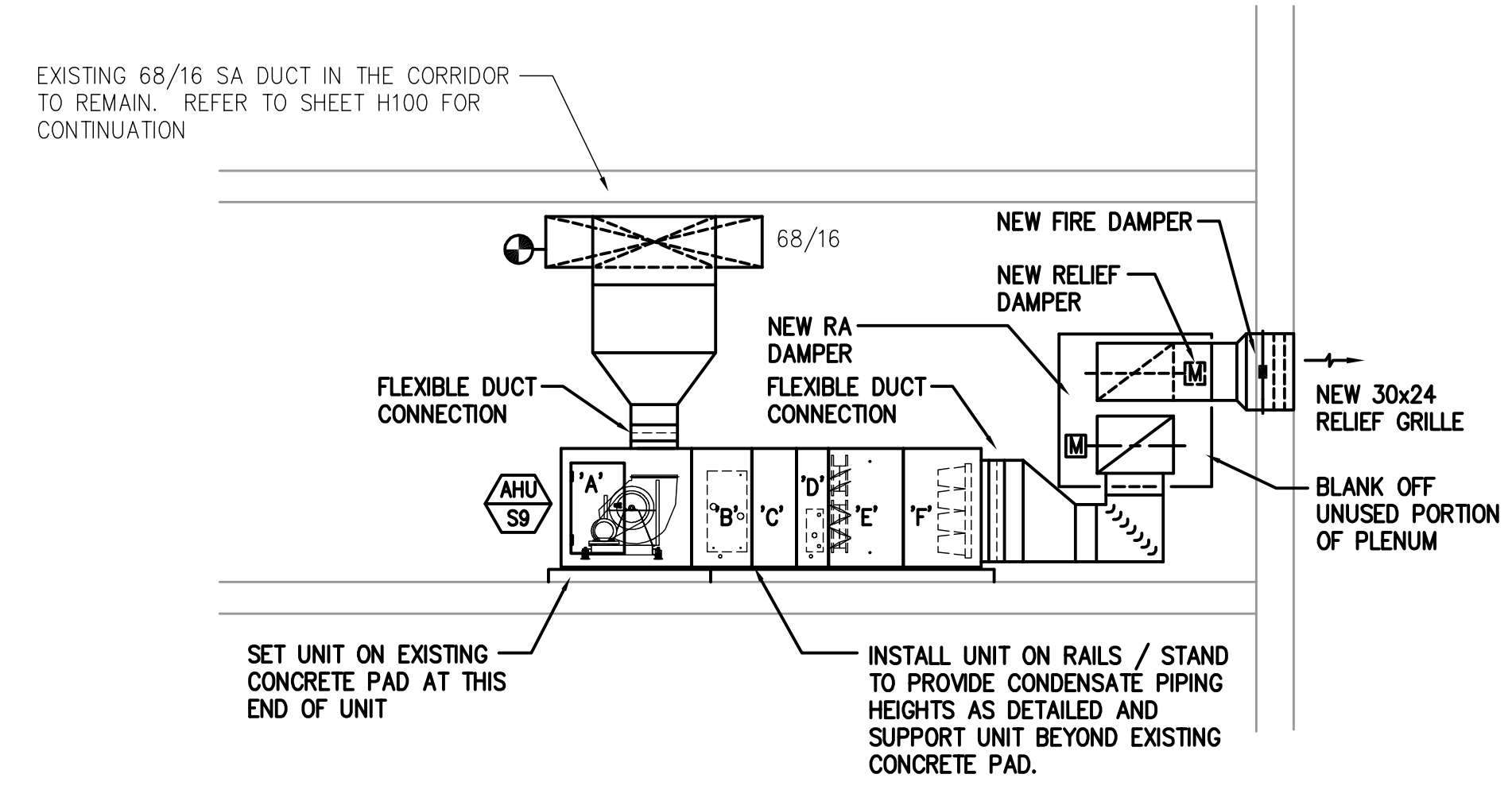
- STEAM PIPING NOTES:**
- 1 MAKE 3/4" CONNECTION TO EXISTING 2-1/2" THREADED PIPE
  - 2 MAKE 3/4" CONNECTION TO END OF STEAM MAIN FOR NEW DRIP END OF MAIN.
  - 3 MAKE 2" CONNECTION TO EXISTING THREADED BRANCH SERVING EXISTING MAIN COIL
  - 4 MAKE 1-1/4" CONNECTION TO BRANCH IN RETURN PIPING THAT SERVED EXISTING AHU-COIL
  - 5 PROVIDE BLIND FLANGE AT REMOVED BRANCH
  - 6 PROVIDE CAP AT REMOVED BRANCH
  - 7 PROVIDE PLUG AT REMOVED FITTINGS.
  - 8 15 1/2" SWING CHECK VALVE VACUUM BREAKER



**E** AHU STEAM PIPING DETAIL  
M101 SCALE: 1/4" = 1'-0"



**D** AHU CHILLED WATER PIPING DETAIL  
M101 SCALE: 1/4" = 1'-0"



**C** MECHANICAL ROOM SECTION – HVAC NEW WORK  
M101 SCALE: 1/4" = 1'-0"

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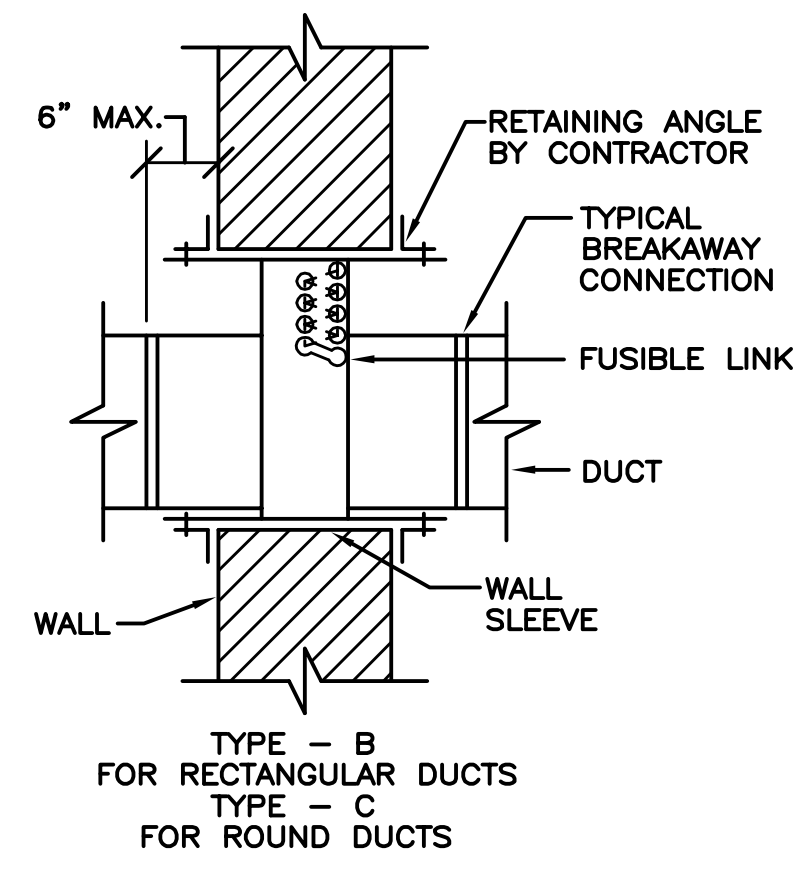
Drawing Title:  
**MECHANICAL ROOM FLOOR  
PLANS AND SECTION - HVAC**



Notes:

DDC INPUT / OUTPUT SUMMARY TABLE

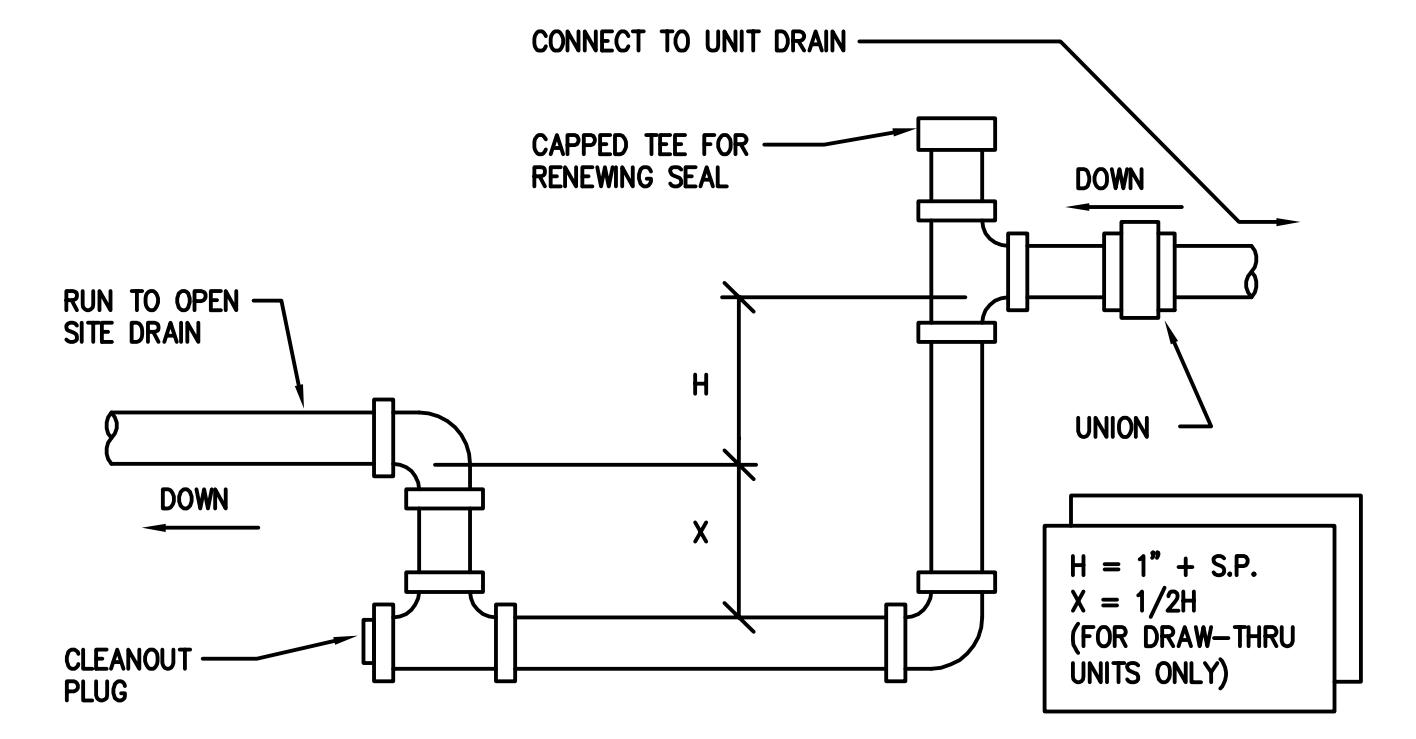
Project No. PROJECT: Garage Level Air Handling Unit Replacement LOCATION: Dane County City - County Building Madison, Wisconsin SYSTEM: AHU-S9	HARDWARE		SOFTWARE												Comments										
	OUTPUT		INPUT		ALARMS		ENERGY MANAGEMENT SYSTEM FUNCTIONS																		
	DIGITAL	ANALOG	DIGITAL	ANALOG	DIGITAL	ANALOG	Energy Mgmt	Lighting	Security	Fire	Life Safety	Other	Other	Other		Other	Other	Other	Other	Other	Other	Other	Other	Other	
POINT DESCRIPTION																									
Supply Air Temperature																									
Mixed Air Temperature																									
Return Air Temperature																									
Heating Coil Disch Air Temp																									
Space Temp (at Room Tstat)																									
Steam Coil Valve																									
Htg Coil Face/Bypass																									
Chilled Water Coil Valve																									
Return Air Damper																									
Relief Air Damper																									
Outside Air Damper																									
Supply Fan Status																									
Supply Fan Start/Stop																									
Filter Differential Pressure																									
Freeze Stat																									
Fire Alarm Shutdown																									



C M102 FIRE DAMPER DETAIL FOR HORIZONTAL DUCT  
NO SCALE

DUCT DIMENSION	DOOR SIZE
UP TO 7"	6" X 6"
8" TO 12"	6" X 12"
13" TO 24"	12" X 12"
25" TO 48"	18" X 18"
49" AND UP	24" X 24"

NOTE: WALL SLEEVE GAUGE SHALL BE ACCORDING TO NFPA-90A-1989



B M102 LOOP SEAL FOR COIL CONDENSATE DETAIL  
NO SCALE

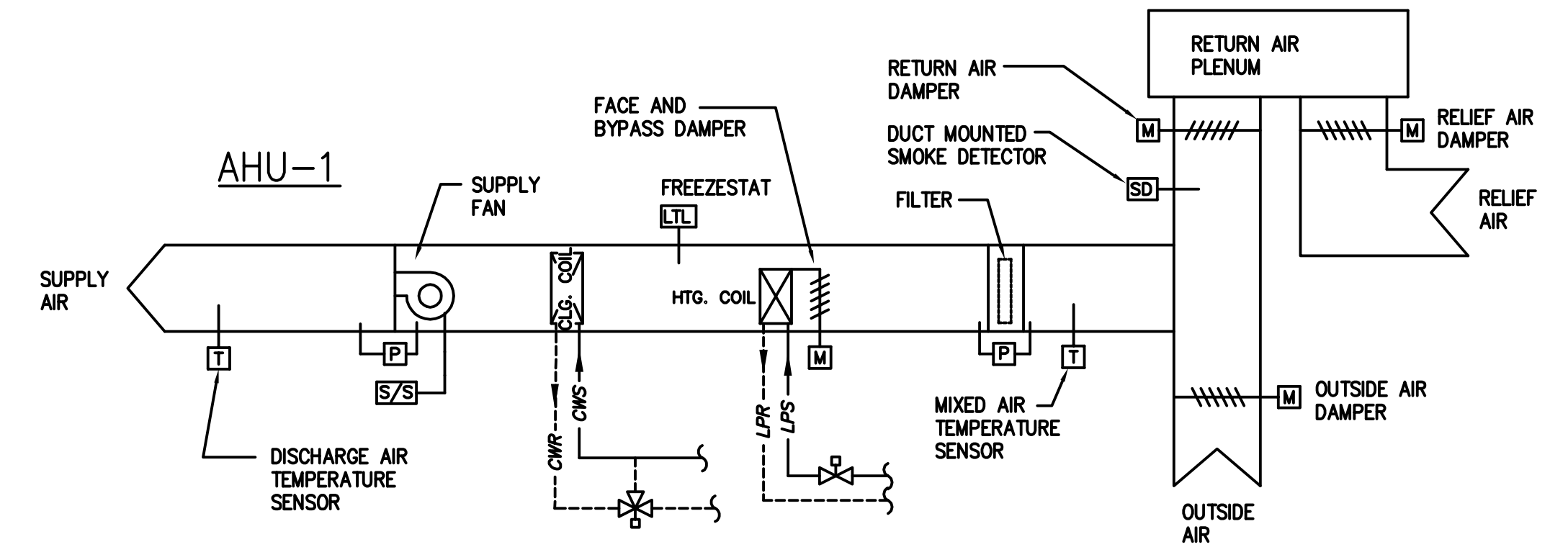
**AIR HANDLING UNIT CONTROL SEQUENCE**  
PROVIDE AND INSTALL ALL CONTROL NECESSARY TO PERFORM THE SEQUENCE SPECIFIED.  
ALL CONTROLS SHALL BE PERFORMED BY THE DIRECT DIGITAL CONTROL SYSTEM UNLESS SPECIFIED OTHERWISE.  
PROVIDE ALL CONTROL DAMPERS WITH ELECTRIC ACTUATORS AND REQUIRED LINKAGES UNLESS OTHERWISE NOTED. WHENEVER FANS ARE OFF THE CONTROL DAMPERS SHALL MOVE TO THE FAIL POSITION.  
PROVIDE ALL TEMPERATURE CONTROL VALVES WITH ELECTRIC ACTUATORS UNLESS SPECIFIED OTHERWISE.  
ALL CONTROL DAMPERS, EXCEPT AIR HANDLING UNIT INTERNAL COIL FACE AND BYPASS DAMPERS SHALL BE PROVIDED BY THE CONTROL CONTRACTOR AND INSTALLED BY THE HVAC CONTRACTOR.  
AIR HANDLING UNIT OPERATION:  
THE AIR HANDLING UNIT OCCUPIED/UNOCCUPIED MODE SHALL BE SCHEDULED THROUGH THE EXISTING BUILDING AUTOMATION SYSTEM.  
WHEN THE UNIT IS IN THE OCCUPIED MODE THE SUPPLY FAN SHALL OPERATE AND THE OUTSIDE AIR DAMPER SHALL BE OPEN TO THE MINIMUM POSITION. THE RETURN DAMPER SHALL BE IN A RESPECTIVE POSITION AND THE RELIEF DAMPERS SHALL BE CLOSED.  
WHEN THE UNIT IS IN THE UNOCCUPIED MODE THE SUPPLY FAN SHALL CYCLE TO PROVIDE SET BACK HEATING OR SET UP COOLING, IF UNOCCUPIED COOLING IS ACTIVATED, AS CONTROLLED BY THE SPACE THERMOSTAT. THE OUTSIDE AIR DAMPER AND RELIEF DAMPER SHALL BE CLOSED AND THE RETURN AIR DAMPER OPEN.  
ECONOMIZER: THE SYSTEM SHALL PROVIDE ECONOMIZER COOLING WHEN THE OUTSIDE AIR DRY BULB TEMPERATURE IS BELOW THE RETURN AIR DRY BULB AND THE REQUIRED UNIT DISCHARGE TEMPERATURE IS NOT MAINTAINED TO PROVIDE THE REQUIRED COOLING. WHEN IN THE ECONOMIZER MODE THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN BEYOND THE MINIMUM POSITION AND THE RETURN AIR DAMPER SHALL MODULATE CLOSED AND THE RELIEF DAMPER OPEN AS REQUIRED TO PROVIDE OUTSIDE AIR TO MAINTAIN THE REQUIRED AIR HANDLING UNIT DISCHARGE AIR TEMPERATURE TO SATISFY THE SPACE THERMOSTAT SETTING.  
HEATING COIL CONTROL: MODULATE BOTH FACE AND BYPASS DAMPERS AND STEAM CONTROL VALVE TOGETHER ABOVE 40 DEG F ENTERING AIR TEMPERATURE TO PROVIDE THE REQUIRED HEATING SPACE TEMPERATURE SETTING. THE CONTROL VALVE SHALL BE 1/4 OPEN BEFORE THE FACE AND BYPASS DAMPERS MODULATE. WHEN THE ENTERING AIR TEMPERATURE IS BELOW 40 DEG F THE CONTROL VALVE SHALL BE FULLY OPEN AND MODULATE ONLY THE FACE AND BYPASS DAMPERS. ALL SET POINTS SHALL BE ADJUSTABLE.  
THE HEATING COIL SHALL BE PROVIDED WITH A TWO WAY MODULATING STEAM CONTROL VALVE. THE CONTROL VALVE AND FACE AND BYPASS DAMPER MODULATION SHALL BE CONTROLLED TO PROVIDE THE REQUIRED DISCHARGE TEMPERATURE TO SATISFY THE SPACE THERMOSTAT HEATING SET POINT.  
COOLING COIL CONTROL: THE COOLING COIL SHALL BE PROVIDED WITH A THREE WAY MODULATING CHILLED WATER CONTROL VALVE. THE CONTROL VALVE MODULATION SHALL BE CONTROLLED TO PROVIDE THE REQUIRED DISCHARGE TEMPERATURE TO SATISFY THE SPACE THERMOSTAT COOLING SET POINT.  
INTERLOCK THE HEATING AND COOLING CONTROL VALVES TO PREVENT SIMULTANEOUS HEATING AND COOLING.  
WHENEVER THE SUPPLY FAN IS OFF THE STEAM HEATING AND CHILLED WATER CONTROL VALVES SHALL BE CLOSED.  
SMOKE CONTROL: ELECTRONIC SMOKE DETECTOR SHALL BE PROVIDED AND WIRED THROUGH THE ELECTRICAL SUB-CONTRACTOR. THE HVAC CONTRACTOR SHALL INSTALL THE DETECTOR IN THE RETURN AIR DUCT. ON DETECTION OF SMOKE IN THE AIR STREAM THE DETECTOR SHALL SEND AN ALARM TO THE FIRE ALARM SYSTEM AND PROVIDE A SIGNAL TO THE DDC SYSTEM TO SHUT DOWN THE AIR HANDLING UNIT SUPPLY FAN AND MODULATE ALL CONTROL VALVES AND MOTOR OPERATED DAMPERS TO THE FAIL POSITIONS.  
LOW TEMPERATURE LIMIT SENSOR (FREEZESTAT): A LOW LIMIT SENSOR (FREEZESTAT) SHALL BE INSTALLED ON THE DISCHARGE SIDE OF THE HEATING COIL AND SHALL BE WIRED THROUGH THE MOTOR CONTROL CIRCUIT TO STOP THE AIR HANDLING UNIT SUPPLY FAN, CLOSE THE OUTSIDE AIR AND RELIEF DAMPERS AND OPEN THE STEAM CONTROL VALVE UPON SENSING A HEATING COIL LEAVING AIR TEMPERATURE BELOW 38F (ADJUSTABLE). THE STATUS OF THE FREEZESTAT SHALL BE REPORTED TO THE DDC SYSTEM. THE FREEZESTAT MUST BE MANUALLY RESET BEFORE THE AIR HANDLING UNIT CAN BE STARTED.  
FILTER MONITORING: MONITOR THE PRESSURE DIFFERENTIAL ACROSS THE FILTERS. WHEN THE PRESSURE DIFFERENTIAL EXCEEDS THE SET POINT (ADJUSTABLE) INDICATE AN ALARM THROUGH THE DDC SYSTEM.

MARK	LOCATION	CFM	APD IN. W.C.	FACE VELOCITY FPM	CAPACITY MBH	STEAM PRESSURE PSIG	COIL CONDENSATE LB/HR	EAT °F	LAT °F	COIL TYPE	NO ROWS	TCV TYPE	REMARKS
HC-9	AHU S9	3000	0.19	615	147	7	153.5	44.7	89.9	NS	1	2 WAY MOD	

MARK	LOCATION	CFM	APD IN. W.C.	FACE VELOCITY FPM	CAPACITY		GPM	WPD FT. HD. MAX	EAT DB /WB °F	LAT DB °F	EWT °F	LWT °F	TCV TYPE	REMARKS
					TOTAL MBH	SENSIBLE MBH								
CC-9	AHU S9	3000	0.393	410	116.3	85.6	23.13	2.2	80.9/66.9	55	45	55	3 WAY MOD	

MARK	LOCATION	MANUFACTURER	MODEL NO.	FACE & BY-PASS	FAN PERFORMANCE				FAN DATA			MOTOR DATA				REMARKS	
					TOTAL	MIN OA	ESP IN WC	TSP IN WC	TYPE	RPM	OUTLET VEL.	FILTER TYPE	BHP	HP	VOLTS / PHASE		VFD
AHU-S9	GARAGE LEVEL	TRANE	SIZE 8	YES	3,000	975	1.40	2.86	AF	2403	2048	REMARK 2	3.1	5	480/3	NO	1, 2, 3

1. UNIT TO HAVE INTERNAL HEATING COIL FACE AND BYPASS DAMPER. FACE DAMPER PRESSURE DROP - 0.09 IN WC; BYPASS DAMPER PRESURE DROP - 0.51 IN WC  
2. UNIT TO HAVE ANGLED FILTER BOX WITH PLEATED MEDIA PRE FILTERS AND SHORT BAG FILTERS.  
3. SEE PLAN AND ELEVATION FOR UNIT SECTIONS AND SECTION ARRANGEMENT REQUIRED  
4. PROVIDE UNIT WITH 6" BASE RAIL.



A M102 AHU-1 CONTROL SEQUENCE  
NOT TO SCALE

GARAGE LEVEL FACILITIES  
AREA AIR HANDLING UNIT  
AHU-S9 REPLACEMENT  
RFB NO. 310005

CITY COUNTY BUILDING  
210 MARTIN LUTHER KING JR. BLVD.  
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Drawing Title:  
HVAC SCHEDULES AND  
CONTROL SEQUENCES

Notes:

ELECTRICAL NOTES

GENERAL REQUIREMENTS

- A. THE E.C. SHALL CARRY LIABILITY INSURANCE FOR THE PERIOD OF CONSTRUCTION AS PART OF THE GENERAL CONDITIONS.
- B. ALL WORK SHALL CONFORM TO THE STATE ELECTRICAL CODE, NATIONAL CODE, NFPA-99, AND ALL LOCAL CODES AND ORDINANCES.
- C. THE WORD 'PROVIDE' AS USED HEREIN SHALL MEAN 'FURNISH AND INSTALL.'
- D. ALL EQUIPMENT SHALL BE IDENTIFIED WITH PERMANENT TAGGING OR STENCILING TO THE OWNER'S STANDARDS. EXPOSED JUNCTION BOXES SHALL HAVE IDENTIFICATION SHOWN ON COVER PLATES WITH PERMANENT TYPE LABELS. STARTERS AND DISCONNECT SWITCHES SHALL BE LABELED WITH PERMANENT ENGRAVED NAMEPLATES.
- E. COORDINATE ANY INTERRUPTION OF SERVICES WITH THE OWNER AND OTHER TRADES.
- F. KEEP THE WORK AREA FREE OF DEBRIS AT ALL TIMES AND DISPOSAL OF REMOVED MATERIAL SHALL BE AS DIRECTED BY THE OWNER.
- G. PROVIDE ONE SET OF MARKED UP PRINTS SHOWING 'AS BUILT' CONDITIONS AFTER COMPLETION OF THE PROJECT.
- H. ALL WORK AND MATERIALS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER COMPLETION AND ACCEPTANCE OF THE PROJECT BY THE OWNER.
- I. SUBMIT SIX SETS OF SHOP DRAWINGS FOR ALL EQUIPMENT AND DEVICES.
- J. IT IS THE INTENT OF THESE SPECIFICATIONS THAT THE E.C. SHALL PROVIDE ALL NECESSARY WORK, MATERIALS, APPARATUS, AND DEVICES INCLUDING NECESSARY SUPPORTS AND BRACING TO COMPLETE A NEAT AND WORKMANLIKE ELECTRICAL INSTALLATION AS SPECIFIED HEREIN AND BRING IT TO PROPER OPERATING CONDITION.

DEMOLITION

- A. THE E.C. SHALL CAREFULLY EXAMINE THE EXISTING BUILDING, TOGETHER WITH ALL THE DRAWINGS. WITHIN THE AREAS INVOLVING REMODELING, THE E.C. SHALL BE RESPONSIBLE FOR REMOVAL OF, RELOCATION OF, OR REVISIONS TO EXISTING EQUIPMENT, WIRING, FIXTURES AND ALL OTHER EXISTING FACILITIES UNDER APPROPRIATE HEADINGS OF HIS WORK, WHICH IS NECESSARY TO ACCOMPLISH THE FINAL ARRANGEMENT INDICATED ON THE PLANS.
- B. MATERIALS DEMOLISHED OR REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER, EXCEPT ITEMS WHICH ARE REJECTED BY THE OWNER.
- C. THE E.C. WILL BE REQUIRED TO DO ALL CUTTING AND/OR CONSTRUCTION REMOVAL AND ALL PATCHING OR CONSTRUCTION REPLACEMENT UNDER THE APPROPRIATE HEADINGS OF HIS WORK. CARE SHOULD BE USED IN CUTTING AND DRILLING SO AS NOT TO WEAKEN THE STRUCTURAL COMPARTMENTS OF THE BUILDING. BEAMS SHALL NOT BE PIERCED IN ANY WAY. PRIOR TO CUTTING THE FLOOR SLABS, WALLS OR ANY OTHER SURFACE IN WHICH CONDUIT, PIPE, WIRE, STRUCTURAL MEMBERS OR OTHER SIMILAR FUNCTIONAL ITEMS MAY BE CONCEALED, TAKE ALL REASONABLE PRECAUTIONS TO DETERMINE THE PRESENCE OF SUCH ITEMS AND DEVELOP AN ALTERNATE PATH OF METHOD TO AVOID DAMAGE. ANY OPENING CREATED IN FIREWALLS SHALL BE PROTECTED BY FIRESTOP PILLOWS, FOAM OR CAULK TEMPORARILY DURING CONSTRUCTION AND PERMANENTLY AFTER CONSTRUCTION.

WIRE AND CABLE

- A. CONDUCTORS SHALL BE THHN/THWN COPPER, 12 AWG MINIMUM.
- B. WHERE WIRE AND CABLE ROUTING IS NOT SHOWN, AND DESTINATION ONLY IS INDICATED, DETERMINE EXACT ROUTING AND LENGTHS REQUIRED.
- C. NEATLY TRAIN AND LACE WIRING INSIDE BOXES, EQUIPMENT, AND PANELBOARDS.
- D. USE INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR CONDUCTOR SPLICES AND TAPS, 10 AWG AND SMALLER.
- E. IDENTIFY EACH CONDUCTOR WITH ITS CIRCUIT NUMBER OR OTHER DESIGNATION INDICATED ON DRAWINGS.
- F. VERIFY CONTINUITY OF EACH BRANCH CIRCUIT CONDUCTOR.

CONDUIT AND FITTINGS

- A. EMT, MINIMUM CONDUIT SIZE: 3/4"
- B. USE EMT FITTINGS IN INTERIOR AREAS.
- C. USE LIQUIDTIGHT FLEX FOR CONNECTION TO MOTORS AND TRANSFORMERS.
- D. INSTALL CONDUIT PARALLEL TO BUILDING LINES AND SUPPORT INDEPENDENTLY OF OTHER TRADES' WORK. LOCATE SO AS TO PRESERVE HEADROOM, ROOM FOR PASSAGE, AND ACCESS TO ALL ITEMS WHICH MAY REQUIRE MAINTENANCE AND ADJUSTMENT.

BOXES

- A. USE 4" SQUARE GALVANIZED STEEL BOXES AND COVERS IN INTERIOR LOCATIONS.
- B. ALL BOXES SHALL BE SECURELY AND RIGIDLY FASTENED TO THE SURFACE ON WHICH THEY ARE MOUNTED OR FASTENED TO A SUBSTANTIAL METALLIC HANGER WHICH IS FASTENED TO A STRUCTURAL MEMBER.

GROUNDING

- A. PROVIDE AN INSULATED GROUNDING CONDUCTOR IN ALL NEW RACEWAYS.
- B. ENSURE THAT ALL PANELBOARDS FROM WHICH NEW CIRCUITS ARE FED HAVE A SEPARATE EQUIPMENT GROUNDING BUS AND CONNECT ALL EQUIPMENT GROUNDING CONDUCTORS.

COMBINATION STARTER/DISCONNECT SWITCHES

- A. ALL MAGNETIC MOTOR STARTERS SHALL BE GENERAL PURPOSE CLASS A MAGNETIC CONTROLLERS FOR INDUCTION MOTORS RATED IN HORSEPOWER; SIZE 0 MINIMUM, COMPLETE WITH H.O.A. SWITCH, PILOT LIGHT, TWO AUXILIARY CONTACTS AND CONTROL TRANSFORMER.
- B. SELECT AND INSTALL HEATER ELEMENTS TO MATCH INSTALLED MOTOR CHARACTERISTICS.
- C. ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY, FUSIBLE, QUICK-MAKE, QUICK-BREAK, LOAD INTERRUPTER, ENCLOSED KNIFE TYPE WITH LOCKABLE EXTERNAL HANDLE.
- D. ENCLOSURE SHALL BE NEMA TYPE 1 OR 3R AS INDICATED ON PLANS OR AS REQUIRED BY ENVIRONMENT.

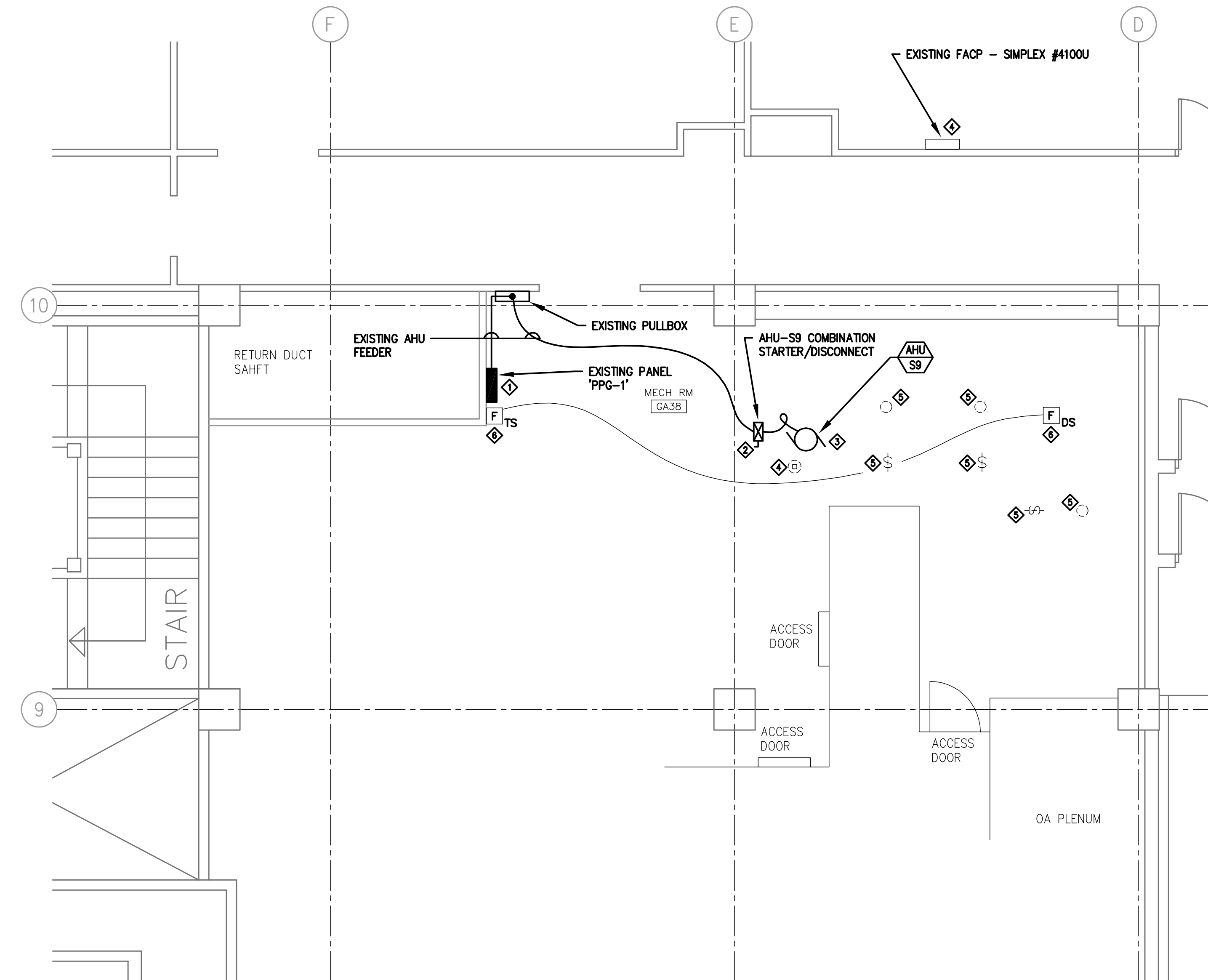
FIRE ALARM SYSTEM

- A. PROVIDE FIRE ALARM DEVICES, EQUIPMENT, AND ASSOCIATED WIRING FOR A COMPLETE AND OPERATIONAL SYSTEM AS INDICATED ON DRAWINGS.
- B. EQUIPMENT AND DEVICES SHALL MATCH EXISTING EQUIPMENT, AND BE COMPATIBLE WITH EXISTING SYSTEM.
- C. INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. SYSTEM WIRING SHALL BE IN CONDUIT, 3/4" MINIMUM.
- D. PROVIDE PROPER TESTING OF SYSTEM TO INSURE PROPER OPERATION.

CONCLUSION TESTS

- A. ON COMPLETION OF WORK THE INSTALLATION SHALL TEST ENTIRELY FREE OF GROUNDS AND SHORT CIRCUITS.

END OF ELECTRICAL NOTES



**A**  
**E101**

**MECH ROOM FLOOR PLAN - ELECTRICAL**

SCALE: 1/4" = 1'-0"

ELECTRICAL PLAN NOTES:

- 1. EXISTING SQUARE D, 1-LINE, 277/480V, 3φ, 4W, 225A PANEL. EXISTING 20/3 BREAKER (CKTS 1,3,5), AND ASSOCIATED WIRE & CONDUIT, FEEDING EXISTING AHU TO REMAIN AND BE RE-USED TO FEED NEW AHU-S9. UPDATE CIRCUIT DIRECTORY AND BREAKER LABELING.
- 2. REMOVE EXISTING STARTER/DISCONNECT SWITCH, AND REPLACE WITH NEW COMBINATION STARTER/DISCONNECT IN ACCORDANCE WITH SPECIFICATIONS. CONNECT TO EXISTING 3#12, 1#12G, 3/4"C.
- 3. DISCONNECT EXISTING AHU AND REMOVE ASSOCIATED WIRE & CONDUIT BACK TO COMBINATION STARTER/DISCONNECT SWITCH. PROVIDE NEW 3#12, 1#12G, 3/4"C FROM NEW COMBINATION STARTER/DISCONNECT SWITCH TO NEW 5HP AHU-S9.
- 4. DISCONNECT EXISTING TEMPERATURE CONTROL PANEL, AND REMOVE ASSOCIATED WIRE & CONDUIT BACK TO SOURCE.
- 5. DISCONNECT EXISTING SWITCH & LIGHT FIXTURE, AND REMOVE ASSOCIATED WIRE & CONDUIT BACK TO SOURCE.
- 6. PROVIDE NEW DUCT SMOKE DETECTOR AND REMOTE TEST SWITCH AS INDICATED. COORDINATE EXACT LOCATION WITH H.C. CONNECT TO EXISTING SIMPLEX #4100U FACP ACROSS THE CORRIDOR AS SHOWN. ALL WIRING SHALL BE IN CONDUIT.

ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
	DASHED LINES INDICATES EXISTING EQUIPMENT TO BE REMOVED
	INCANDESCENT LIGHT FIXTURE
	SINGLE POLE SWITCH
	PANELBOARD
	MOTOR CONNECTION
	COMBINATION STARTER DISCONNECT SWITCH
	DIRECT ELECTRICAL CONNECTION
	FIRE ALARM DUCT SMOKE DETECTOR
	FIRE ALARM DUCT SMOKE DETECTOR TEST SWITCH

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NOTES AND SCHEDULES**