

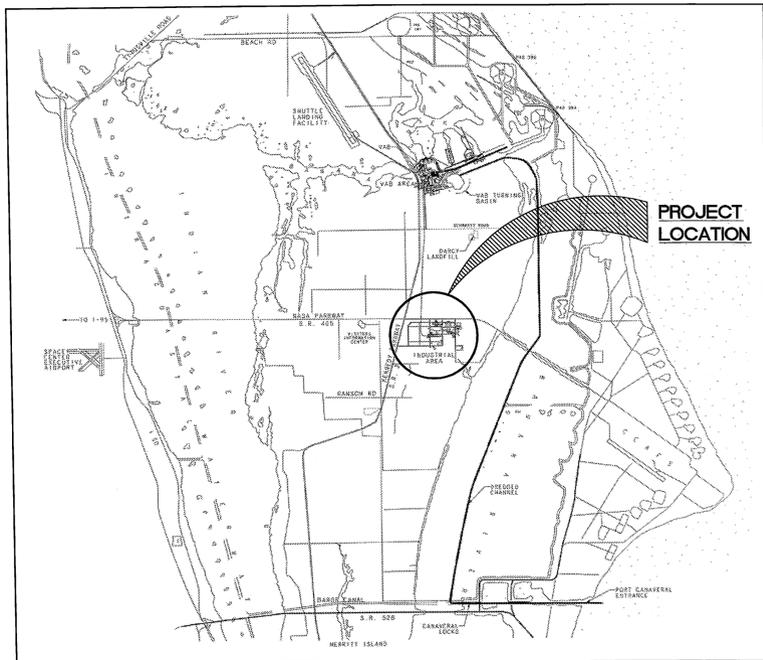
# SPACE STATION PROCESSING FACILITY REPLACE AIR HANDLING UNITS BID PACKAGE 1

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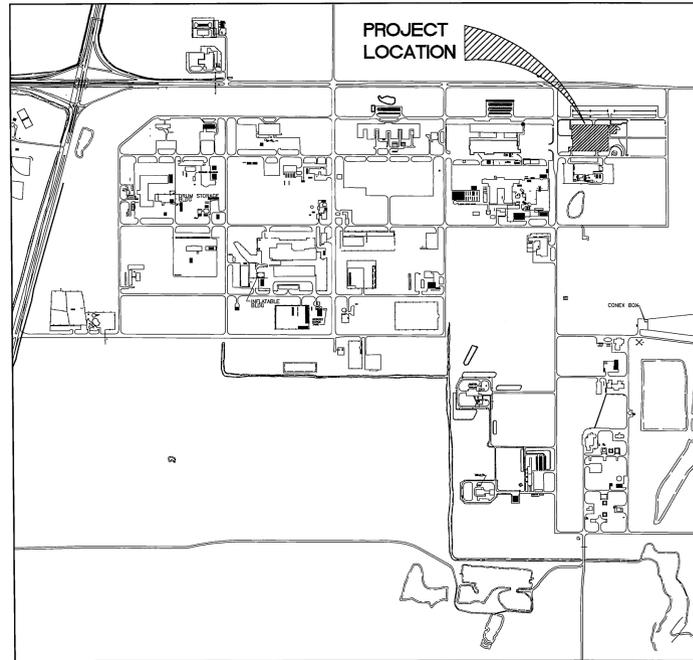


**PCN 98946.1  
SPECIFICATION NO. 79K39149**

TITLE OF DOCUMENT: 79K39148, SSPF - REPLACE AIR HANDLING UNITS, PCN 98946.1 BID PACKAGE 1				
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AREA MAP  
SCALE: NTS



LOCATION MAP  
SCALE: NTS

**SUSPECTED ASBESTOS**  
 YES  NO

IF THE CONTRACTOR SUSPECTS THE PRESENCE OF ANY ASBESTOS OR LEAD CONTAMINATED MATERIAL NOT IDENTIFIED ON THIS DRAWING, BUT IS REQUIRED TO BE DISTURBED TO PERFORM THE CONTRACT WORK, INFORM THE CONTRACTING OFFICER AT ONCE.

**SUSPECTED HEAVY METALS**  
 YES  NO

IF THE CONTRACTOR SUSPECTS THE PRESENCE OF ANY COATINGS THAT CONTAIN HEAVY METALS NOT IDENTIFIED ON THIS DRAWING, BUT IS REQUIRED TO BE DISTURBED TO PERFORM THE CONTRACT WORK, INFORM THE CONTRACTING OFFICER AT ONCE.

- REFERENCE DOCUMENTS:**
- DRAWING NUMBERS REFERENCE:**
- 79K32598 - SPACE STATION PROCESSING FACILITY ORIGINAL AS-BUILT DRAWINGS
  - 82K00760 - SPACE STATION PROCESSING FACILITY STANDARD INTERFACE DOCUMENT DESIGN BASELINE
  - 82K05179 - SPACE STATION PROCESSING FACILITY HVAC CONTROLS SYSTEM

SYM	ZONE	DESCRIPTION	DATE	APPROVED
<b>REVISIONS</b>				
<b>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</b> JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA				
SIGNATURES		DATE		
DRAWN		PINTO 5-23-12		
CHECKED		KUGLER 5-23-12		
SUBMITTED		BRENA, TURKALL 5-23-12		
APPROVED		for BILL ROW 5-23-12		
SAMORI BALL		5-23-12		
PHIL BENNARDO		5-23-12		

**COVER SHEET**

FILE NO.	SIZE	DWG. NO.	REV
V-001	F	79K39148	
PROJ. NO.	PCN	98946.1	SHEET 1 OF 29

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**GENERAL NOTES**

1. NOTHING IN THE GENERAL NOTES SUPERSEDES KSC, NASA OR GOVERNMENTAL REGULATIONS, STANDARDS AND/OR PROCEDURES. THE CONTRACTOR SHALL BE FAMILIAR WITH KSC AND GOVERNMENTAL REGULATIONS AND PROCEDURES.
2. DO NOT ROUTE ANY WET PIPING THROUGH ELECTRICAL, COMMUNICATION OR ELEVATOR EQUIPMENT ROOMS.
3. COMPLY WITH THE 2010 FLORIDA BUILDING CODES FOR ALL WORK UNDER THIS CONTRACT.
4. COORDINATE ALL MECHANICAL WORK, INCLUDING DUCTWORK, PIPING, AND EQUIPMENT WITH STRUCTURAL MEMBERS, ELECTRICAL WORK AND FIXTURES, FIRE PROTECTION PIPING, PLUMBING PIPING AND ALL OTHER TRADES.
5. PROVIDE ACCESS DOORS IN DUCTWORK TO SERVICE FIRE DAMPERS & DEVICES WITHIN DUCTS NOT OTHERWISE ACCESSIBLE THRU GRILLE/DIFFUSERS OR OPEN DUCT.
6. FABRICATE ALL DUCT WORK IN ACCORDANCE WITH SMACNA STANDARDS.
7. MINIMUM DUCT CONSTRUCTION SHALL BE AS FOLLOWS:  
 SUPPLY DUCTS: 4" WG, SEAL CLASS A, LEAKAGE CLASS 6  
 RETURN DUCTS: 2" WG, SEAL CLASS C, LEAKAGE CLASS 24  
 EXHAUST DUCTS: 2" WG, SEAL CLASS C, LEAKAGE CLASS 24  
 OUTSIDE AIR DUCTS: 2" WG, SEAL CLASS C, LEAKAGE CLASS 24  
 DUCT PENETRATIONS AND PATCHES: MATCH CONSTRUCTION OF EXISTING, SEAL CLASS A, LEAKAGE CLASS 6.
8. PROVIDE INSULATED TRAPPED CONDENSATE DRAIN PIPING, WITH AIR GAPS, FROM COOLING COIL DRAIN PANS, TO EXISTING FLOOR DRAIN, AS INDICATED FOR ALL COILS THAT PRODUCE CONDENSATION.
9. PROVIDE DUCT FLEXIBLE CONNECTOR BETWEEN EACH AHU AND THE DUCT THAT IT IS CONNECTED TO.
10. COORDINATE FINAL LOCATIONS AND ORIENTATION OF ALL EQUIPMENT WITH ALL AFFECTED TRADES PRIOR TO INSTALLATION.
11. MOUNT ALL DUCT SMOKE DETECTORS FURNISHED AND WIRED BY DIVISION 28 IN ACCORDANCE WITH DIVISION 28 SPECIFICATIONS.
12. PROVIDE ALL CONTROL WIRING IN COMPLIANCE WITH DIVISION 26 SPECIFICATIONS. ALL CONTROL WIRING IN EXPOSED AREAS SHALL BE IN RIGID, METAL CONDUIT.
13. ALL CUTTING AND PATCHING OF BUILDING COMPONENTS TO SUPPORT MECHANICAL EQUIPMENT SHALL BE FULLY COORDINATED WITH THE GENERAL TRADES CONTRACTOR.
14. POWER REQUIREMENTS FOR ALL SMOKE AND COMBINATION FIRE/SMOKE DAMPERS SHALL BE 120v UNLESS NOTED OTHERWISE. COORDINATE LOCATIONS OF DAMPERS AND THEIR ASSOCIATED DETECTORS WITH THE FIRE ALARM DRAWINGS.
15. PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS AND DRAIN VALVES, WITH CAPPED HOSE CONNECTIONS, AT ALL LOW POINTS OF HYDRONIC PIPING SYSTEMS.
16. PROVIDE PIPING CONNECTIONS AT COILS TO ALLOW FOR TUBE/COIL REMOVAL/REINSTALLATION.
17. ALL EXISTING CONDITIONS AS INDICATED ARE APPROXIMATIONS OF ACTUAL CONDITIONS AS RECORDED FROM FIELD WORK AND AS INDICATED ON 79K32598, 82K00760, AND 82K05179. VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO STARTING WORK.
18. NOT ALL EXISTING EQUIPMENT, DUCTWORK, PIPING ETC. IS INDICATED ON EXISTING AND NEW DRAWINGS FOR CLARITY OF NEW WORK REQUIREMENTS. CONTRACTOR SHALL VERIFY NEW WORK IS FREE FROM CONFLICTS WITH EXISTING CONDITIONS PRIOR TO STARTING WORK.
19. WHEREVER EXISTING SYSTEMS ARE ALTERED, EXTENDED, OR PARTS ABANDONED, MAINTAIN, IN GOOD OPERATING CONDITION, THE INTEGRITY OF THE REMAINING SYSTEM, OR PARTS THEREOF.

**OPTIONS**

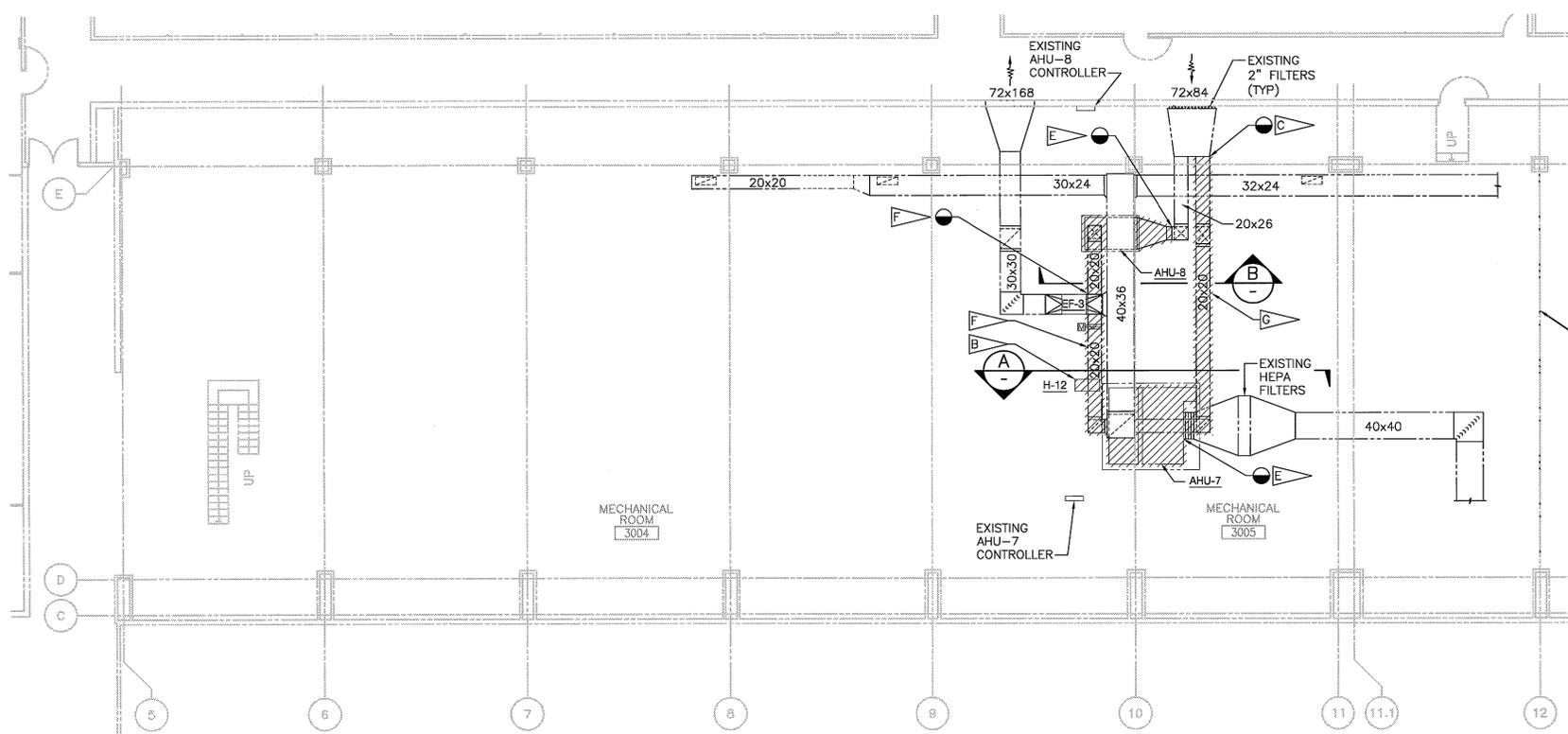
1. EXISTING HEPA FILTERS FOR AFFECTED AHUS SHALL BE CHANGED OUT AT THE COMPLETION OF THE PROJECT. CONTRACTOR SHALL PRICE THIS AS AN OPTION IN CASE THE FILTERS ARE CHANGED OUT PRIOR TO COMMENCEMENT OF NEW WORK AND SUBSTANTIAL FILTER LIFE STILL EXISTS. SEE FLOOR PLANS FOR LOCATION AND ADDITIONAL REQUIREMENTS.

SYM	ZONE	DESCRIPTION	DATE	APPROVED
<b>REVISIONS</b>				
				
<b>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</b> JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA				
<b>SPACE STATION PROCESSING FACILITY</b> <b>REPLACE AIR HANDLING UNITS</b> BID PACKAGE 1				
<b>GENERAL NOTES</b>				
FILE NO.		SIZE	DWG. NO.	REV
M-002		F	79K39148	
PROJ. NO.		PCN	SHEET	
		98946.1	3 OF	

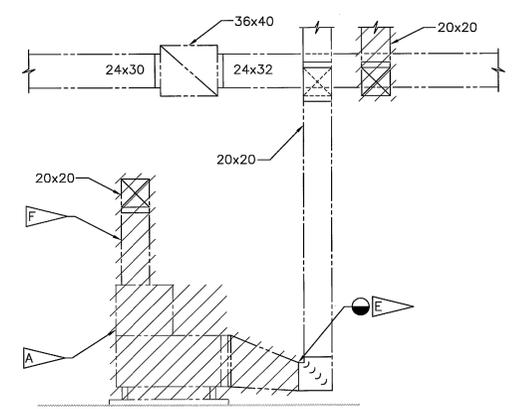
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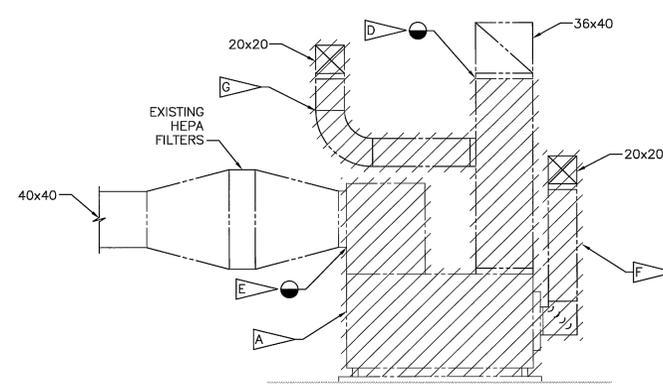
- SPECIFIC NOTES:**
- A REMOVE EXISTING AHU IN ITS ENTIRETY INCLUDING ALL BASE MOUNTS, VIBRATION ISOLATORS AND CONTROL SENSORS WITHIN UNIT. EXISTING HOUSEKEEPING PAD TO REMAIN. EXISTING CONTROL WIRING SHALL BE MAINTAINED FOR CONNECTIONS TO NEW SENSORS TO BE INSTALLED IN NEW UNIT. ALL SENSORS LOCATED OUTSIDE THE EXISTING DEMOLISHED AHU SHALL BE MAINTAINED AND REUSED IN CONJUNCTION WITH NEW WORK. DISCONNECT EXISTING CHW AND HW PIPING AND PREPARE FOR CONNECTION TO NEW UNIT. SEE PIPING DEMOLITION PLANS FOR DEMOLITION OF PIPING SYSTEMS.
  - B REMOVE EXISTING HUMIDIFIER IN ITS ENTIRETY INCLUDING DISTRIBUTION HEADER AND ASSOCIATED PIPING. DISCONNECT EXISTING MAKEUP WATER PIPING AND DRAIN PIPING AT HUMIDIFIER AND PREPARE FOR CONNECTION TO NEW HUMIDIFIER.
  - C REMOVE EXISTING DUCTWORK BACK TO POINT INDICATED INCLUDING ALL ASSOCIATED APPURTENANCES SUCH AS HANGERS, DAMPERS, ETC. PATCH AND SEAL DUCTWORK AT POINT OF DEMOLITION. SEAL AND INSULATE TO MATCH EXISTING.
  - D REMOVE DUCTWORK BACK TO POINT INDICATED AND PREPARE FOR NEW CONNECTION.
  - E PREPARE DUCTWORK FOR CONNECTION TO NEW UNIT.
  - F REMOVE DUCTWORK BETWEEN EXISTING AHUS IN ITS ENTIRETY EXCEPT FOR EXISTING MOTORIZED DAMPER, SMOKE DETECTOR AND ALL OTHER CONTROL DEVICES. THESE ITEMS SHALL BE REMOVED FROM EXISTING DUCTWORK AND MAINTAINED FOR INSTALLATION IN NEW DUCTWORK UNO.
  - G REMOVE EXISTING DUCTWORK AS INDICATED INCLUDING ALL ASSOCIATED APPURTENANCES SUCH AS HANGERS, DAMPERS, ETC.
  - H TURN OVER ALL DEMOLISHED PROPERTY TAGGED ITEMS TO THE GOVERNMENT AFTER REMOVAL. NON PROPERTY TAGGED ITEMS SHALL BE REMOVED FROM SITE BY THE CONTRACTOR IN ACCORDANCE WITH LAW.



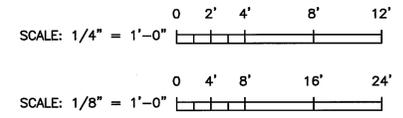
**PARTIAL THIRD FLOOR HVAC DEMOLITION PLAN**  
SCALE: 1/8" = 1' - 0"



**DEMOLITION SECTION - AHU-8**  
SCALE: 1/4" = 1' - 0"



**DEMOLITION SECTION - AHU-7**  
SCALE: 1/4" = 1' - 0"



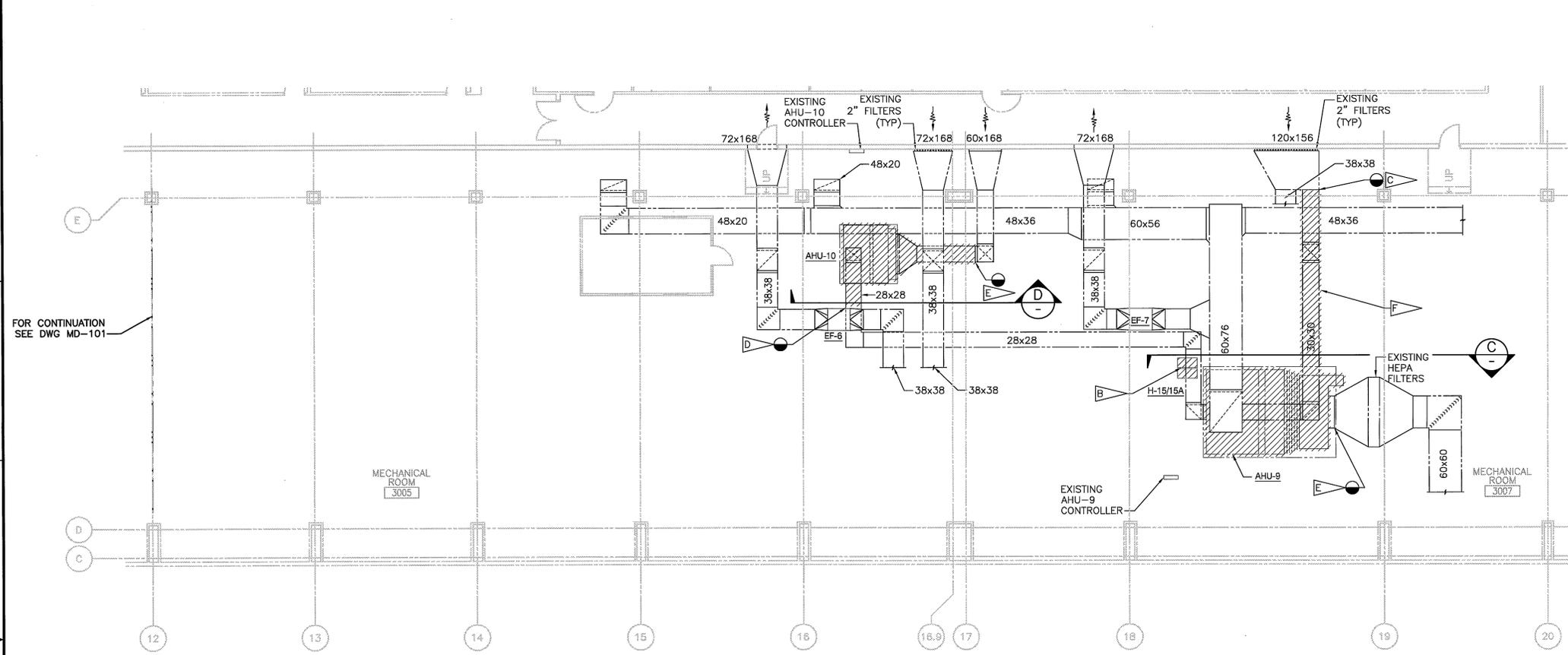
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		<b>SPACE STATION PROCESSING FACILITY</b> REPLACE AIR HANDLING UNITS BID PACKAGE 1 PARTIAL THIRD FLOOR HVAC DEMOLITION PLAN		
SIGNATURES	DATE			
DRAWN: PINTO	5-23-12	FILE NO.	SIZE	DWG. NO.
CHECKED: KUJLER	5-23-12	MD-101	F	79K39148
SUBMITTED: BRETT A. TURKALL	5-23-12	PROJ. NO.	PCN	SHEET
ST OF LICENSE: FL	5-23-12		98946.1	4 OF
LICENSE #68915	5-23-12			
APPROVED: BEN TRAWICK	5-23-12			
BEN TRAWICK	5-23-12			
SCOTT HUNT	5-23-12			

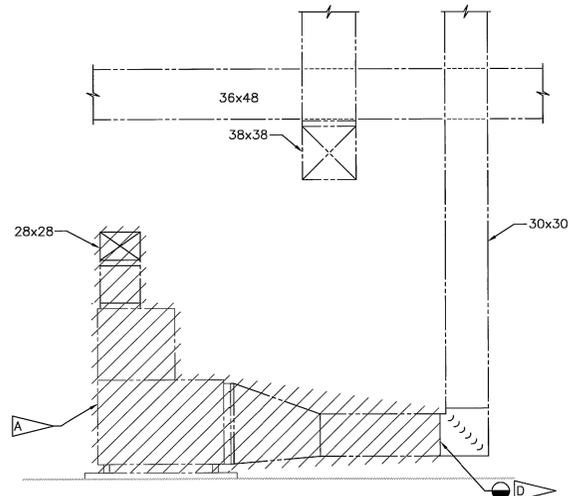
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**SPECIFIC NOTES:**

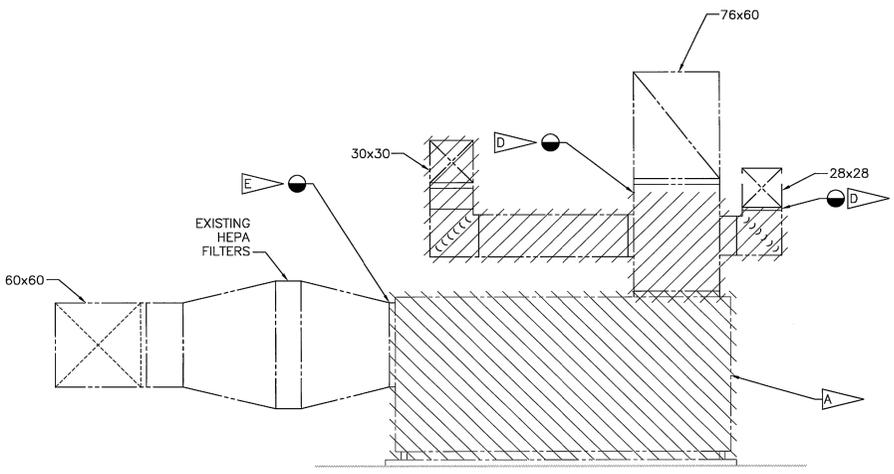
- A REMOVE EXISTING AHU IN ITS ENTIRETY INCLUDING ALL BASE MOUNTS, VIBRATION ISOLATORS AND CONTROL SENSORS WITHIN UNIT. EXISTING HOUSEKEEPING PAD TO REMAIN. EXISTING CONTROL WIRING SHALL BE MAINTAINED FOR CONNECTIONS TO NEW SENSORS TO BE INSTALLED IN NEW UNIT. ALL SENSORS LOCATED OUTSIDE THE EXISTING DEMOLISHED AHU SHALL BE MAINTAINED AND REUSED IN CONJUNCTION WITH NEW WORK. DISCONNECT EXISTING CHW AND HHW PIPING AND PREPARE FOR CONNECTION TO NEW UNIT. SEE PIPING DEMOLITION PLANS FOR DEMOLITION OF PIPING SYSTEMS.
- B REMOVE EXISTING HUMIDIFIER IN ITS ENTIRETY INCLUDING DISTRIBUTION HEADER AND ASSOCIATED PIPING. DISCONNECT EXISTING MAKEUP WATER PIPING AND DRAIN PIPING AT HUMIDIFIER AND PREPARE FOR CONNECTION TO NEW HUMIDIFIER.
- C REMOVE EXISTING DUCTWORK BACK TO POINT INDICATED INCLUDING ALL ASSOCIATED APPURTENANCES SUCH AS HANGERS, DAMPERS, ETC. PATCH AND SEAL DUCTWORK AT POINT OF DEMOLITION. SEAL AND INSULATE TO MATCH EXISTING.
- D REMOVE DUCTWORK BACK TO POINT INDICATED AND PREPARE FOR NEW CONNECTION. EXISTING CONTROL DEVICES IN DEMOLISHED DUCTWORK SHALL BE MAINTAINED FOR INSTALLATION IN NEW DUCTWORK.
- E PREPARE DUCTWORK FOR CONNECTION TO NEW UNIT.
- F REMOVE EXISTING DUCTWORK AS INDICATED INCLUDING ALL ASSOCIATED APPURTENANCES SUCH AS HANGERS, DAMPERS, ETC.
- G TURN OVER ALL DEMOLISHED PROPERTY TAGGED ITEMS TO THE GOVERNMENT AFTER REMOVAL. NON PROPERTY TAGGED ITEMS SHALL BE REMOVED FROM SITE BY THE CONTRACTOR IN ACCORDANCE WITH LAW.



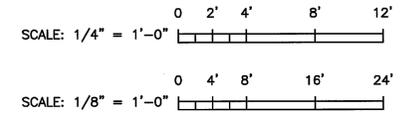
**PARTIAL THIRD FLOOR HVAC DEMOLITION PLAN**  
SCALE: 1/8" = 1' - 0"



**DEMOLITION SECTION - AHU-10**  
SCALE: 1/4" = 1' - 0"



**DEMOLITION SECTION - AHU-9**  
SCALE: 1/4" = 1' - 0"



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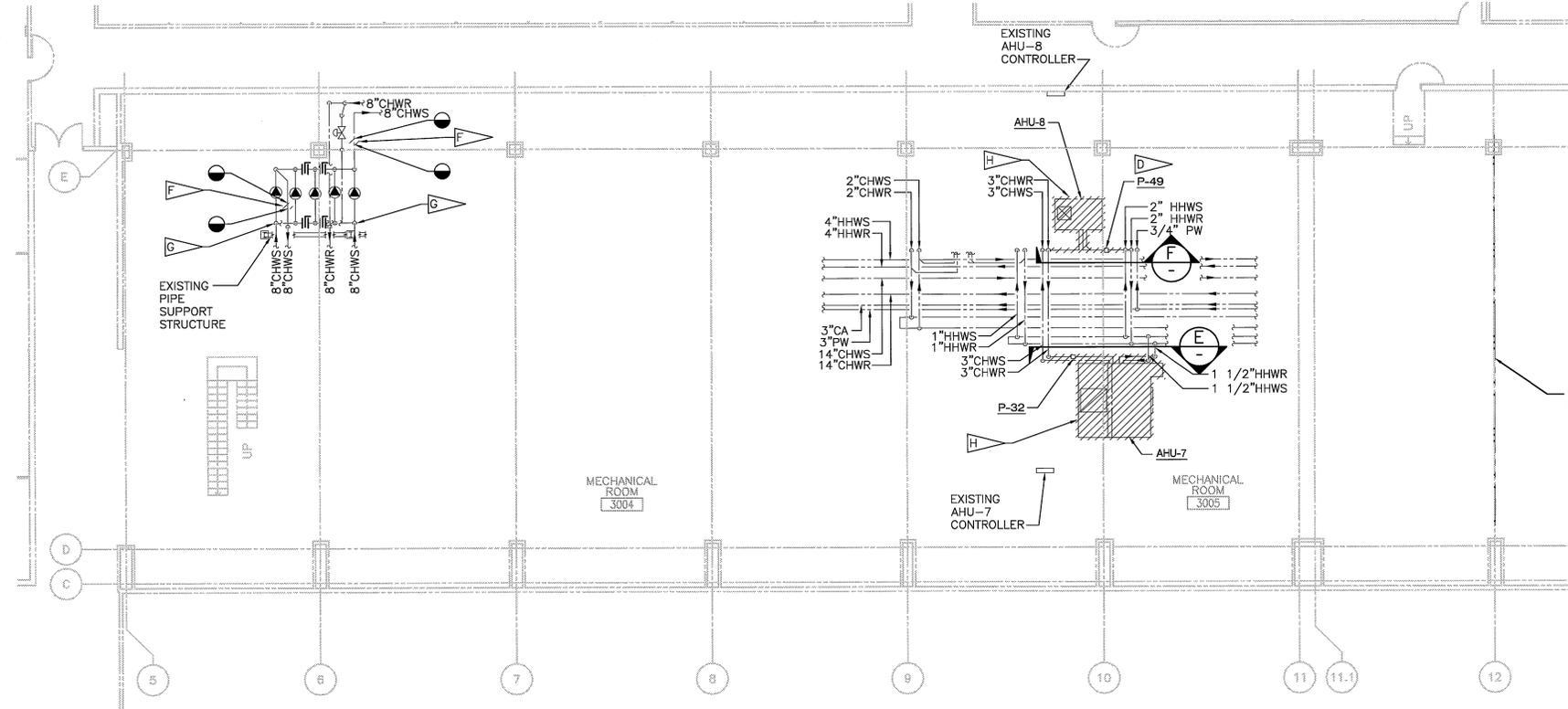
MD-102

SYM	ZONE	DESCRIPTION	DATE	APPROVED
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		<b>SPACE STATION PROCESSING FACILITY</b> REPLACE AIR HANDLING UNITS BID PACKAGE 1 PARTIAL THIRD FLOOR HVAC DEMOLITION PLAN		
SIGNATURES	DATE			
DRAWN PINTO	5-23-12			
CHECKED KUGLER	5-23-12			
SUBMITTED BREYER	5-23-12			
ST OF LICENSURE: FL LICENSE #68915	5-23-12			
APPROVED BEN TRAWICK	5-23-12			
SCOTT HUNT	5-23-12			
FILE NO.	SIZE	DWG. NO.	REV	
	F	79K39148		
PROJ. NO.	PCN	98946.1	SHEET 5 OF	

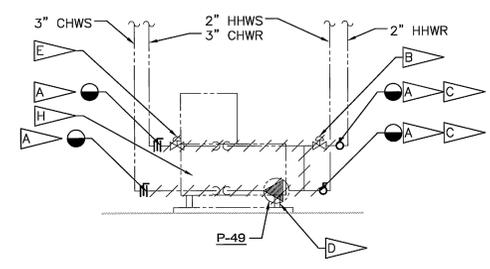
NOTE: WHEN APPROVED, GENERAL APPROXIMATION OF OTHER WORK SHALL BE SHOWN ON THIS DRAWING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

**SPECIFIC NOTES:**

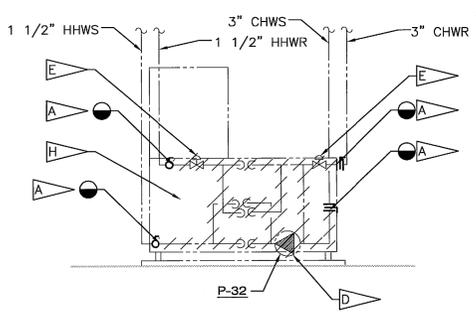
- A DEMOLISH PIPING AS INDICATED FROM AHU BACK TO ISOLATION VALVES AND PREPARE FOR NEW CONNECTIONS.
- B DEMOLISH EXISTING CONTROL VALVE AND ASSOCIATED WIRING AND CONDUIT IN ITS ENTIRETY.
- C PIPE CAPPED AT POINT OF DEMOLITION.
- D DEMOLISH EXISTING CIRCULATOR PUMP IN ITS ENTIRETY.
- E DEMOLISH EXISTING CONTROL VALVE. MAINTAIN ELECTRICAL AND CONTROL WIRES TO CONNECT TO NEW CONTROL VALVE TO BE INSTALLED AS PART OF NEW WORK.
- F SHORE PIPE AS REQUIRED FOR DEMOLITION OF PIPE SECTIONS. REFER TO M-103 FOR SPECIFIC LOCATIONS OF NEW VALVES TO COORDINATE PIPING TO BE DEMOLISHED WITH NEW VALVE INSTALLATION. SHORING SHALL REMAIN IN PLACE TO FACILITATE INSTALLATION OF NEW FLANGES AND VALVE. DEMOLISH SECTION OF PIPE AS INDICATED TO FACILITATE INSTALLATION OF NEW BUTTERFLY VALVE AND FLANGES.
- G SHORE PIPE AS REQUIRED FOR DEMOLITION OF PIPE SECTIONS. REFER TO M-103 FOR SPECIFIC LOCATIONS OF NEW VALVES TO COORDINATE PIPING TO BE DEMOLISHED WITH NEW VALVE INSTALLATION. SHORING SHALL REMAIN IN PLACE TO FACILITATE INSTALLATION OF NEW FLANGES AND VALVE. DEMOLISH SECTION OF PIPE IN PIPE RISER TO FACILITATE INSTALLATION OF NEW BUTTERFLY VALVE AND FLANGES.
- H SEE MD-101 FOR DEMOLITION REQUIREMENTS FOR AHU.
- J TURN OVER ALL DEMOLISHED PROPERTY TAGGED ITEMS TO THE GOVERNMENT AFTER REMOVAL. NON PROPERTY TAGGED ITEMS SHALL BE REMOVED FROM SITE BY THE CONTRACTOR IN ACCORDANCE WITH LAW.



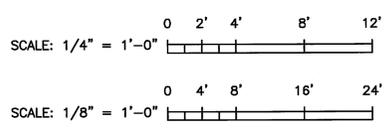
**PARTIAL THIRD FLOOR HVAC PIPING DEMOLITION PLAN**  
SCALE: 1/8" = 1' - 0"



**DEMOLITION SECTION - AHU-8**  
SCALE: 1/4" = 1' - 0"



**DEMOLITION SECTION - AHU-7**  
SCALE: 1/4" = 1' - 0"

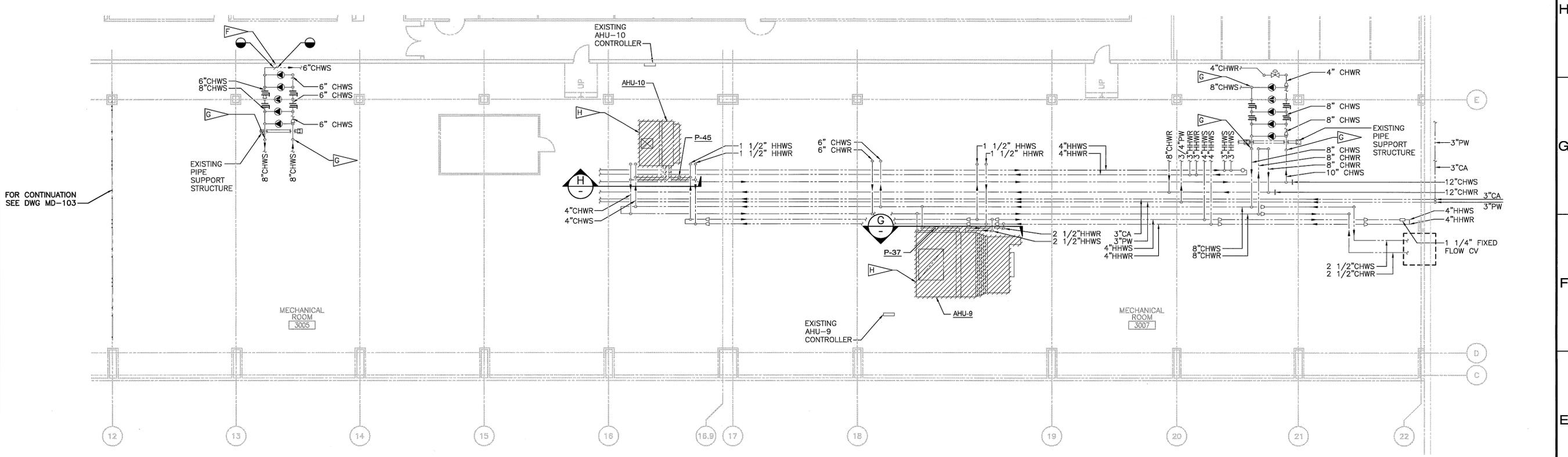


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**MD-103**

SYM	ZONE	DESCRIPTION	DATE	APPROVED
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		<b>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</b> JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA		
		<b>SPACE STATION AIR PROCESSING FACILITY</b> REPLACE AIR HANDLING UNITS BID PACKAGE 1		
		<b>PARTIAL THIRD FLOOR HVAC PIPING</b> DEMOLITION PLAN		
SIGNATURES	DATE			
DRAWN PINTO	5-23-12			
CHECKED KJGLER	5-23-12			
SUBMITTED BRET TURKALL	5-23-12			
ST OF LICENSURE: FL	5-23-12			
LICENSE #68915	5-23-12			
APPROVED BEN TRAWICK	5-23-12			
SCOTT HUNT	5-23-12			
FILE NO.	SIZE	DWG. NO.	REV	
	F	79K39148		
PROJ. NO.	PCN	98946.1	SHEET 6 OF	

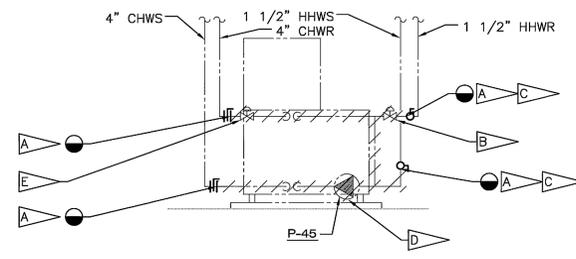
NOTE: THIS DOCUMENT IS THE PROPERTY OF BRPH AND IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF BRPH.



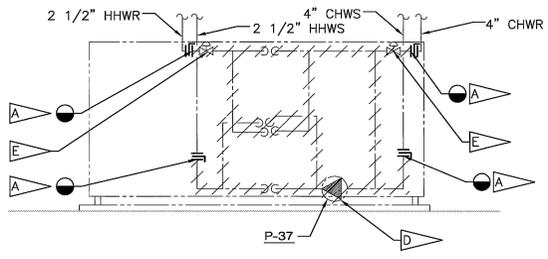
**PARTIAL THIRD FLOOR HVAC PIPING DEMOLITION PLAN**  
SCALE: 1/8" = 1' - 0"

**SPECIFIC NOTES:**

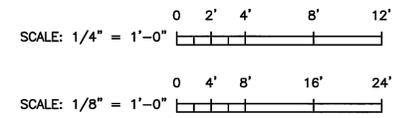
- A DEMOLISH PIPING AS INDICATED FROM AHU BACK TO ISOLATION VALVES AND PREPARE FOR NEW CONNECTIONS.
- B DEMOLISH EXISTING CONTROL VALVE AND ASSOCIATED WIRING AND CONDUIT IN ITS ENTIRETY.
- C PIPE TO BE CAPPED AT POINT OF DEMOLITION.
- D DEMOLISH EXISTING CIRCULATOR PUMP IN ITS ENTIRETY.
- E DEMOLISH EXISTING VALVE. MAINTAIN ELECTRICAL AND CONTROL WIRES TO CONNECT TO NEW CONTROL VALVE TO BE INSTALLED AS PART OF NEW WORK.
- F SHORE PIPE AS REQUIRED FOR DEMOLITION OF PIPE SECTIONS. SHORING SHALL REMAIN IN PLACE TO FACILITATE INSTALLATION OF NEW FLANGES AND VALVE. DEMOLISH SECTION OF PIPE AS INDICATED TO FACILITATE INSTALLATION OF NEW BUTTERFLY VALVE AND FLANGES.
- G SHORE PIPE AS REQUIRED FOR DEMOLITION OF PIPE SECTIONS. REFER TO M-104 FOR SPECIFIC LOCATIONS OF NEW VALVES TO COORDINATE PIPING TO BE DEMOLISHED WITH NEW VALVE INSTALLATION. SHORING SHALL REMAIN IN PLACE TO FACILITATE INSTALLATION OF NEW FLANGES AND VALVE. DEMOLISH SECTION OF PIPE IN PIPE RISER TO FACILITATE INSTALLATION OF NEW BUTTERFLY VALVE AND FLANGES.
- H SEE MD-102 FOR DEMOLITION REQUIREMENTS FOR AHU.
- J TURN OVER ALL DEMOLISHED PROPERTY TAGGED ITEMS TO THE GOVERNMENT AFTER REMOVAL. NON PROPERTY TAGGED ITEMS SHALL BE REMOVED FROM SITE BY THE CONTRACTOR IN ACCORDANCE WITH LAW.



**DEMOLITION SECTION - AHU-10**  
SCALE: 1/4" = 1' - 0"



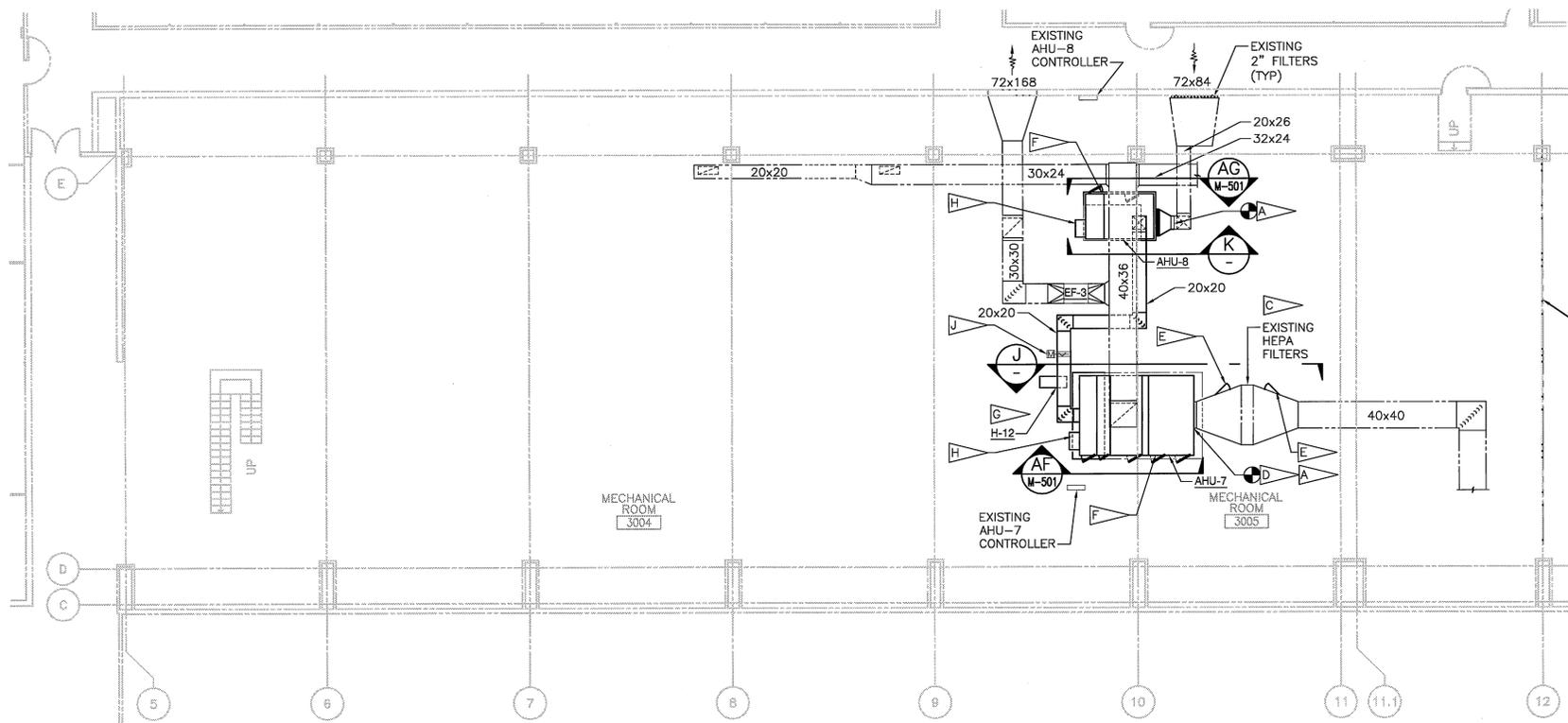
**DEMOLITION SECTION - AHU-9**  
SCALE: 1/4" = 1' - 0"



THIS DRAWING PRODUCED BY AUTOMATED DRAFTING EQUIPMENT USING AUTOCAD®. MANUAL REVISIONS SHALL NOT BE MADE. FILE: 580023\MD-104 PARTIAL THIRD FLOOR HVAC PIPING DEMOLITION PLAN

SYM	ZONE	DESCRIPTION	DATE	APPROVED
<b>REVISIONS</b>				
Architects, Engineers, Constructors Offices in Melbourne, West Palm Beach, Orlando, Atlanta				
<b>brph</b>				
Board of Architecture License No. AA 0000199 Board of Professional Engineers License No. 4499 These plans are produced by Federal Copyright protection. Unauthorized reproduction for any other project is prohibited.				
<b>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</b> JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA				
<b>SPACE STATION PROCESSING FACILITY</b> REPLACE AIR HANDLING UNITS BID PACKAGE 1 PARTIAL THIRD FLOOR HVAC PIPING DEMOLITION PLAN				
SIGNATURES	DATE			
DRAWN PINTO	5-23-12	FILE NO.	SIZE	DWG. NO.
CHECKED KUGLER	5-23-12	MD-104	F	79K39148
SUBMITTED BY BRETT TURKALL	5-23-12	PROJ. NO.	PCN	SHEET
ST OF LICENSURE: FL LICENSE #68915	5-23-12	2	98946.1	7 OF
APPROVED BEN TRAWICK	5-23-12			
SCOTT HUNT	5-23-12			

NOTE: WHEN GOVERNMENT CONTRACTORS, ARCHITECTS OR OTHERS ARE REQUIRED TO PROVIDE A COPY OF THIS DRAWING TO THE GENERAL CONTRACTOR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE DRAWING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE DRAWING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE DRAWING.

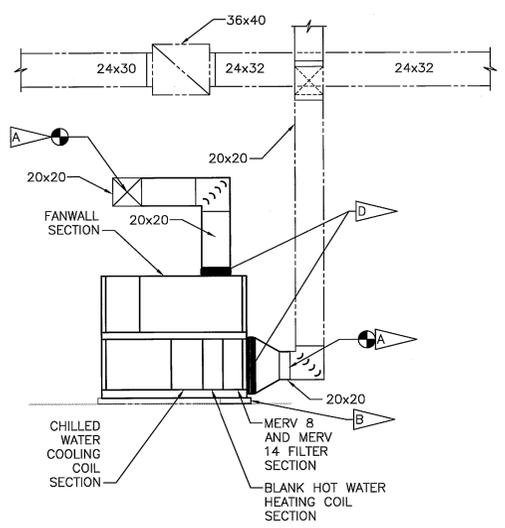


PARTIAL THIRD FLOOR HVAC PLAN  
SCALE: 1/8" = 1' - 0"

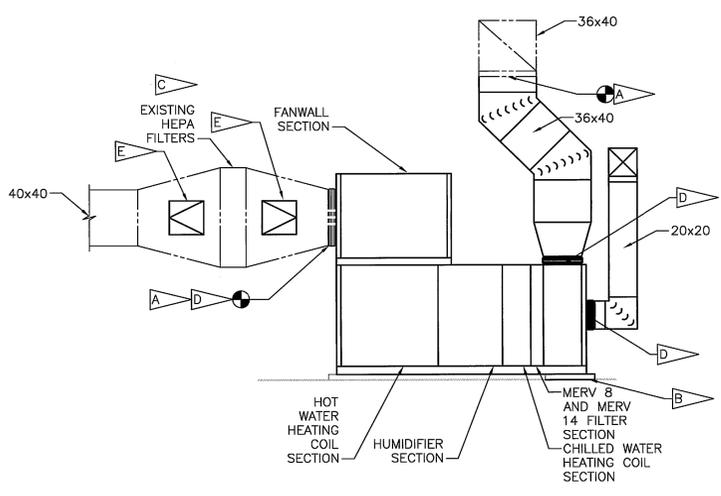
SPECIFIC NOTES:

- A > CONNECT NEW DUCTWORK TO EXISTING AT POINT INDICATED. SEE GENERAL NOTES ON SHEET M-002 FOR SEAL REQUIREMENTS.
- B > EXTEND EXISTING HOUSEKEEPING PAD AS REQUIRED TO BE 6" BEYOND THE FACE OF THE NEW AHU. CONCRETE SHALL HAVE 3000 PSI COMPRESSIVE STRENGTH AND REINFORCED WITH #4 AT 8" ON CENTER IN EACH DIRECTION. DRILL 4" AND EPOXY #4'S INTO EDGE OF EXISTING HOUSEKEEPING PAD. EXISTING HOUSEKEEPING PADS AND EXTENDED HOUSEKEEPING PADS SHALL BE SEALED WITH VERSA FLEX SL 75 OR APPROVED EQUAL PRIOR TO INSTALLATION OF NEW AHUS. SEALING SHALL INCLUDE WATERPROOFING OF ALL EXISTING PENETRATIONS THROUGH THE EXISTING HOUSEKEEPING PAD.
- C > OPTION:  
EXISTING HEPA FILTERS SHALL BE CHANGED OUT AT THE COMPLETION OF THE PROJECT. CONTRACTOR SHALL PRICE THIS AS AN OPTION IN CASE THE FILTERS ARE CHANGED OUT PRIOR TO COMMENCEMENT OF NEW WORK AND SUBSTANTIAL FILTER LIFE STILL EXISTS.
- D > CONNECTIONS TO NEW UNITS SHALL BE MADE WITH FLEXIBLE CANVAS TYPE CONNECTORS.
- E > PROVIDE NEW 24X24 ACCESS DOORS UPSTREAM AND DOWNSTREAM OF EXISTING HEPA FILTER HOUSING.
- F > DIVISION 26 SHALL PROVIDE 120V/1PH CIRCUIT WIRED TO LIGHT SWITCH ON EACH OF THE (5) SECTIONS OF THE AHU. INTERNAL WIRING AND LIGHTS SHALL BE PROVIDED AND INSTALLED BY THE UNIT MANUFACTURER.
- G > NEW ELECTRIC HUMIDIFIER. SEE SCHEDULES AND SPECIFICATIONS FOR EQUIPMENT REQUIREMENTS.
- H > UNIT MOUNTED VFD.
- J > REINSTALL EXISTING MOTORIZED DAMPER IN NEW DUCTWORK

FOR CONTINUATION  
SEE DWG M-102



SECTION - AHU-8  
SCALE: 1/4" = 1' - 0"



SECTION - AHU-7  
SCALE: 1/4" = 1' - 0"

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

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

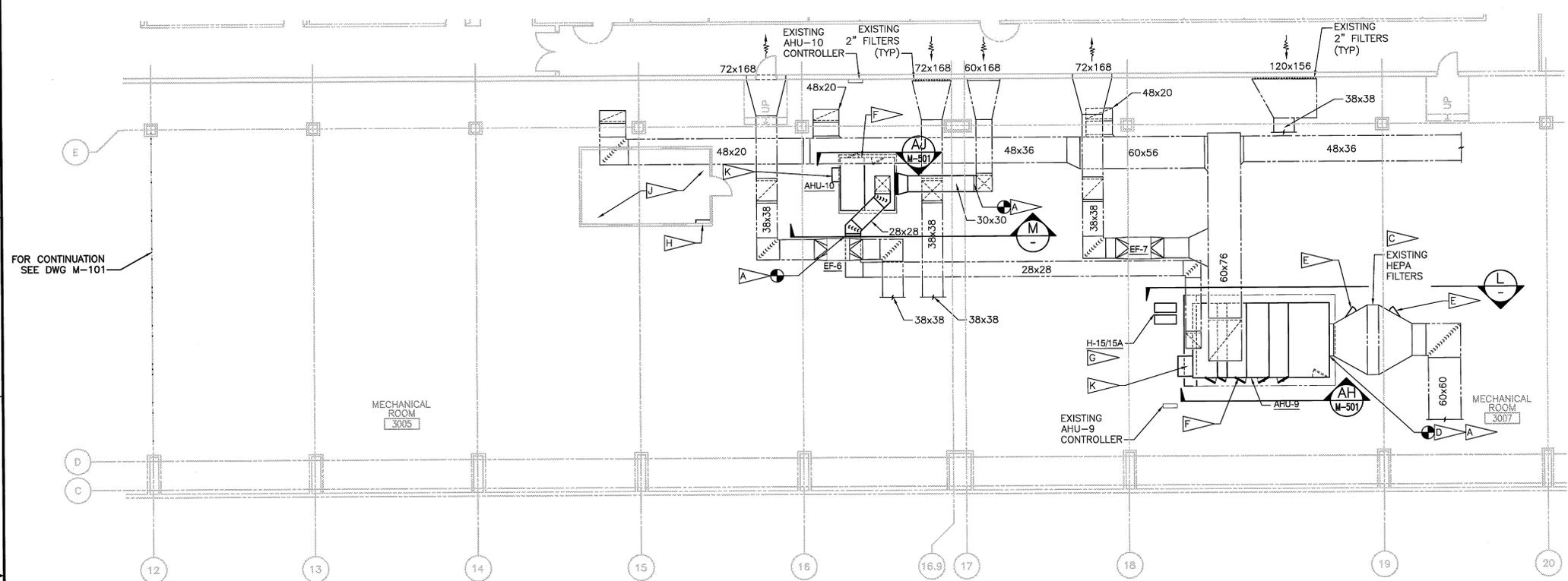
THIS DRAWING PRODUCED BY AUTOMATED DRAFTING EQUIPMENT USING AUTOCAD®. MANUAL REVISIONS SHALL NOT BE MADE. FILE: 58023W-101 PARTIAL THIRD FLOOR HVAC PLAN

M-101

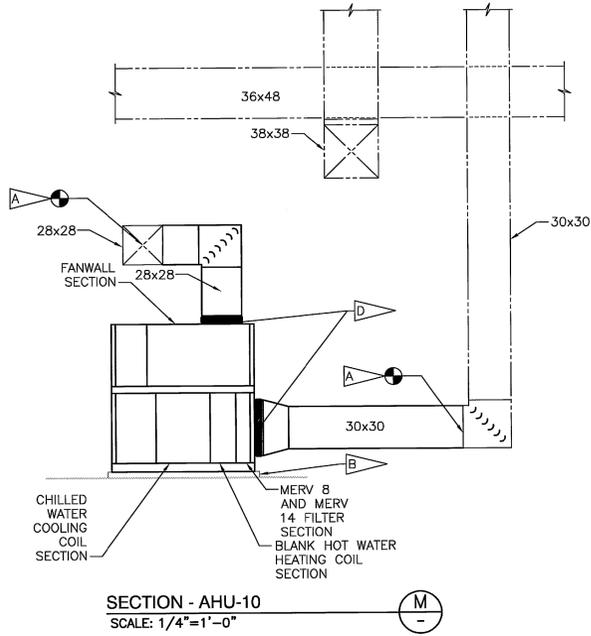
SYM	ZONE	DESCRIPTION	DATE	APPROVED
<b>REVISIONS</b>				
		Architects, Engineers, Constructors Offices in Melbourne, West Palm Beach, Orlando, Atlanta		
		NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA		
		SPACE STATION AIR PROCESSING FACILITY REPLACE AIR HANDLING UNITS BID PACKAGE 1		
		PARTIAL THIRD FLOOR HVAC PLAN		
SIGNATURES	DATE			
DRAWN PINTO	5-23-12			
CHECKED KUGLER	5-23-12			
SUBMITTED BY BRET TURKALL	5-23-12			
ST OF LICENSURE: FL LICENSE #68915	5-23-12			
APPROVED BEN TRAWICK	5-23-12			
SCOTT HUNT	5-23-12			
FILE NO.	SIZE	DWG. NO.	REV	
PROJ. NO.	PCN	98946.1	SHEET	8 OF

NOTICE: WHEN CONTRACTOR SPECIFICATIONS OR OTHER DATA CONFLICT WITH THE DRAWING, THE DRAWING SHALL CONTROL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. ANY CHANGES TO THE DRAWING SHALL BE MADE BY THE ARCHITECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO CONSTRUCTION.

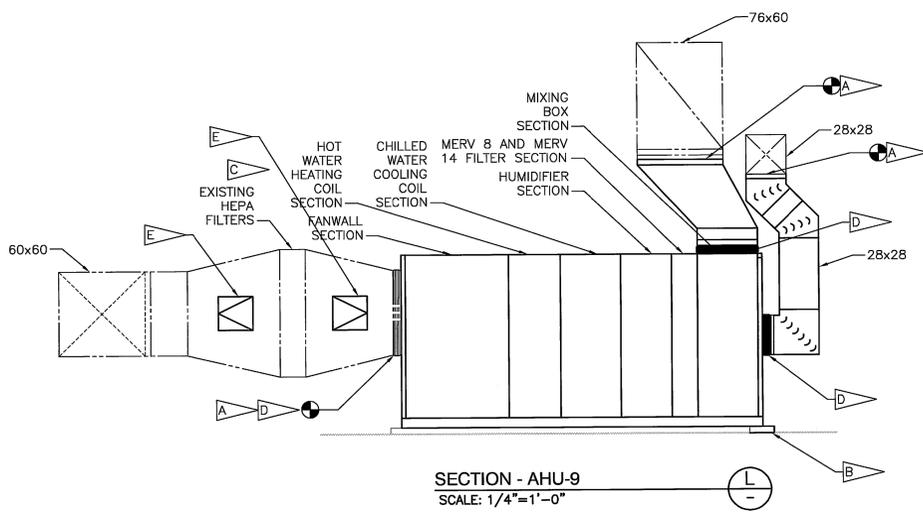
- SPECIFIC NOTES:**
- A CONNECT NEW DUCTWORK TO EXISTING AT POINT INDICATED. SEE GENERAL NOTES ON SHEET M-002 FOR SEAL REQUIREMENTS.
  - B EXTEND EXISTING HOUSEKEEPING PAD AS REQUIRED TO BE 6" BEYOND THE FACE OF THE NEW AHU. CONCRETE SHALL HAVE 3000 PSI COMPRESSIVE STRENGTH AND REINFORCED WITH #4 AT 8" ON CENTER IN EACH DIRECTION. DRILL 4" AND EPOXY #4'S INTO EDGE OF EXISTING HOUSEKEEPING PAD. EXISTING HOUSEKEEPING PADS AND EXTENDED HOUSEKEEPING PADS SHALL BE SEALED WITH VERSA FLEX SL 75 OR APPROVED EQUAL PRIOR TO INSTALLATION OF NEW AHUS. SEALING SHALL INCLUDE WATERPROOFING OF ALL EXISTING PENETRATIONS THROUGH THE EXISTING HOUSEKEEPING PAD.
  - C OPTION:  
EXISTING HEPA FILTERS SHALL BE CHANGED OUT AT THE COMPLETION OF THE PROJECT. CONTRACTOR SHALL PRICE THIS AS AN OPTION IN CASE THE FILTERS ARE CHANGED OUT PRIOR TO COMMENCEMENT OF NEW WORK AND SUBSTANTIAL FILTER LIFE STILL EXISTS.
  - D CONNECTIONS TO NEW UNITS SHALL BE MADE WITH FLEXIBLE CANVAS TYPE CONNECTORS.
  - E PROVIDE NEW 24X24 ACCESS DOORS UPSTREAM AND DOWNSTREAM OF EXISTING HEPA FILTER HOUSING.
  - F DIVISION 26 SHALL PROVIDE 120V/1PH CIRCUIT WIRED TO LIGHT SWITCH ON EACH OF THE (5) SECTIONS OF THE AHU. INTERNAL WIRING AND LIGHTS SHALL BE PROVIDED AND INSTALLED BY THE UNIT MANUFACTURER.
  - G NEW ELECTRIC HUMIDIFIER. SEE SCHEDULES AND SPECIFICATIONS FOR EQUIPMENT REQUIREMENTS.
  - H NEW BACNET CONTROLLER. SEE SHEET M-701. COORDINATE UNIT LOCATION AND CONNECTION WITH EXISTING FACILITY MANAGEMENT REMOTE PANEL, OPERATOR'S WORKSTATIONS, SERVERS, AND OTHER EQUIPMENT AND PANELS IN AREA. DIVISION 26 SHALL PROVIDE DEDICATED 120V CIRCUIT FOR POWER TO CONTROLLER.
  - J EXISTING ANDOVER SERVER AND OPERATORS WORKSTATION LOCATION.
  - K UNIT MOUNTED VFD.



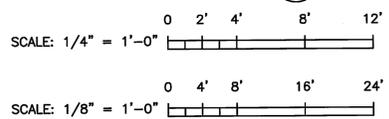
**PARTIAL THIRD FLOOR HVAC PLAN**  
SCALE: 1/8" = 1' - 0"



**SECTION - AHU-10**  
SCALE: 1/4" = 1' - 0"



**SECTION - AHU-9**  
SCALE: 1/4" = 1' - 0"

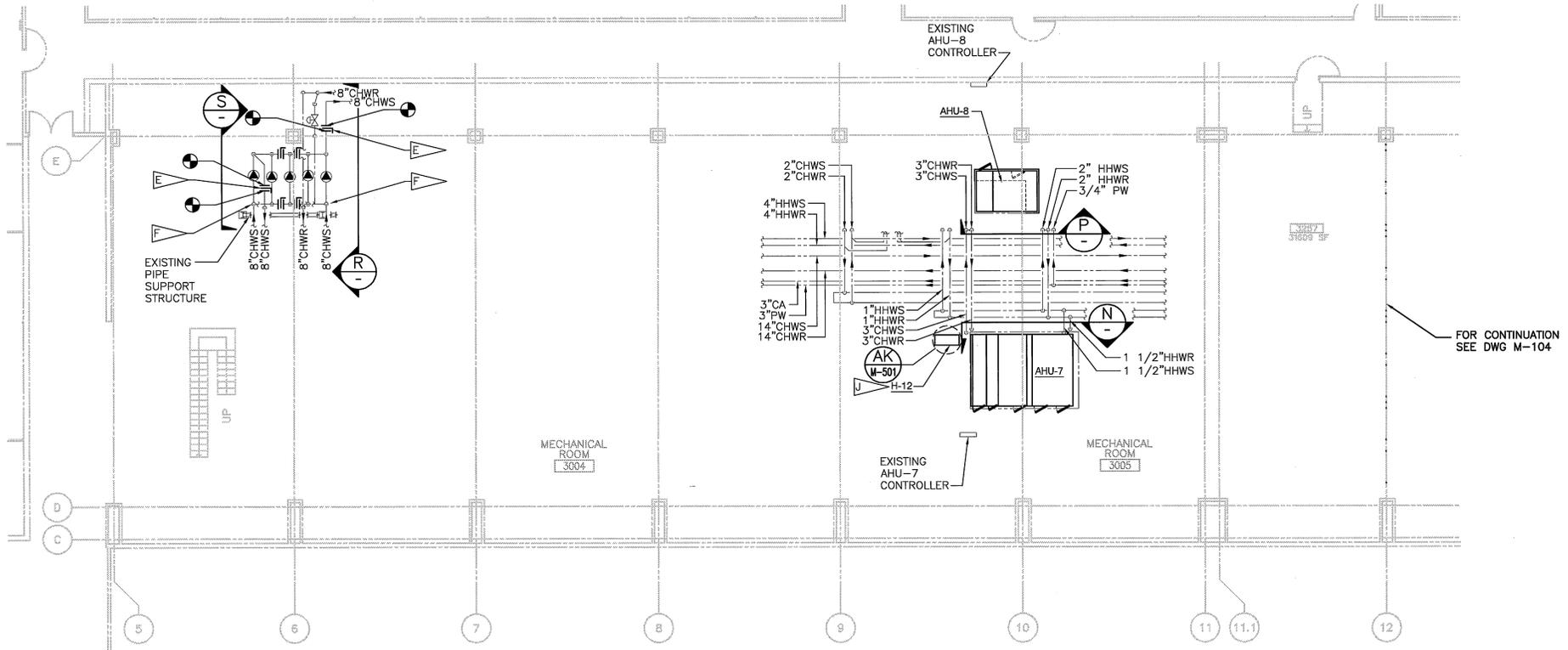


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M-102

SYM	ZONE	DESCRIPTION	DATE	APPROVED
<b>REVISIONS</b>				
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN F. KENNEDY SPACE CENTER, FLORIDA KENNEDY SPACE CENTER, FLORIDA				
<b>SIGNATURES</b> <b>DATE</b>				
DRAWN	PINTO	5-23-12		
CHECKED	KUGLER	5-23-12		
SUBMITTED	BREY	5-23-12		
ST OF LICENSE	FL	5-23-12		
LICENSE #	68915			
APPROVED	BEN TRAWICK	5-23-12		
	SCOTT HUNT	5-23-12		
FILE NO.		SIZE	DWG. NO.	REV
F			79K39148	
PROJ. NO.		PCN	98946.1	SHEET
				9 OF

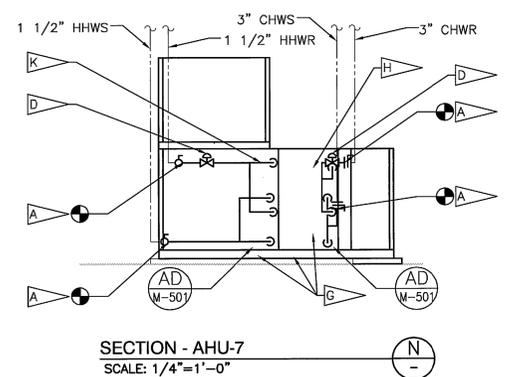
WHEN CONSTRUCTION OF THIS PROJECT IS UNDERWAY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE AND FEDERAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE AND FEDERAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE AND FEDERAL AGENCIES.



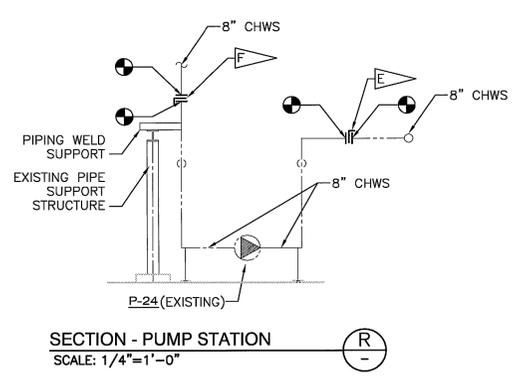
**PARTIAL THIRD FLOOR HVAC PIPING PLAN**  
SCALE: 1/8" = 1' - 0"

**SPECIFIC NOTES:**

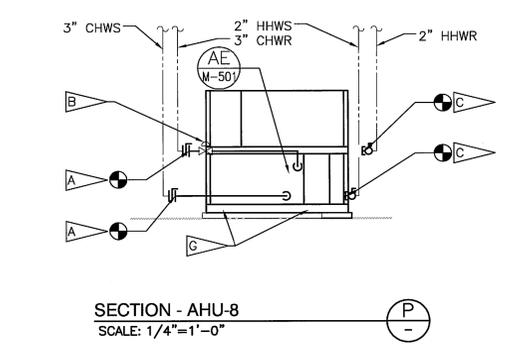
- A > ROUTE NEW PIPING FROM NEW AHU AND TIE INTO EXISTING PIPING AS INDICATED. REUSE EXISTING PIPING SUPPORTS WHEREVER POSSIBLE AND PROVIDE NEW SUPPORTS AS REQUIRED. NEW SUPPORTS SHALL BE SIMILAR TO EXISTING.
- B > PROVIDE NEW CONTROL VALVE SIZED FOR SCHEDULED FLOW RATES. CONNECT NEW VALVE ACTUATOR TO EXISTING ELECTRICAL AND CONTROL WIRES.
- C > CAP PIPE AT EXISTING ISOLATION VALVE.
- D > PROVIDE NEW CONTROL VALVE SIZED FOR NEW FLOW RATES. CONNECT NEW VALVE ACTUATOR TO EXISTING ELECTRICAL AND CONTROL WIRES.
- E > PROVIDE NEW 8" DUCTILE IRON LUG STYLE BUTTERFLY VALVE BETWEEN NEW FLANGES. REMOVE TEMPORARY SHORING AFTER NEW VALVES AND FLANGES ARE INSTALLED AND TESTED AND BALANCE OF NEW WORK IS COMPLETED. REPAIR INSULATION AS REQUIRED AFTER SHORING IS REMOVED.
- F > PROVIDE NEW 8" DUCTILE IRON LUG STYLE BUTTERFLY VALVE BETWEEN NEW FLANGES IN PIPE RISER. REMOVE TEMPORARY SHORING AFTER NEW VALVES AND FLANGES ARE INSTALLED AND TESTED AND TEST AND BALANCE OF NEW WORK IS COMPLETED. REPAIR INSULATION AS REQUIRED AFTER SHORING IS REMOVED.
- G > CONNECT CONDENSATE DRAIN FOR NEW AHU AND HUMIDIFIERS TO EXISTING CONDENSATE DRAIN LOCATION.
- H > ROUTE HUMIDIFIER HEADER PIPE FROM DISPERSION UNIT TO HUMIDIFIER LOCATED ADJACENT TO NEW AHU.
- J > CONNECT EXISTING MAKEUP WATER AND DRAIN PIPING IN IMMEDIATE VICINITY TO NEW HUMIDIFIER.
- K > INDIVIDUAL COIL RUNOUT SIZES SHALL BE EQUAL TO COIL CONNECTION SIZE UNO (TYP.).



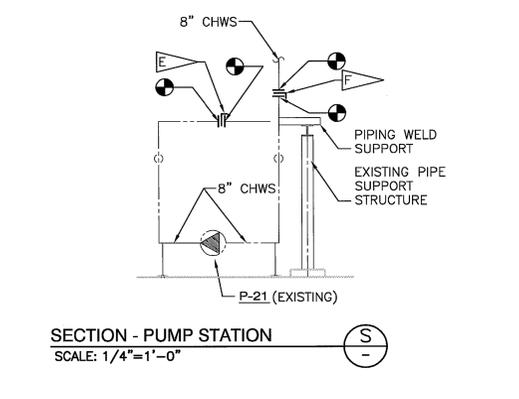
**SECTION - AHU-7**  
SCALE: 1/4" = 1' - 0"



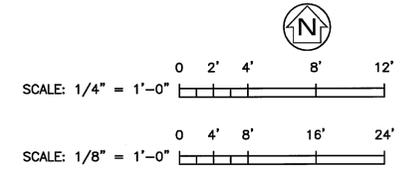
**SECTION - PUMP STATION**  
SCALE: 1/4" = 1' - 0"



**SECTION - AHU-8**  
SCALE: 1/4" = 1' - 0"



**SECTION - PUMP STATION**  
SCALE: 1/4" = 1' - 0"

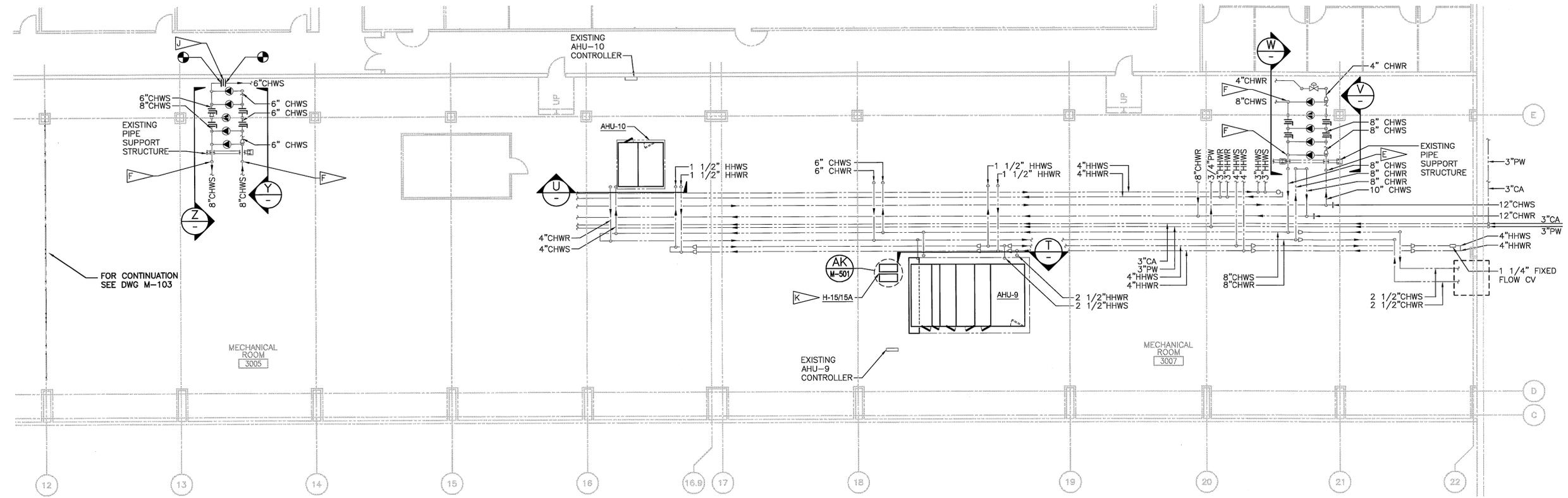


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M-103

SYM	ZONE	DESCRIPTION	DATE	APPROVED
<b>REVISIONS</b>				
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA				
<b>SIGNATURES</b> <b>DATE</b>				
DRAWN	PINTO	5-23-12		
CHECKED	KUGLER	5-23-12		
SUBMITTED				
BREWER	TURKALL	5-23-12		
ST OF LICENSEURE: FL				
LICENSE #:	688915	5-23-12		
APPROVED				
BEN TRAWICK		5-23-12		
SCOTT HUNT		5-23-12		
FILE NO.		SIZE	DWG. NO.	REV
		F	79K39148	
PROJECT NO.		PCN	98946.1	SHEET
				10 OF

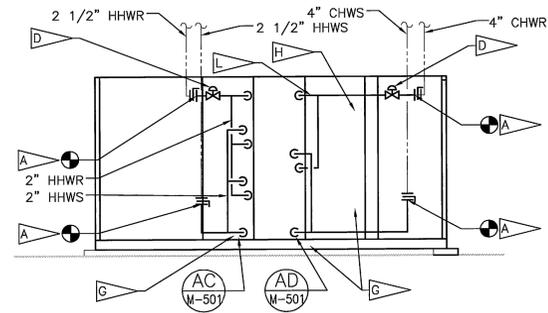
NOTE: WHEN OBTAINING QUOTES, SPECIFICATIONS, OR OTHER DATA FROM VENDORS, CHECK FOR THE LATEST REVISIONS OF ALL APPLICABLE CODES AND STANDARDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.



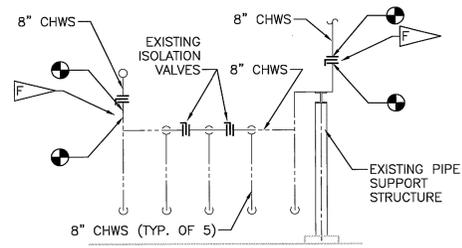
**PARTIAL THIRD FLOOR HVAC PIPING PLAN**  
SCALE: 1/8" = 1' - 0"

**SPECIFIC NOTES:**

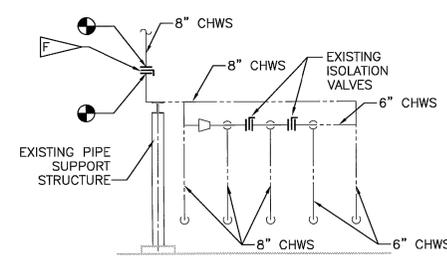
- A ROUTE NEW PIPING FROM NEW AHU AND TIE INTO EXISTING PIPING AS INDICATED. REUSE EXISTING PIPING SUPPORTS WHEREVER POSSIBLE AND PROVIDE NEW SUPPORTS AS REQUIRED. NEW SUPPORTS SHALL BE SIMILAR TO EXISTING.
- B PROVIDE NEW CONTROL VALVE SIZED FOR SCHEDULED FLOW RATES. CONNECT NEW VALVE ACTUATOR TO EXISTING ELECTRICAL AND CONTROL WIRES.
- C CAP PIPE AT EXISTING ISOLATION VALVE.
- D PROVIDE NEW CONTROL VALVE SIZED FOR NEW FLOW RATES. CONNECT NEW VALVE ACTUATOR TO EXISTING ELECTRICAL AND CONTROL WIRES.
- E PROVIDE NEW 10" DUCTILE IRON LUG STYLE BUTTERFLY VALVE BETWEEN NEW FLANGES IN PIPE RISER. REMOVE TEMPORARY SHORING AFTER NEW VALVES AND FLANGES ARE INSTALLED AND TESTED AND TEST AND BALANCE OF NEW WORK IS COMPLETED. REPAIR INSULATION AS REQUIRED AFTER SHORING IS REMOVED.
- F PROVIDE NEW 8" DUCTILE IRON LUG STYLE BUTTERFLY VALVE BETWEEN NEW FLANGES IN PIPE RISER. REMOVE TEMPORARY SHORING AFTER NEW VALVES AND FLANGES ARE INSTALLED AND TESTED AND TEST AND BALANCE OF NEW WORK IS COMPLETED. REPAIR INSULATION AS REQUIRED AFTER SHORING IS REMOVED.
- G CONNECT CONDENSATE DRAIN FOR NEW AHU AND HUMIDIFIERS TO EXISTING CONDENSATE DRAIN LOCATION.
- H ROUTE HUMIDIFIER HEADER PIPE FROM DISPERSION UNIT TO HUMIDIFIER LOCATED ADJACENT TO NEW AHU.
- J PROVIDE NEW 6" DUCTILE IRON LUG STYLE BUTTERFLY VALVE BETWEEN NEW FLANGES. REMOVE TEMPORARY SHORING AFTER NEW VALVES AND FLANGES ARE INSTALLED AND TESTED AND TEST AND BALANCE OF NEW WORK IS COMPLETED. REPAIR INSULATION AS REQUIRED AFTER SHORING IS REMOVED.
- K CONNECT EXISTING MAKEUP WATER AND DRAIN PIPING IN IMMEDIATE VICINITY TO NEW HUMIDIFIER.
- L INDIVIDUAL COIL RUNOUT SIZES SHALL BE EQUAL TO COIL CONNECTION SIZE UNO (TYP.).



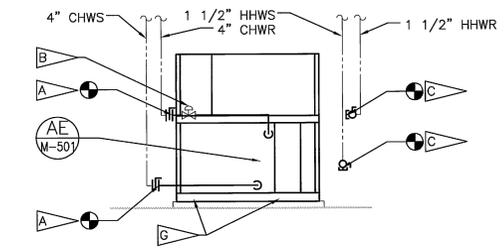
**SECTION - AHU-9**  
SCALE: 1/4" = 1' - 0"



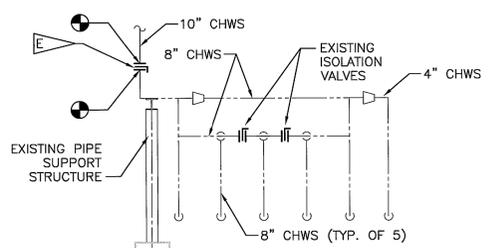
**SECTION - PUMP STATION**  
SCALE: 1/4" = 1' - 0"



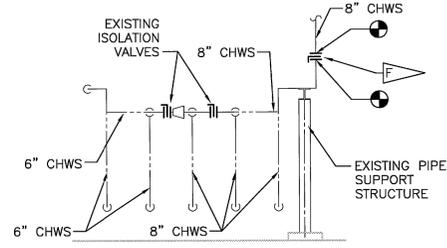
**SECTION - PUMP STATION**  
SCALE: 1/4" = 1' - 0"



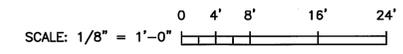
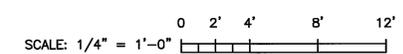
**SECTION - AHU-10**  
SCALE: 1/4" = 1' - 0"



**SECTION - PUMP STATION**  
SCALE: 1/4" = 1' - 0"



**SECTION - PUMP STATION**  
SCALE: 1/4" = 1' - 0"

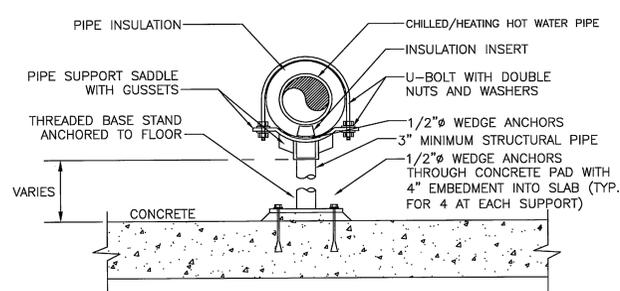


THIS DRAWING PRODUCED BY AUTOMATED DRAFTING EQUIPMENT USING AUTOCAD®. MANUAL REVISIONS SHALL NOT BE MADE. FILE: 300323\1-104 PARTIAL THIRD FLOOR HVAC PIPING PLAN

M-104

SYM	ZONE	DESCRIPTION	DATE	APPROVED
<b>REVISIONS</b>				
		Architects, Engineers, Constructors Offices in Melbourne, West Palm Beach, Orlando, Atlanta		
		<b>lbrph</b>		
		National Aeronautics and Space Administration John F. Kennedy Space Center, NASA Kennedy Space Center, Florida		
SIGNATURES	DATE	<b>SPACE STATION PROCESSING FACILITY REPLACE AIR HANDLING UNITS</b> BID PACKAGE 1		
DRAWN PINTO	5-23-12			
CHECKED KUGLER	5-23-12			
SUBMITTED BY BRET TURKALL	5-23-12			
ST OF LICENSE: FL LICENSE #68915	5-23-12			
APPROVED BEN TRAWICK		<b>PARTIAL THIRD FLOOR HVAC PIPING PLAN</b>		
SCOTT HUNT				
FILE NO.	SIZE	DWG. NO.	REV	
	F	79K39148		
PROJ. NO.	PCN	SHEET	11	OF
	98946.1			

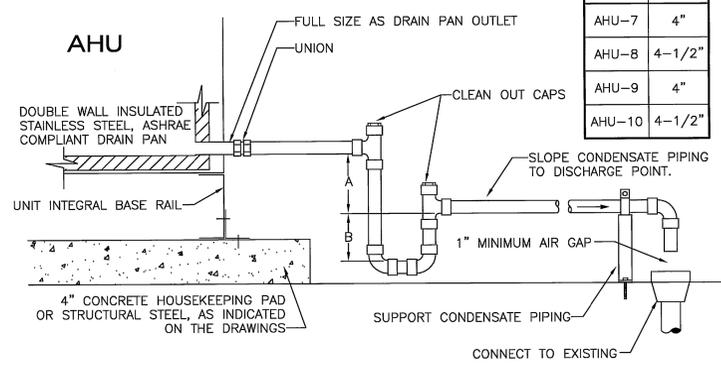
NOTE: WHEN GOVERNMENT SPECIFICATIONS OR OTHER DATA ARE APPLICABLE TO THIS DRAWING, THEY SHALL BE USED IN PREFERENCE TO THE NOTES AND SPECIFICATIONS HEREON. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND VERIFYING THE APPLICABILITY OF SUCH SPECIFICATIONS AND DATA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND VERIFYING THE APPLICABILITY OF SUCH SPECIFICATIONS AND DATA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND VERIFYING THE APPLICABILITY OF SUCH SPECIFICATIONS AND DATA.



NOTES:  
1. ALL ANGLES, PLATES, BRACKETS, BOLTS, WASHERS, NUTS, AND ANCHORS SHALL BE GALVANIZED.

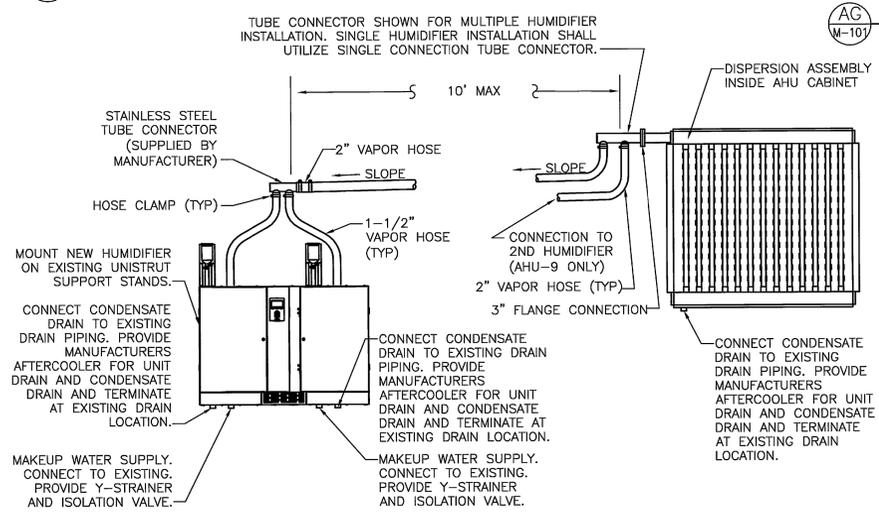
AA - NTS  
**TYPICAL PIPE STAND SUPPORT**

AHU	A
AHU-7	4"
AHU-8	4-1/2"
AHU-9	4"
AHU-10	4-1/2"

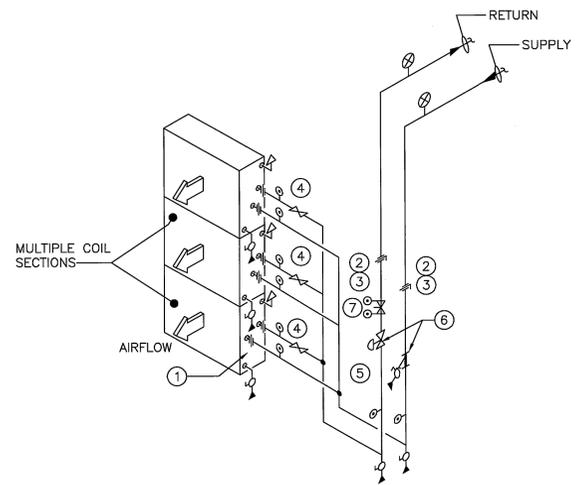


NOTES:  
1. SEE SPECIFICATIONS FOR CONDENSATE PIPING MATERIAL.  
2. CONDENSATE DRAIN SHALL BE PIPED FULL SIZE OF UNIT CONNECTION, MINIMUM SIZE OF 1-1/4".  
3. INSULATE CONDENSATE PIPING PER SPECIFICATIONS.  
4. B = (A/2) + 1".  
5. PROVIDE FLEX PIPE CONNECTION BETWEEN THE PIPE AND THE DRAIN PAN.

AB - NTS  
**TYPICAL AHU CONDENSATE DRAIN TRAP DETAIL**  
DRAW-THROUGH UNITS

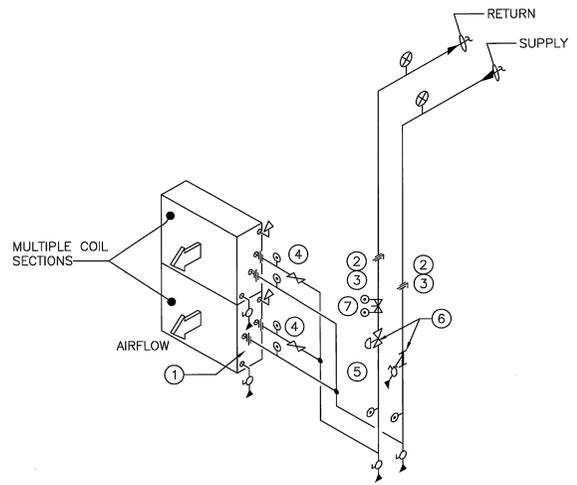


AK - NTS  
**TYPICAL HUMIDIFIER INSTALLATION DETAIL**



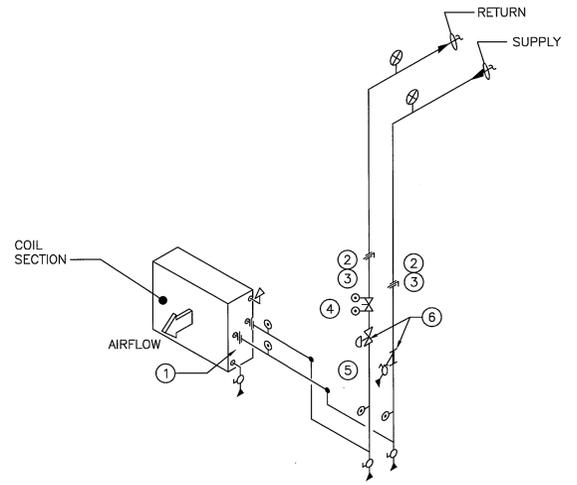
- ① UNION ON PIPING 2" OR SMALLER, FLANGE ON PIPING 2-1/2" OR LARGER - TYPICAL.
- ② POSITION ISOLATION VALVES TO ALLOW FOR AHU AND COIL REMOVAL.
- ③ BALL VALVE FOR PIPING 2" OR SMALLER; BVF FOR PIPING 2-1/2" AND LARGER.
- ④ BALL VALVE FOR PIPING 2" OR SMALLER; BVF FOR PIPING 2-1/2" AND LARGER. USE THESE VALVES IN CONJUNCTION WITH P/T PORTS TO BALANCE FLOW BETWEEN THE THREE COILS AT FULL FLOW.
- ⑤ PROVIDE MINIMUM 5 PIPE DIA. OF STRAIGHT PIPE UPSTREAM OF 2-WAY CONTROL VALVE.
- ⑥ CONTROL VALVE AND STRAINER.
- ⑦ CALIBRATED BALANCING VALVE TO BALANCE FLOW.

AC - NTS  
**TYPICAL AHU 3-COIL PIPING DETAIL**



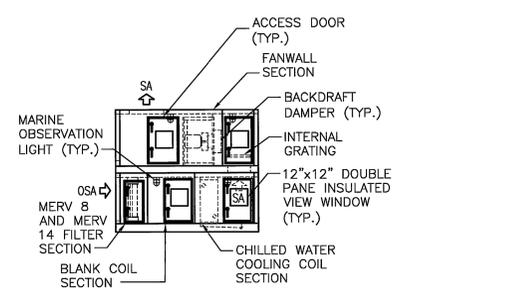
- ① UNION ON PIPING 2" OR SMALLER, FLANGE ON PIPING 2-1/2" OR LARGER - TYPICAL.
- ② POSITION ISOLATION VALVES TO ALLOW FOR AHU AND COIL REMOVAL.
- ③ BALL VALVE FOR PIPING 2" OR SMALLER; BVF FOR PIPING 2-1/2" AND LARGER.
- ④ BALL VALVE FOR PIPING 2" OR SMALLER; BVF FOR PIPING 2-1/2" AND LARGER. USE THESE VALVES IN CONJUNCTION WITH P/T PORTS TO BALANCE FLOW BETWEEN THE TWO COILS AT FULL FLOW.
- ⑤ PROVIDE MINIMUM 5 PIPE DIA. OF STRAIGHT PIPE UPSTREAM OF 2-WAY CONTROL VALVE.
- ⑥ CONTROL VALVE AND STRAINER.
- ⑦ CALIBRATED BALANCING VALVE TO BALANCE FLOW.

AD - NTS  
**TYPICAL AHU 2-COIL PIPING DETAIL**

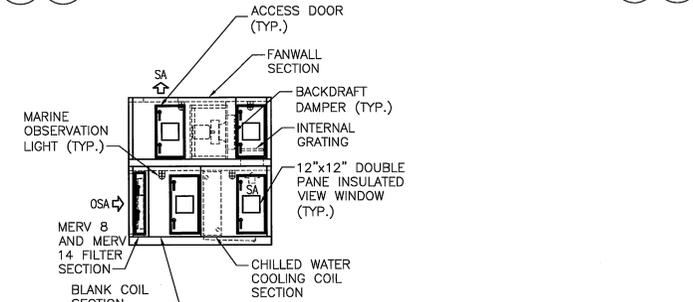


- ① UNION ON PIPING 2" OR SMALLER, FLANGE ON PIPING 2-1/2" OR LARGER - TYPICAL.
- ② POSITION ISOLATION VALVES TO ALLOW FOR AHU AND COIL REMOVAL.
- ③ BALL VALVE FOR PIPING 2" OR SMALLER; BVF FOR PIPING 2-1/2" AND LARGER.
- ④ CALIBRATED BALANCING VALVE TO BALANCE FLOW.
- ⑤ PROVIDE MINIMUM 5 PIPE DIA. OF STRAIGHT PIPE UPSTREAM OF 2-WAY CONTROL VALVE.
- ⑥ CONTROL VALVE AND STRAINER.

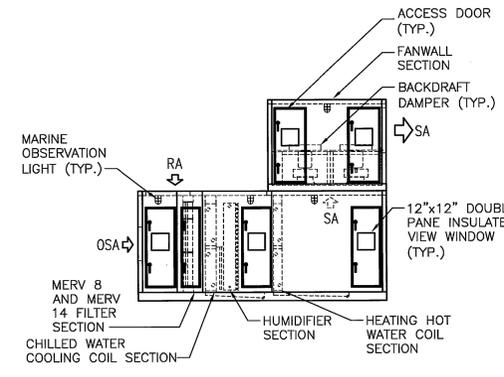
AE - NTS  
**TYPICAL AHU 1-COIL PIPING DETAIL**



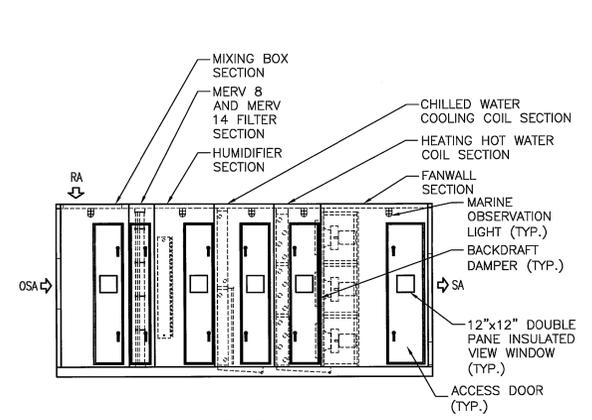
AG - 1/4"=1'-0"  
**AHU-8 - SECTION DETAIL**



AJ - 1/4"=1'-0"  
**AHU-10 - SECTION DETAIL**



AF - 1/4"=1'-0"  
**AHU-7 - SECTION DETAIL**



AH - 1/4"=1'-0"  
**AHU-9 - SECTION DETAIL**

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

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SYM	ZONE	DESCRIPTION	DATE	APPROVED
<b>REVISIONS</b>				
		Architects, Engineers, Constructors Offices in Melbourne, West Palm Beach, Orlando, Atlanta		
		<b>brph</b> Board of Professional Engineers License No. AA 000549 Unaffiliated use may result in an enforcement action.		
		NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA		
		SPACE STATION AIR PROCESSING FACILITY REPLACE AIR HANDLING UNITS BID PACKAGE 1		
<b>MECHANICAL DETAILS</b>				
SIGNATURES	DATE			
DRAWN PINTO	5-23-12			
CHECKED KUGLER	5-23-12			
SUBMITTED BY BRET TURKALL	5-23-12			
ST OF LICENSEURE: FL LICENSE #68915	5-23-12			
APPROVED BEN TRAWICK	5-23-12			
SCOTT HUNT	5-23-12			
FILE NO.	SIZE	DWG. NO.	REV	
	F	79K39148		
PROJ. NO.	PCN	98946.1	SHEET 12 OF	

NOTE: THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THE INSTALLATION OF THIS EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THE INSTALLATION OF THIS EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THE INSTALLATION OF THIS EQUIPMENT.

AIR HANDLING UNIT SCHEDULE																											
UNIT DATA			FAN DATA													HEATING HOT WATER COIL DATA											
TAG	UNIT TYPE & LOCATION	BASIS OF DESIGN MANUFACTURER & MODEL NO.	SUPPLY AIR CFM	OUTDOOR AIR CFM	STATIC PRESSURE IN., WG		BLOWER RPM	TYPE/DIA. (INCH)	MIN. NO. FANS	MOTOR						MAX. FACE VELOCITY FPM	AIR TEMP °F		CAPACITY MBH	WATER TEMP °F		GPM	WATER PRESSURE DROP FEET H2O	MIN. NUMBER OF ROWS	MAX. FINS PER FEET	AIR SIDE PRESSURE DROP INCHES H2O	
					EXTERNAL	TOTAL				HP EACH	BHP EACH	HP TOTAL	BHP TOTAL	VOLTS	PH		HZ	ENTER		LEAVE	ENTER						LEAVE
AHU-7	VERT/3RD FLOOR MECH	TEMTRON SERIES WF	20,140	4,030	2.97	5.0	3394	FANWALL/14	8	3.5	2.79	28.0	22.29	460	3	60	500	59.4	71.5	266.3	150	-	21.0	5.0	1	120	0.10
AHU-8	VERT/3RD FLOOR MECH	TEMTRON SERIES WF	4,030	4,030	1.22	4.0	3315	FANWALL/12	2	2.5	1.78	5.0	3.55	460	3	60	NOTE 8										
AHU-9	HORZ/3RD FLOOR MECH	TEMTRON SERIES WF	43,000	8,600	2.96	5.0	3284	FANWALL/16	9	6.5	5.61	58.5	50.46	460	3	60	500	59.4	69.7	483.7	150	-	48.4	5.0	1	120	0.10
AHU-10	VERT/3RD FLOOR MECH	TEMTRON SERIES WF	8,600	8,600	1.22	4.0	3373	FANWALL/14	3	3.0	2.61	9.0	7.83	460	3	60	NOTE 8										

AIR HANDLING UNIT SCHEDULE (CONT.)																										
TAG	MAX. FACE VELOCITY FPM	CHILLED WATER COOLING COIL DATA								HUMIDIFIER DISPERSION UNIT																
		AIR TEMP °F				CAPACITY MBH		WATER TEMP °F		GPM	WATER PRESSURE DROP FEET H2O	MIN. FLUID VELOCITY (FPM)	MIN. NUMBER OF ROWS	MAX. FINS PER FOOT	AIR SIDE PRESSURE DROP INCHES H2O	BASIS OF DESIGN MANUFACTURER	MIN. CAPACITY (#/HR)	BASIS OF DESIGN MODEL NO.	TYPE	TUBE CENTERS (IN)	MAX ABSORB. DISTANCE (IN)	INSULATE TUBES	SOURCE			
		ENTER	LEAVE	DB	WB	TOTAL	SENSIBLE	ENTER	LEAVE																	
AHU-7	465	65.2	54.0	54.7	49.5	231.6	231.1	42	57	30.8	18.0	3.5	4	96	0.30	DRI-STEEM	119	ULTRA-SORB LV	DISPERSION PANEL	12	12	YES	H-12			
AHU-8	400	96.0	81.0	46.0	45.9	480.6	220.3	42	52	95.7	20.0	3.5	8	132	0.90	-	-	-	-	-	-	-	-			
AHU-9	465	65.2	54.0	54.7	49.5	576.9	493.3	42	57	65.8	18.0	3.5	4	96	0.30	DRI-STEEM	254	ULTRA-SORB LV	DISPERSION PANEL	12	12	YES	H-15/15A			
AHU-10	400	96.0	81.0	46.0	45.9	1,025.7	470.0	42	52	204.4	20.0	3.5	8	132	0.90	-	-	-	-	-	-	-	-			

- NOTES:
- THE FINAL SELECTION OF EQUIPMENT SHALL NOT AFFECT MOTOR BRAKE HORSEPOWER OR SOUND POWER LEVELS OF THE UNITS SCHEDULED.
  - THE COIL WATER AND AIR PRESSURE DROPS SHALL NOT EXCEED THE VALUES SHOWN IN THE ABOVE SCHEDULE.
  - EQUIP COOLING AND HEATING COILS WITH 2 WAY AUTOMATIC TEMPERATURE CONTROL VALVES.
  - FURNISH UNITS WITH 8" HIGH, FACTORY INSTALLED BASE RAIL.
  - PROVIDE EACH UNIT WITH 100% REDUNDANT VFDs IN A SINGLE ENCLOSURE CONTROLLING THE FANWALL. THE VFD SHALL BE EQUIPPED WITH AN OR FUNCTION TO ALLOW SWITCHOVER OF THE OPERATING VFD IN CASE OF FAILURE OR MAINTENANCE.
  - PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
  - AHU COMPONENTS SHALL BE AS INDICATED ON THE DRAWINGS.
  - PROVIDE AHU-8 AND AHU-10 WITH BLANK HEATING COIL SECTION WITHOUT THE COIL INSTALLED. COIL SLOT SHOULD ALLOW FOR A SINGLE ROW COIL.
  - ALL UNITS SHALL BE EQUIPPED WITH 2" MERV 8 PRE FILTERS AND 4" MERV 14 AFTER FILTERS.
  - PROVIDE EACH FAN WITH AN INDIVIDUAL BACKDRAFT DAMPER.
  - MARINE OBSERVATION LIGHTS SHALL BE INSTALLED IN EACH SECTION OF THE UNIT.
  - PROVIDE ACCESS DOORS WITH 12"x12" DOUBLE PANE INSULATED GLASS WINDOWS IN EACH SECTION OF THE UNIT.

ELECTRIC HUMIDIFIER SCHEDULE											
TAG	BASIS OF DESIGN MANUFACTURER	MIN CAPACITY LOAD + LOSS (#/HR)	BASIS OF DESIGN MODEL NO.	TYPE	NO. OF UNITS	DISPERSION UNIT LOCATION	ELECTRICAL DATA				
							AMPS (EACH)	KW (EACH)	AMPS (TOTAL)	KW (TOTAL)	VOLTS/PHASE
H-12	DRI-STEEM	125	XT-150	ELECTRODE	1	AHU-7	60.5	50.3	60.5	50.3	480/3
H-15/15A	DRI-STEEM	265	XT-150	ELECTRODE	2	AHU-9	60.5	50.3	121.0	100.6	480/3

NOTES:

- HUMIDIFIER SHALL BE MOUNTED ADJACENT TO CORRESPONDING AHU ON SUPPORTS.
- PIPE THE STEAM OUTLET HEADER FROM THE HUMIDIFIER TO THE DISPERSION UNIT MOUNTED IN THE CORRESPONDING AHU ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
- PROVIDE CONTROLLER MOUNTED ON THE HUMIDIFIER FOR CONTROL OF THE STEAM HUMIDIFIER AND INTEGRATION TO THE BAS.
- PROVIDE MANUFACTURERS AFTERCOOLER FOR UNIT DRAIN AND CONDENSATE DRAIN AND TERMINATE AT EXISTING DRAIN LOCATION.

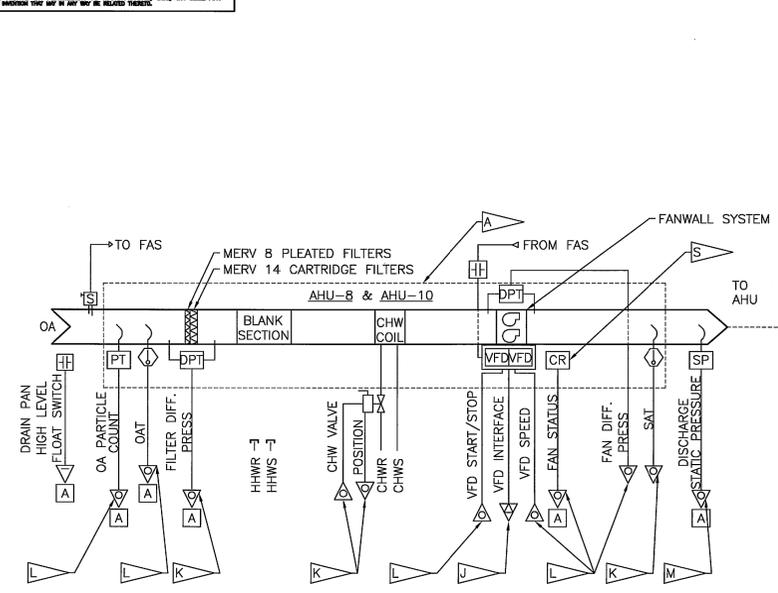
SYM	ZONE	DESCRIPTION	DATE	APPROVED
REVISIONS				
				
		NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA		
		SPACE STATION PROCESSING FACILITY REPLACE AIR HANDLING UNITS BID PACKAGE 1		
		MECHANICAL SCHEDULES		
SIGNATURES	DATE			
DRAWN: PINTO	5-23-12			
CHECKED: KUGLER	5-23-12			
SUBMITTED: BRET TURKALL	5-23-12			
ST OF LICENSE: FL LICENSE #68915	5-23-12			
APPROVED: BEN TRAWICK	5-23-12			
SCOTT HUNT	5-23-12			

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M-601

FILE NO. SIZE DWG. NO. 79K39148 REV  
 PROJ. NO. PCN 98946.1 SHEET 13 OF

NOTE: WHEN COMPONENTS ARE IDENTIFIED BY A LETTER AND A NUMBER, THE LETTER INDICATES THE LOCATION OF THE COMPONENT ON THE DRAWING AND THE NUMBER INDICATES THE LOCATION OF THE COMPONENT ON THE REVISIONS LIST. THIS DRAWING IS THE PROPERTY OF BRPH AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF BRPH.



**DEDICATED OUTSIDE AIR SYSTEM (DOAS) - AHU-8 & AHU-10**

NTS

SEQUENCE OF OPERATION:

SYSTEM DESCRIPTION: THE DEDICATED OUTSIDE AIR UNIT IS COMPRISED OF AN OUTSIDE AIR PATH, FILTERS (MERV 8 & MERV 14), BLANK COIL SECTION, CHILLED WATER COOLING COIL WITH 2-WAY MODULATING CONTROL VALVE, VARIABLE SPEED FANWALL, AND ALL ASSOCIATED APPURTENANCES AND DEVICES DEPICTED ON THE CONTROL SYSTEM DIAGRAM. EACH DOAS SERVES A SINGLE ZONE AIR HANDLING UNIT.

GENERAL: THE UNIT WILL BE AVAILABLE FOR OPERATION AT ALL TIMES, IN GENERAL THE UNIT WILL RUN 24/7 TO HELP MAINTAIN POSITIVE BUILDING PRESSURIZATION.

SYSTEM START: THE BAS SHALL ENERGIZE THE DOAS SUPPLY AIR FANWALL.

SYSTEM STOP: THE BAS SHALL DE-ENERGIZE THE DOAS SUPPLY AIR FANWALL, CLOSE THE HEATING HOT WATER CONTROL VALVE, AND CLOSE THE CHILLED WATER CONTROL VALVE.

SUPPLY FANWALL CONTROL: SUPPLY FANWALL CONTROL SHALL BE CONSTANT VOLUME BY OPERATING AT A CONSTANT PRESSURE AS MEASURED BY STATIC PRESSURE SENSOR. THE PRESSURE SETPOINT SHALL BE DETERMINED BY THE TEST AND BALANCE AND CONTROLS CONTRACTORS DURING TEST AND BALANCE OF THE SYSTEM TO MAINTAIN SCHEDULED AIRFLOW. FANWALL SPEED SHALL MODULATE TO MAINTAIN THE PRESSURE SETPOINT AND RESULTANT AIRFLOW. FANWALL AIRFLOW SHALL BE ABLE TO BE ADJUSTED BY ADJUSTING THE PRESSURE SETPOINT THROUGH THE BAS BY OPERATOR COMMAND.

SUPPLY FANWALL STATUS: FANWALL STATUS SHALL BE INDICATED BY CURRENT SENSORS ON EACH FAN ROUTED BACK TO A SINGLE CURRENT RELAY. IF THE CURRENT RELAY IS TRIPPED AN ALARM SHALL BE SENT TO THE OPERATORS WORKSTATION THAT A FAN IN THE FANWALL HAS FAILED.

COOLING: THE BAS SHALL MODULATE THE CHILLED WATER CONTROL VALVE TO MAINTAIN THE SUPPLY AIR TEMPERATURE SET POINT OF 46° F (ADJUSTABLE).

EMERGENCY MODE: UPON MANUAL ACTIVATION OF THE EMERGENCY MODE FOR AMMONIA PURGE OPERATIONS, THE UNIT SHALL RETURN TO 100% AIRFLOW IF THE OPERATOR HAS REDUCED AIRFLOW. SAT SETPOINTS SHALL BE MAINTAINED DURING EMERGENCY MODE.

SMOKE DETECTION SHUTDOWN: AT A SIGNAL FROM THE ASSOCIATED, HARD WIRED, INTERLOCKED, SMOKE DETECTOR (FURNISHED AND WIRED BY DIVISION 28, MOUNTED BY DIVISION 23) THAT SMOKE IS DETECTED IN THE AIR STREAM, THE FIRE ALARM SYSTEM SHALL SHUT DOWN THE ASSOCIATED UNIT SUPPLY FAN, AND AT THE SAME TIME THE SMOKE DETECTOR SIGNAL SHALL BE SENT TO THE BAS SYSTEM FOR THE FOLLOWING ACTIONS:

1. CLOSE CHILLED WATER CONTROL VALVE.
2. DISPLAY AN ALARM AT THE OPERATORS WORK STATION THAT THE ASSOCIATED AHU WAS SHUTDOWN FOR SMOKE DETECTION.

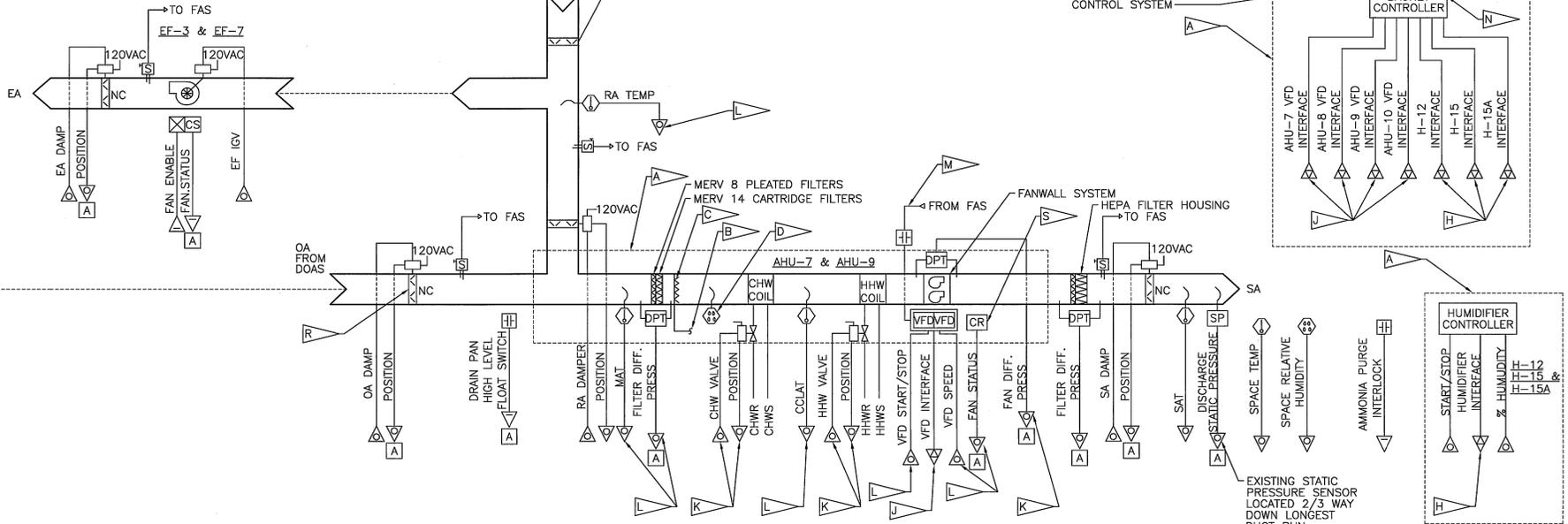
FREEZE PROTECTION: IF OAT DROPS BELOW 36° F (ADJUSTABLE), AN ALARM SHALL BE SENT TO THE OPERATORS WORKSTATION AND THE CHW VALVE SHALL FULLY OPEN.

PROVIDE CONTINUOUS MONITORING OF THE FOLLOWING POINTS AND DISPLAY AT THE OPERATORS WORKSTATION:

1. OUTSIDE AIR TEMPERATURE (°F)
2. HHW VALVE POSITION
3. CHW VALVE POSITION
4. VFD FULL INTERFACE
5. FANWALL DIFFERENTIAL PRESSURE (IN WG)
6. SUPPLY AIR TEMPERATURE (°F)
7. OUTSIDE AIR PARTICLE COUNT
8. DISCHARGE STATIC PRESSURE (IN WG)

**SPECIFIC NOTES:**

- A COMPONENTS WITHIN AREA INDICATE NEW COMPONENTS THAT ARE TO BE INSTALLED. ALL OTHER COMPONENTS OUTSIDE THIS AREA ARE EXISTING TO REMAIN UNO.
- B STEAM HUMIDIFIER DISTRIBUTION HEADER ROUTED TO HUMIDIFIER LOCATED ADJACENT TO UNIT.
- C STEAM HUMIDIFIER DISPERSION UNIT. SEE SCHEDULES FOR REQUIREMENTS. LOCATION SHOWN FOR AHU-9 ONLY. AHU-7 DISPERSION UNIT SHALL BE LOCATED BETWEEN THE CHW COIL AND HHW COIL.
- D PROVIDE HIGH HUMIDITY LIMIT SWITCH WIRED TO HUMIDIFIER.
- E EXISTING CONTROL SYSTEM CABINET AND CONTROLLERS SHALL REMAIN. CONTROL SYSTEM WORK IS LIMITED TO INCORPORATION OF NEW FIELD DEVICES INTO THE EXISTING CONTROL SYSTEM AND REPROGRAMMING OF THE EXISTING CONTROLLER TO SUPPORT SEQUENCE OF OPERATIONS.
- F EXISTING SMOKE DETECTORS FOR MODIFIED DUCTWORK SHALL BE REMOVED PRIOR TO DEMOLITION AND REINSTALLED IN NEW DUCTWORK. ALL EXISTING SMOKE DETECTORS IN EXISTING DUCTWORK THAT IS NOT MODIFIED SHALL REMAIN. SEE FIRE ALARM DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- G EXISTING RA DAMPER HAS BEEN ABANDONED IN PLACE AND MECHANICALLY HELD OPEN.
- H CONNECT NEW HUMIDIFIER COMMUNICATION LINK INTERFACE TO NEW BACNET CONTROLLER/ROUTER. ALL AVAILABLE INFORMATION SHALL BE PASSED THROUGH THE INTERFACE TO THE CONTROL SYSTEM. AT A MINIMUM THIS SHALL CONSIST OF THE FOLLOWING INPUTS:
  1. 0-100% FEEDBACK INPUT
  2. HUMIDIFIER STATUS (FAULT ONLINE/OFFLINE)
- J CONNECT NEW VFD COMMUNICATION LINK INTERFACE TO NEW BACNET CONTROLLER/ROUTER. ALL AVAILABLE INFORMATION SHALL BE PASSED THROUGH THE INTERFACE TO THE CONTROL SYSTEM. AT A MINIMUM THIS SHALL CONSIST OF THE FOLLOWING INPUTS:
  1. RUN STATUS
  2. FAULT
  3. COMMANDED SPEED
- K INDICATES NEW DEVICE CONNECTED TO EXISTING POINT/WIRING.
- L INDICATES NEW DEVICE CONNECTED TO NEW POINT/WIRING.
- M INDICATES EXISTING DEVICE RECONNECTED TO EXISTING POINT/WIRING.
- N PROVIDE NEW BACNET CONTROLLER FOR INTERFACING NEW BACNET DEVICES WITH EXISTING ANDOVER CONTROL SYSTEM. BASIS OF DESIGN: ANDOVER CONTROLS/SCHNEIDER ELECTRIC BCX1 SERIES MODEL # BCX1-CR-127. PROVIDE MINIMUM 127 NODE SUPPORT FOR FUTURE BACNET DEVICE INTEGRATION.
- P EXISTING CONTROL SYSTEM SHALL BE VERIFIED WITH EXISTING CONDITIONS AND 82K05179 PRIOR TO STARTING WORK.
- R INDICATES EXISTING DEVICE TO BE REINSTALLED INTO NEW DUCTWORK. EXISTING POINT/WIRING TO REMAIN.
- S PROVIDE CURRENT SENSORS FOR EACH FAN IN THE FANWALL. ROUTE CURRENT SENSORS BACK TO A SINGLE CURRENT RELAY TO INDICATE IF THERE IS A FAN FAILURE.



**SINGLE ZONE CONSTANT VOLUME AIR HANDLING UNIT - AHU-7 & AHU-9**

NTS

SEQUENCE OF OPERATION:

SYSTEM DESCRIPTION: THE SINGLE ZONE VARIABLE AIR VOLUME AIR HANDLING UNIT IS COMPRISED OF AN OUTSIDE AIR PATH WITH OUTSIDE AIR DAMPER, A RETURN AIR PATH WITH RETURN AIR DAMPER, FILTERS (MERV 8 & MERV 14), CHILLED WATER COOLING COIL WITH 2-WAY MODULATING CONTROL VALVE, HEATING COIL WITH 2-WAY MODULATING CONTROL VALVE, VARIABLE SPEED FAN WALL, AND ALL ASSOCIATED APPURTENANCES AND DEVICES DEPICTED ON THE CONTROL SYSTEM DIAGRAM.

GENERAL: THE UNIT SHALL BE AVAILABLE FOR OPERATION AT ALL TIMES, BUT IN GENERAL THE UNIT WILL RUN 24/7 TO HELP MAINTAIN CONDITIONS IN THE SPACE. ALL CONTROLS SHALL BE AUTOMATIC.

SYSTEM START: THE BAS SHALL ENERGIZE THE SUPPLY AIR FANWALL, AND OPEN THE OA, SA AND RA DAMPERS.

SYSTEM STOP: THE BAS SHALL DE-ENERGIZE THE UNIT SUPPLY FANWALL, CLOSE THE OA DAMPER, CLOSE THE CHILLED WATER CONTROL VALVE, CLOSE THE HEATING HOT WATER CONTROL VALVE, AND CLOSE THE RA AND SA DAMPERS.

SUPPLY FANWALL CONTROL: SUPPLY FANWALL CONTROL SHALL BE CONSTANT VOLUME BY OPERATING AT A CONSTANT PRESSURE AS MEASURED BY STATIC PRESSURE SENSOR. THE PRESSURE SETPOINT SHALL BE DETERMINED BY THE TEST AND BALANCE AND CONTROLS CONTRACTORS DURING TEST AND BALANCE OF THE SYSTEM TO MAINTAIN SCHEDULED AIRFLOW. FANWALL SPEED SHALL MODULATE TO MAINTAIN THE PRESSURE SETPOINT AND RESULTANT AIRFLOW. FANWALL AIRFLOW SHALL BE ABLE TO BE ADJUSTED BY ADJUSTING THE PRESSURE SETPOINT THROUGH THE BAS BY OPERATOR COMMAND.

SUPPLY FANWALL STATUS: FANWALL STATUS SHALL BE INDICATED BY CURRENT SENSORS ON EACH FAN ROUTED BACK TO A SINGLE CURRENT RELAY. IF THE CURRENT RELAY IS TRIPPED AN ALARM SHALL BE SENT TO THE OPERATORS WORKSTATION THAT A FAN IN THE FANWALL HAS FAILED.

COOLING: THE BAS SHALL MODULATE THE CHILLED WATER CONTROL VALVE TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 71° F (ADJUSTABLE).

HEATING: UPON A CALL FOR HEATING AS INDICATED BY THE SPACE TEMPERATURE SENSOR, THE BAS SHALL MODULATE THE HEATING HOT WATER CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE SETPOINT. THE CHW VALVE SHALL BE MAINTAINED CLOSED TO PREVENT SIMULTANEOUS HEATING AND COOLING.

HIGH HUMIDITY OVERRIDE CONTROL: WHENEVER SPACE RELATIVE HUMIDITY EXCEEDS 50%, THE BAS SHALL MODULATE THE CHILLED WATER CONTROL VALVE TO MAINTAIN A CCLAT OF 49° F (ADJUSTABLE) UNTIL SPACE RELATIVE HUMIDITY FALLS TO 45% (ADJUSTABLE). THE BAS SHALL ALSO MODULATE THE HEATING HOT WATER CONTROL VALVE TO PREVENT OVERCOOLING OF THE SPACE BY MAINTAINING SPACE TEMPERATURE SETPOINT.

LOW HUMIDITY CONTROL: WHENEVER SPACE RELATIVE HUMIDITY FALLS BELOW 40%, THE HUMIDIFIER SHALL MODULATE TO ACHIEVE 45% RELATIVE HUMIDITY IN THE SPACE. WHENEVER THERE IS CALL FOR HUMIDIFICATION, THE CHILLED WATER CONTROL VALVE SHALL BE COMMANDED CLOSED.

EMERGENCY MODE: UPON MANUAL ACTIVATION OF THE EMERGENCY MODE FOR AMMONIA PURGE OPERATIONS, THE SUPPLY FANWALL AIRFLOW SHALL DECREASE TO A VALUE EQUAL TO THE AIRFLOW OF THE CORRESPONDING DOAS. IN ADDITION, THE CORRESPONDING EF SHALL BE ENERGIZED, THE RA DAMPER TO THE AHU SHALL BE CLOSED AND EA DAMPERS SHALL BE OPENED. COOLING, HEATING AND HUMIDITY SETPOINTS SHALL BE MAINTAINED DURING EMERGENCY MODE. WHEN EMERGENCY MODE IS DEACTIVATED, THE SYSTEM SHALL RESUME NORMAL OPERATION.

OUTSIDE/RETURN AIR DAMPER CONTROL: THE RETURN AIR AND OUTSIDE AIR DAMPERS WILL BE OPENED TO THE POSITION DETERMINED BY THE TEST AND BALANCE CONTRACTOR TO MAINTAIN THE OUTSIDE AIR VOLUME SETPOINT.

SMOKE DETECTION SHUTDOWN: AT A SIGNAL FROM THE ASSOCIATED, HARD WIRED, INTERLOCKED, SMOKE DETECTOR (FURNISHED AND WIRED BY DIVISION 28, MOUNTED BY DIVISION 23) THAT SMOKE IS DETECTED IN THE AIR STREAM, THE FIRE ALARM SYSTEM SHALL SHUT DOWN THE ASSOCIATED UNIT SUPPLY FANWALL, AND AT THE SAME TIME THE SMOKE DETECTOR SIGNAL SHALL BE SENT TO THE BAS SYSTEM FOR THE FOLLOWING ACTIONS:

1. DE-ENERGIZE FAN.
2. CLOSE THE CHILLED WATER AND HEATING HOT WATER CONTROL VALVES.
3. DISPLAY AN ALARM AT THE OPERATORS WORK STATION THAT THE ASSOCIATED AHU WAS SHUTDOWN FOR SMOKE DETECTION.

FREEZE PROTECTION: IF MAT DROPS BELOW 36° F (ADJUSTABLE)(ONLY POSSIBLE DURING EMERGENCY MODE), AN ALARM SHALL BE SENT TO THE OPERATORS WORKSTATION AND THE CHW VALVE SHALL FULLY OPEN. THE HHW VALVE SHALL ALSO BE CONTROLLED AS INDICATED IN THE HEATING SECTION ABOVE.

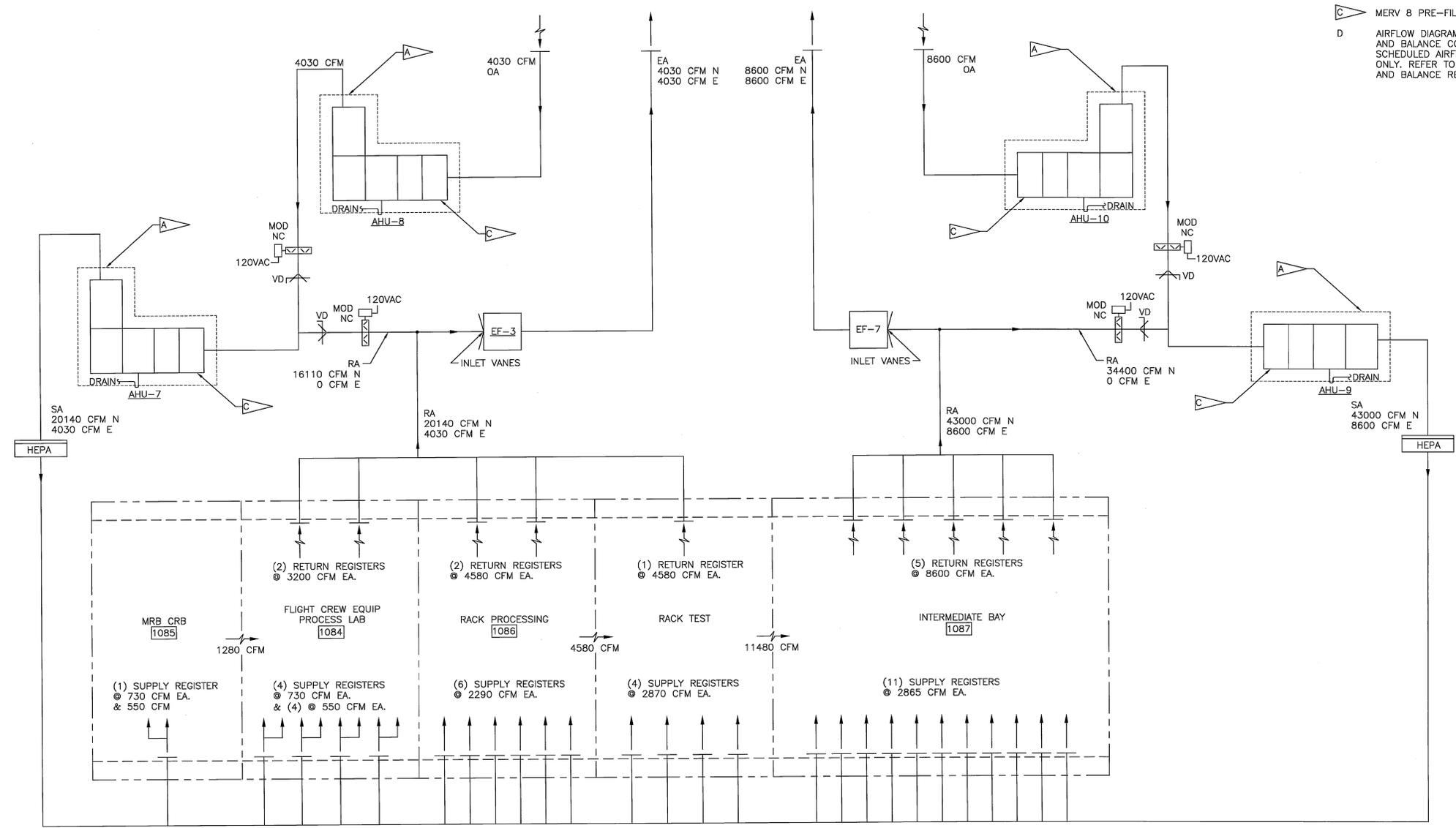
PROVIDE CONTINUOUS MONITORING OF THE FOLLOWING POINTS AND DISPLAY AT THE OPERATORS WORKSTATION:

1. OA TEMPERATURE (°F)
2. OA DAMPER POSITION
3. RA DAMPER POSITION
4. EA DAMPER POSITION
5. MIXED AIR TEMPERATURE (°F)
6. COOLING COIL LEAVING AIR TEMPERATURE (°F)
7. VFD FULL INTERFACE (SEE SPECIFIC NOTE J)
8. SUPPLY AIR TEMPERATURE (°F)
9. SPACE TEMPERATURE (°F)
10. SPACE RELATIVE HUMIDITY (%)
11. STATUS OF EXHAUST FAN
12. FANWALL DIFFERENTIAL PRESSURE (IN WG)
13. RETURN AIR TEMPERATURE (°F)
14. DISCHARGE STATIC PRESSURE (IN WG)

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<b>SPACE STATION PROCESSING FACILITY</b> <b>REPLACE AIR HANDLING UNITS</b> BID PACKAGE 1				
<b>HVAC CONTROLS</b>				
SIGNATURES: DRAWN: PIINTO 5-23-12 CHECKED: KUGLER 5-23-12 SUBMITTED: BREYER 5-23-12 ST OF LICENSE: FL 68915 5-23-12 APPROVED: BEN TRAWICK 5-23-12 SCOTT HUNT 5-23-12			DATE: 5-23-12 DATE: 5-23-12 DATE: 5-23-12 DATE: 5-23-12 DATE: 5-23-12 DATE: 5-23-12	
FILE NO. M-701			HWAC NO. 79K39148 SHEET 14 OF	

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- SPECIFIC NOTES:**
- A COMPONENTS WITHIN AREA INDICATE NEW COMPONENTS THAT ARE TO BE INSTALLED. ALL OTHER COMPONENTS OUTSIDE THIS AREA ARE EXISTING TO REMAIN.
  - B N INDICATES NORMAL OPERATION AIRFLOW. E INDICATES EMERGENCY OPERATION AIRFLOW.
  - C MERV 8 PRE-FILTER AND MERV 14 AFTER-FILTER SECTION.
  - D AIRFLOW DIAGRAM IS SHOWN FOR INFORMATION PURPOSES ONLY. TEST AND BALANCE CONTRACTOR SHALL BALANCE NEW AHUS TO ACHIEVE SCHEDULED AIRFLOWS AT THE INTAKES AND DISCHARGES OF THE UNITS ONLY. REFER TO DIVISION 23 SPECIFICATIONS FOR ADDITIONAL TEST AND BALANCE REQUIREMENTS.

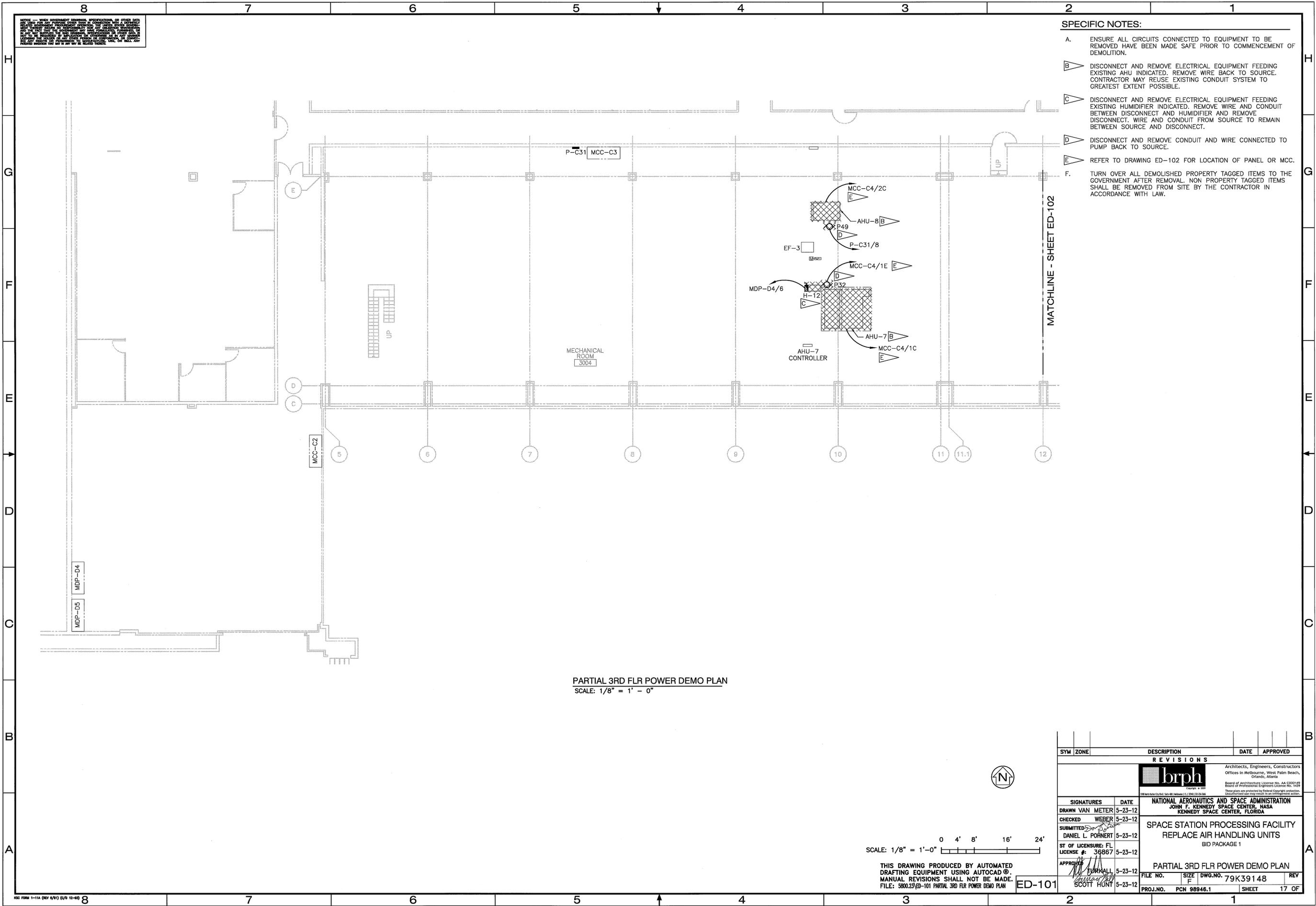


**INTERMEDIATE BAY AREA SCHEMATIC AIR FLOW DIAGRAM**  
NTS

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DRAWN	PINTO	5-23-12		
CHECKED	KUGLER	5-23-12		
SUBMITTED				
BRET	TURKALL	5-23-12		
ST OF LICENSURE: FL				
LICENSE #: 68915				
APPROVED				
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SCOTT HUNT		5-23-12		
M-702				
FILE NO.		SIZE	DWG. NO.	REV
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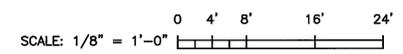




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- SPECIFIC NOTES:**
- A. ENSURE ALL CIRCUITS CONNECTED TO EQUIPMENT TO BE REMOVED HAVE BEEN MADE SAFE PRIOR TO COMMENCEMENT OF DEMOLITION.
  - B. DISCONNECT AND REMOVE ELECTRICAL EQUIPMENT FEEDING EXISTING AHU INDICATED. REMOVE WIRE BACK TO SOURCE. CONTRACTOR MAY REUSE EXISTING CONDUIT SYSTEM TO GREATEST EXTENT POSSIBLE.
  - C. DISCONNECT AND REMOVE ELECTRICAL EQUIPMENT FEEDING EXISTING HUMIDIFIER INDICATED. REMOVE WIRE AND CONDUIT BETWEEN DISCONNECT AND HUMIDIFIER AND REMOVE DISCONNECT, WIRE AND CONDUIT FROM SOURCE TO REMAIN BETWEEN SOURCE AND DISCONNECT.
  - D. DISCONNECT AND REMOVE CONDUIT AND WIRE CONNECTED TO PUMP BACK TO SOURCE.
  - E. REFER TO DRAWING ED-102 FOR LOCATION OF PANEL OR MCC.
  - F. TURN OVER ALL DEMOLISHED PROPERTY TAGGED ITEMS TO THE GOVERNMENT AFTER REMOVAL. NON PROPERTY TAGGED ITEMS SHALL BE REMOVED FROM SITE BY THE CONTRACTOR IN ACCORDANCE WITH LAW.

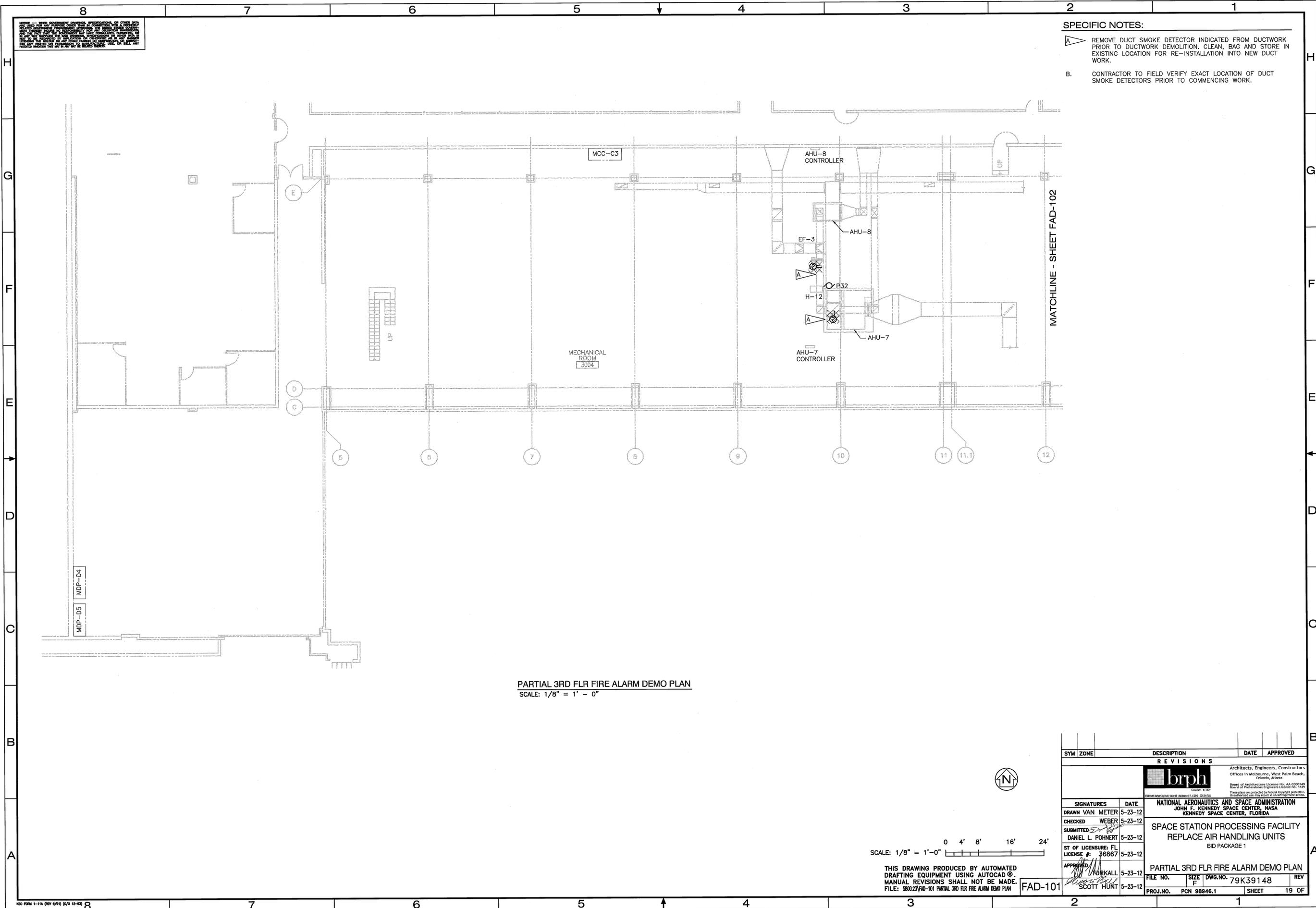
**PARTIAL 3RD FLR POWER DEMO PLAN**  
SCALE: 1/8" = 1' - 0"



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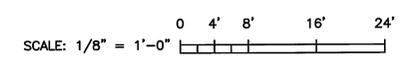
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SIGNATURES		DATE		
DRAWN VAN METER		5-23-12		
CHECKED WEBER		5-23-12		
SUBMITTED DANIEL L. POHNET		5-23-12		
ST OF LICENSURE: FL		5-23-12		
LICENSE #: 36867		5-23-12		
APPROVED		DATE		
TURNALL		5-23-12		
SCOTT HUNT		5-23-12		
ED-101		FILE NO.		
		SIZE DWG. NO. 79K39148		
		REV		
		PROJ. NO. PCN 98946.1		
		SHEET 17 OF		





- SPECIFIC NOTES:**
- A. REMOVE DUCT SMOKE DETECTOR INDICATED FROM DUCTWORK PRIOR TO DUCTWORK DEMOLITION. CLEAN, BAG AND STORE IN EXISTING LOCATION FOR RE-INSTALLATION INTO NEW DUCT WORK.
  - B. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF DUCT SMOKE DETECTORS PRIOR TO COMMENCING WORK.

**PARTIAL 3RD FLR FIRE ALARM DEMO PLAN**  
 SCALE: 1/8" = 1' - 0"

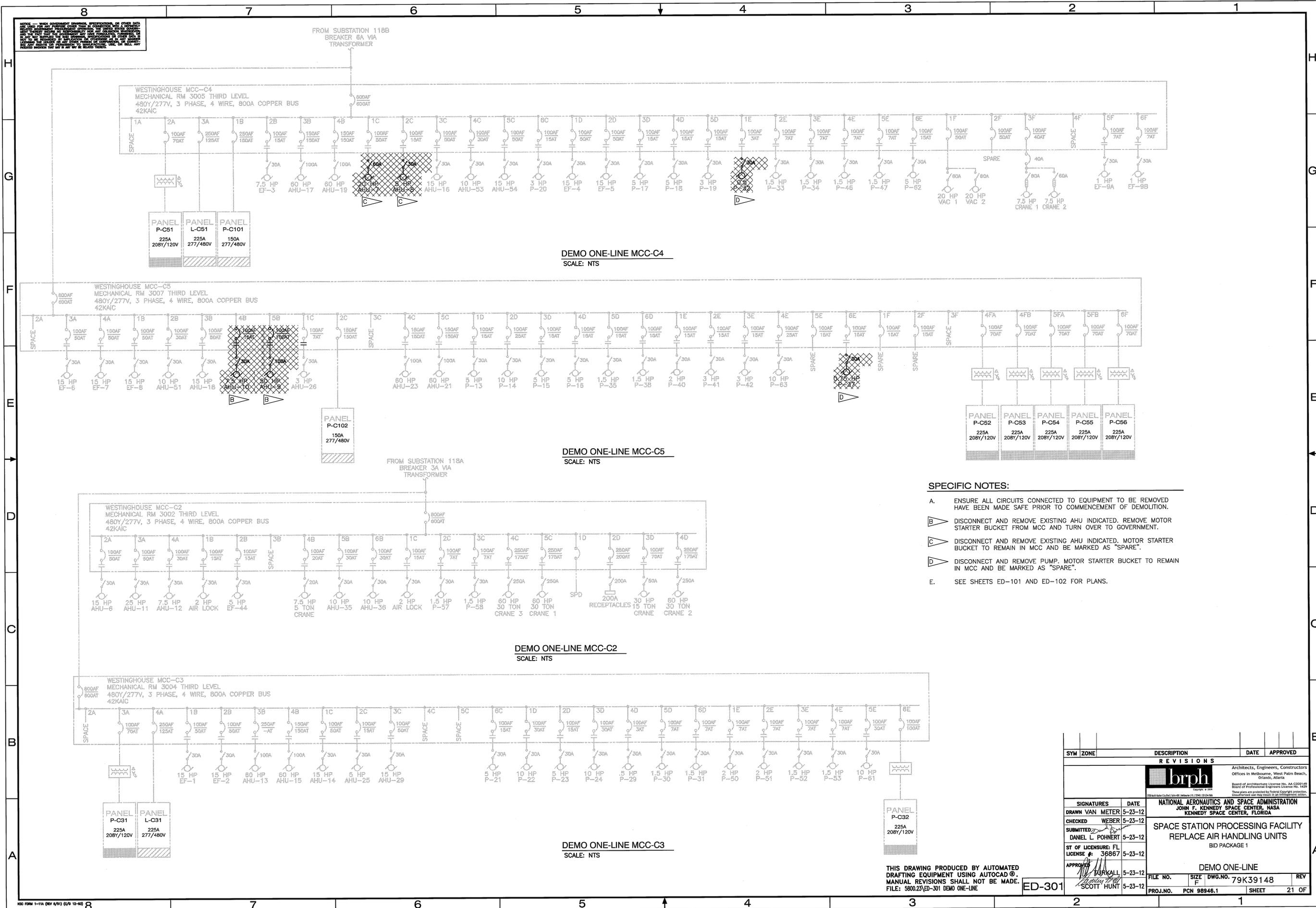


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 FILE: 580023\FAD-101 PARTIAL 3RD FLR FIRE ALARM DEMO PLAN

FAD-101

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<b>SIGNATURES</b>		<b>DATE</b>		
DRAWN VAN METER		5-23-12		
CHECKED WEBER		5-23-12		
SUBMITTED DANIEL L. POHNERT		5-23-12		
ST OF LICENSE: FL LICENSE #: 36867		5-23-12		
APPROVED: TURKALL		5-23-12		
SCOTT HUNT		5-23-12		
		PARTIAL 3RD FLR FIRE ALARM DEMO PLAN		
FILE NO.	SIZE	DWG. NO.	REV	
	F	79K39148		
PROJ. NO.	PCN	SHEET		19 OF
	98946.1			





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DEMO ONE-LINE MCC-C4  
SCALE: NTS

DEMO ONE-LINE MCC-C5  
SCALE: NTS

DEMO ONE-LINE MCC-C2  
SCALE: NTS

DEMO ONE-LINE MCC-C3  
SCALE: NTS

**SPECIFIC NOTES:**

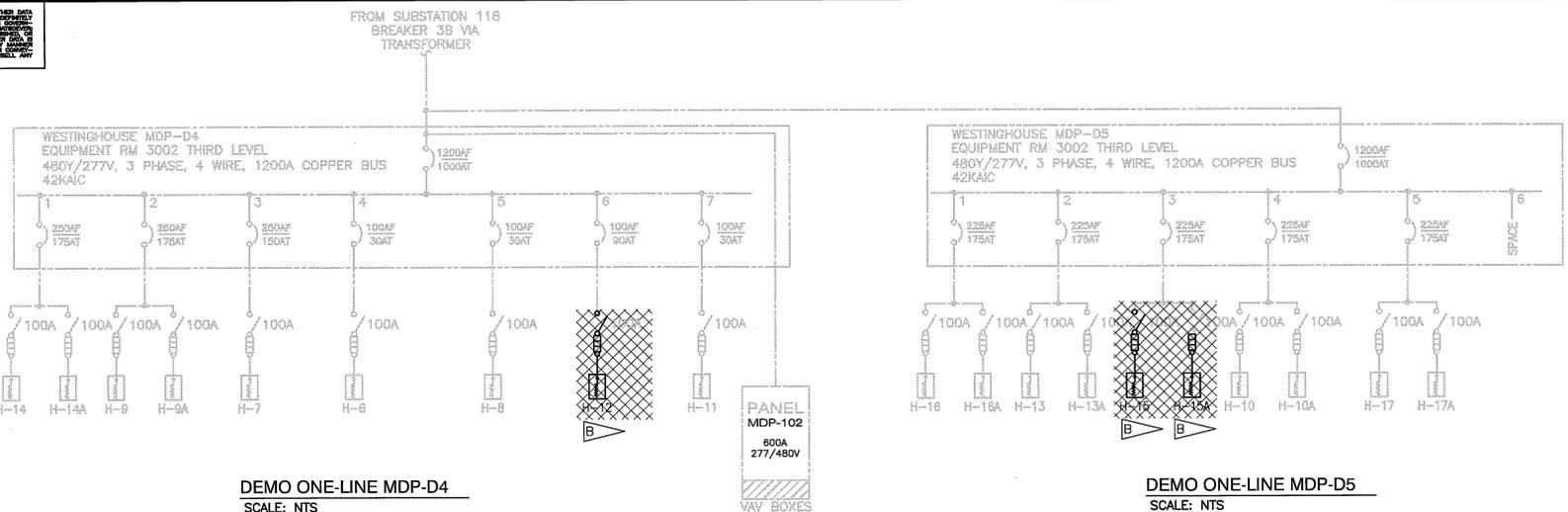
- A. ENSURE ALL CIRCUITS CONNECTED TO EQUIPMENT TO BE REMOVED HAVE BEEN MADE SAFE PRIOR TO COMMENCEMENT OF DEMOLITION.
- B. DISCONNECT AND REMOVE EXISTING AHU INDICATED. REMOVE MOTOR STARTER BUCKET FROM MCC AND TURN OVER TO GOVERNMENT.
- C. DISCONNECT AND REMOVE EXISTING AHU INDICATED. MOTOR STARTER BUCKET TO REMAIN IN MCC AND BE MARKED AS "SPARE".
- D. DISCONNECT AND REMOVE PUMP. MOTOR STARTER BUCKET TO REMAIN IN MCC AND BE MARKED AS "SPARE".
- E. SEE SHEETS ED-101 AND ED-102 FOR PLANS.

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		<b>SPACE STATION PROCESSING FACILITY</b> <b>REPLACE AIR HANDLING UNITS</b> BID PACKAGE 1		
		<b>DEMO ONE-LINE</b>		
SIGNATURES	DATE			
DRAWN VAN METER	5-23-12			
CHECKED WEBER	5-23-12			
SUBMITTED DANIEL L. POHNER	5-23-12			
ST OF LICENSE: FL	5-23-12			
LICENSE #: 38867	5-23-12			
APPROVED	DATE			
TURKALL	5-23-12			
SCOTT HUNT	5-23-12			
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ED-301	F	79K39148		
PROJ. NO.	PCN	98946.1	SHEET	21 OF

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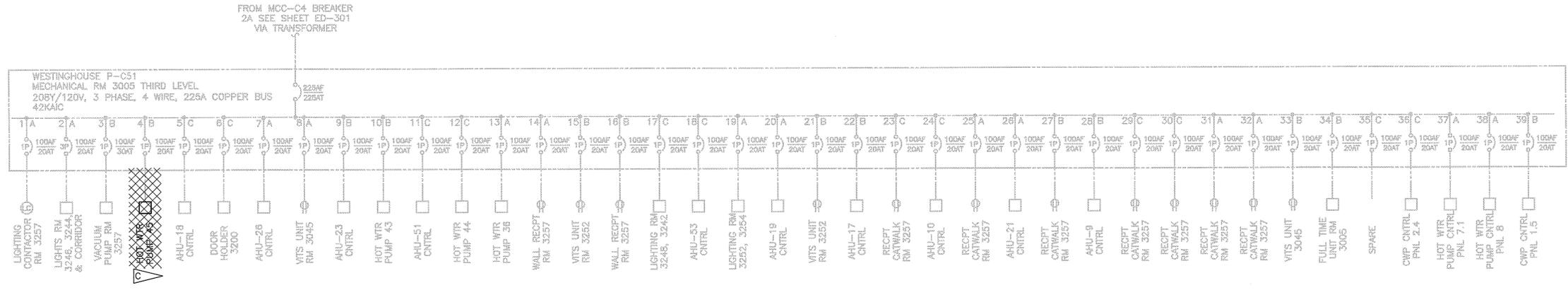
- SPECIFIC NOTES:**
- A. ENSURE ALL CIRCUITS CONNECTED TO EQUIPMENT TO BE REMOVED HAVE BEEN MADE SAFE PRIOR TO COMMENCEMENT OF DEMOLITION.
  - B. DISCONNECT AND REMOVE EXISTING HUMIDIFIER INDICATED. REMOVE WIRE AND CONDUIT BETWEEN DISCONNECT AND HUMIDIFIER AND REMOVE DISCONNECT. WIRE AND CONDUIT FROM SOURCE TO DISCONNECT TO REMAIN FOR RECONNECTION TO NEW FUSED DISCONNECT.
  - C. DISCONNECT AND REMOVE PUMP. BREAKER TO REMAIN IN PANEL AND BE MARKED AS "SPARE".
  - D. SEE SHEETS ED-101 AND ED-102 FOR PLANS.



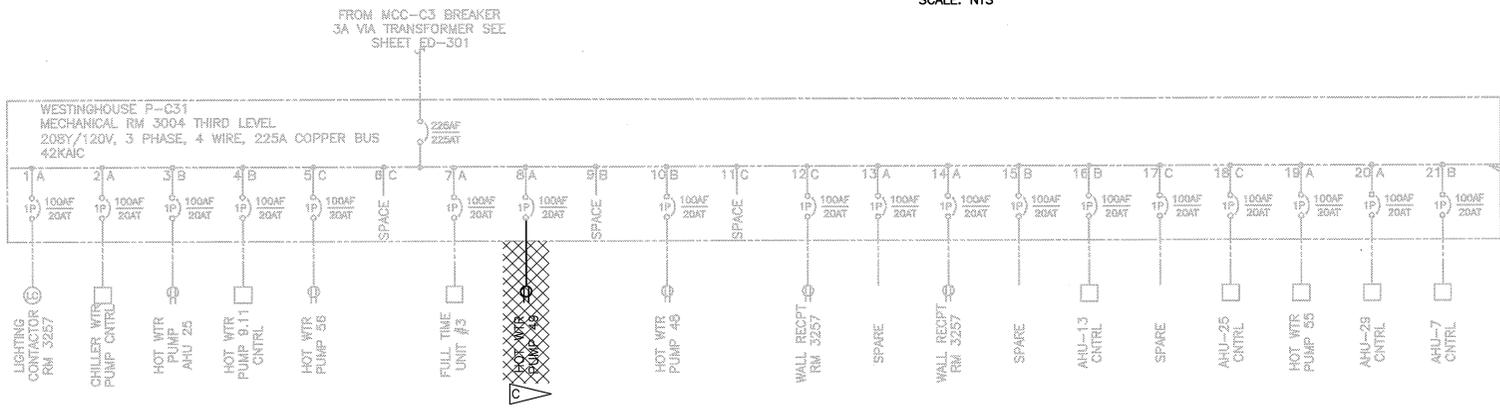
**DEMO ONE-LINE MDP-D4**  
SCALE: NTS

**DEMO ONE-LINE MDP-D5**  
SCALE: NTS

PANEL  
MDP-102  
600A  
277/480V  
VAV BOXES



**DEMO ONE-LINE P-C51**  
SCALE: NTS

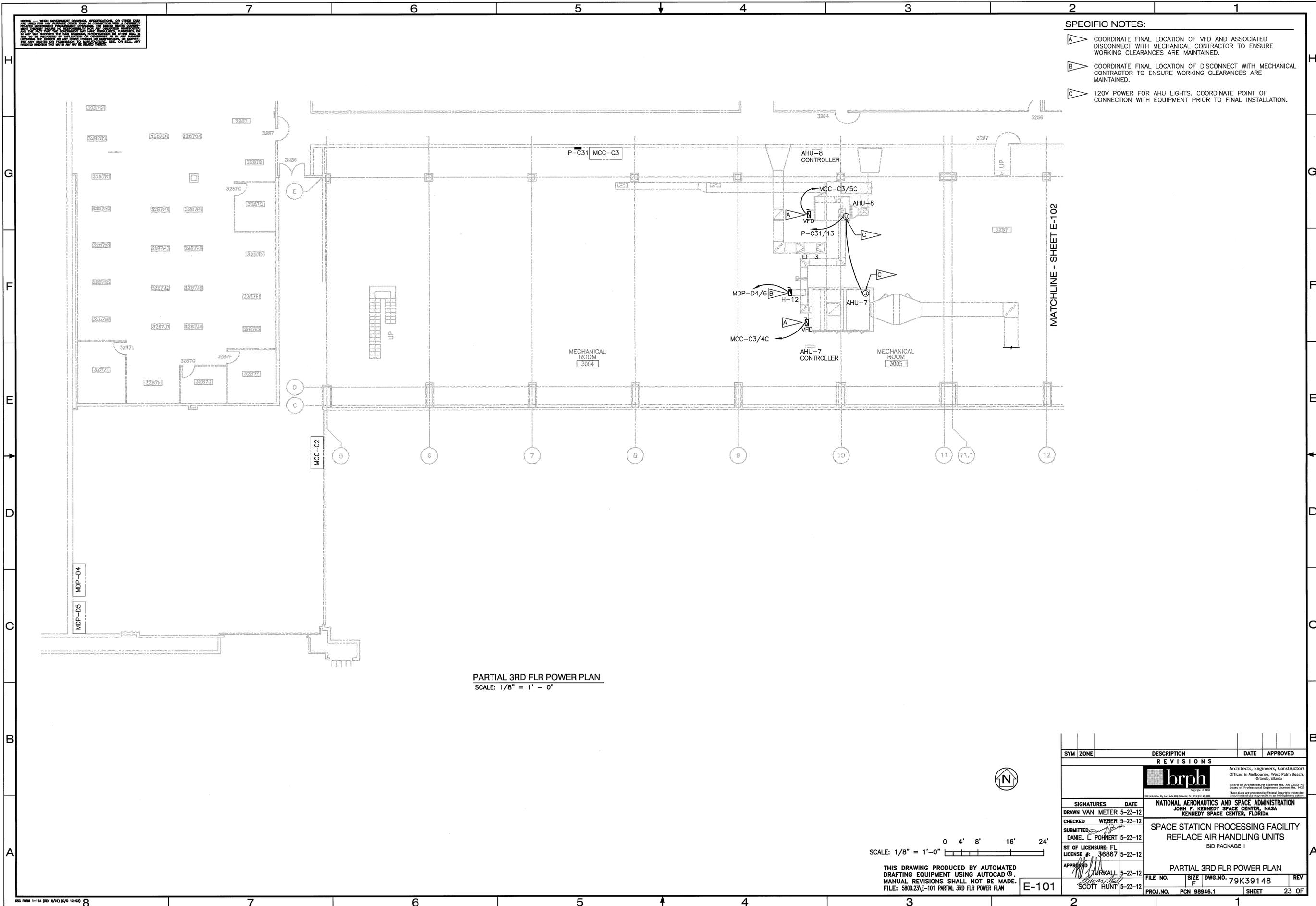


**DEMO ONE-LINE P-C31**  
SCALE: NTS

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ED-302

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CHECKED WEBER		SPACE STATION PROCESSING FACILITY REPLACE AIR HANDLING UNITS BID PACKAGE 1		
SUBMITTED DANIEL L. POHNER		DEMO ONE-LINE		
ST OF LICENSURE: FL LICENSE #: 36867		FILE NO. SIZE DWG. NO. 79K39148 REV		
APPROVED TURKALL		PROJ. NO. PCN 98946.1 SHEET 22 OF		
SCOTT HUNT				



- SPECIFIC NOTES:**
- A COORDINATE FINAL LOCATION OF VFD AND ASSOCIATED DISCONNECT WITH MECHANICAL CONTRACTOR TO ENSURE WORKING CLEARANCES ARE MAINTAINED.
  - B COORDINATE FINAL LOCATION OF DISCONNECT WITH MECHANICAL CONTRACTOR TO ENSURE WORKING CLEARANCES ARE MAINTAINED.
  - C 120V POWER FOR AHU LIGHTS. COORDINATE POINT OF CONNECTION WITH EQUIPMENT PRIOR TO FINAL INSTALLATION.

**PARTIAL 3RD FLR POWER PLAN**  
 SCALE: 1/8" = 1' - 0"



SCALE: 1/8" = 1'-0" 0 4' 8' 16' 24'

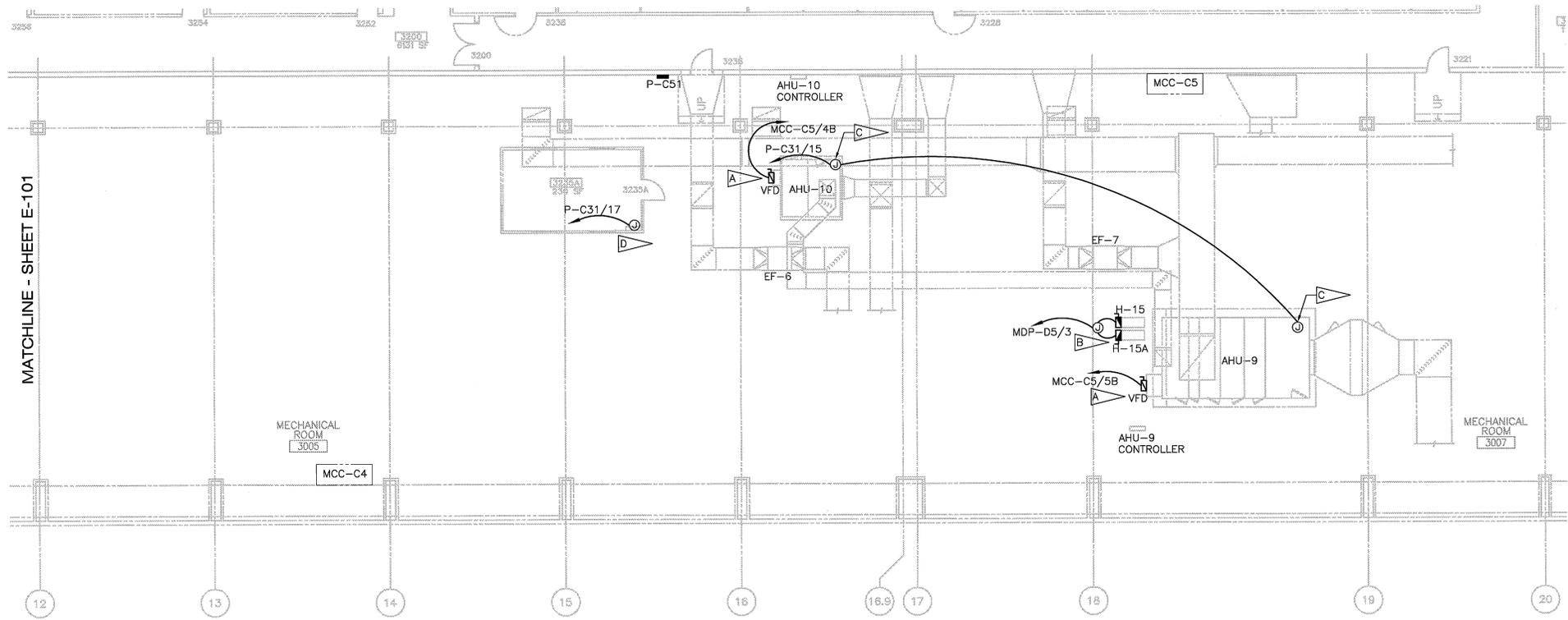
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<b>SPACE STATION PROCESSING FACILITY</b> REPLACE AIR HANDLING UNITS BID PACKAGE 1				
<b>PARTIAL 3RD FLR POWER PLAN</b>				
SIGNATURES	DATE			
DRAWN VAN METER	5-23-12			
CHECKED WEBER	5-23-12			
SUBMITTED DANIEL L. POHNERT	5-23-12			
ST OF LICENSURE: FL				
LICENSE # 36867	5-23-12			
APPROVED				
TURKALL	5-23-12			
SCOTT HUNT	5-23-12			
FILE NO.	SIZE	DWG. NO.	REV	
PCN 98946.1	F	79K39148		
PROJ. NO.	PCN 98946.1	SHEET	23 OF	

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- SPECIFIC NOTES:**
- A COORDINATE FINAL LOCATION OF VFD AND ASSOCIATED DISCONNECT WITH MECHANICAL CONTRACTOR TO ENSURE WORKING CLEARANCES ARE MAINTAINED.
  - B COORDINATE FINAL LOCATION OF DISCONNECT WITH MECHANICAL CONTRACTOR TO ENSURE WORKING CLEARANCES ARE MAINTAINED.
  - C 120V POWER FOR AHU LIGHTS. COORDINATE POINT OF CONNECTION WITH EQUIPMENT PRIOR TO FINAL INSTALLATION. SEE SHEET E-101 FOR LOCATION OF PANEL P-C31.
  - D 120V POWER FOR BACNET CONTROLLER. COORDINATE FINAL LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO FINAL INSTALLATION. SEE SHEET E-101 FOR LOCATION OF PANEL P-C31.



**PARTIAL 3RD FLR POWER PLAN**  
SCALE: 1/8" = 1' - 0"



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

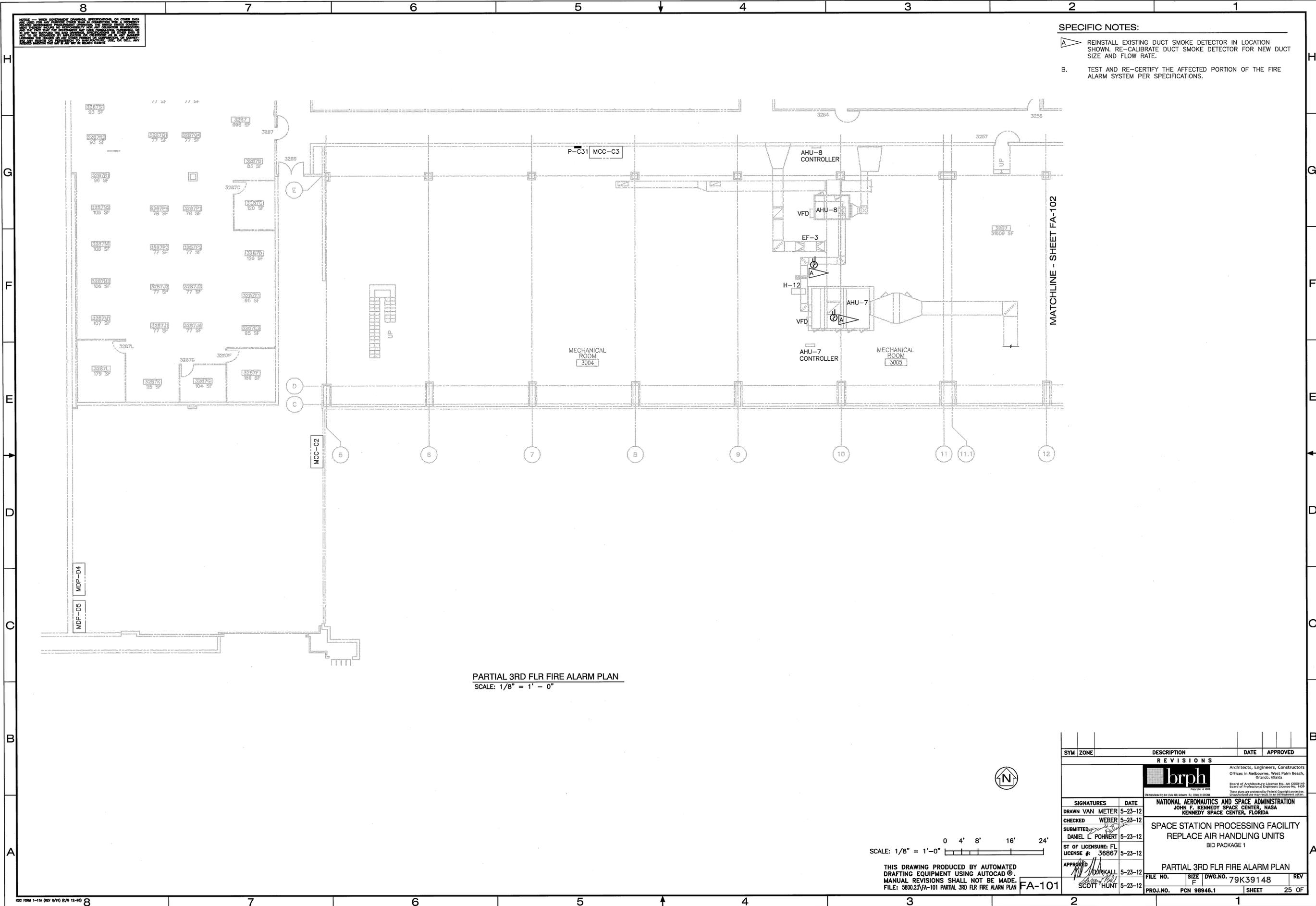
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E-102

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		<b>SPACE STATION AIR PROCESSING FACILITY</b>		
		<b>REPLACE AIR HANDLING UNITS</b>		
		BID PACKAGE 1		
		<b>PARTIAL 3RD FLR POWER PLAN</b>		
SIGNATURES	DATE			
DRAWN VAN METER	5-23-12			
CHECKED WEBER	5-23-12			
SUBMITTED DANIEL L. POHNERT	5-23-12			
ST OF LICENSEURE: FL	5-23-12			
LICENSE # 36867	5-23-12			
APPROVED	DATE			
(Signature)	5-23-12			
(Signature)	5-23-12			
FILE NO.	SIZE	DWG. NO.	REV	
	F	79K39148		
PROJ. NO.	PCN	98946.1	SHEET	24 OF

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- SPECIFIC NOTES:**
- A. REINSTALL EXISTING DUCT SMOKE DETECTOR IN LOCATION SHOWN. RE-CALIBRATE DUCT SMOKE DETECTOR FOR NEW DUCT SIZE AND FLOW RATE.
  - B. TEST AND RE-CERTIFY THE AFFECTED PORTION OF THE FIRE ALARM SYSTEM PER SPECIFICATIONS.



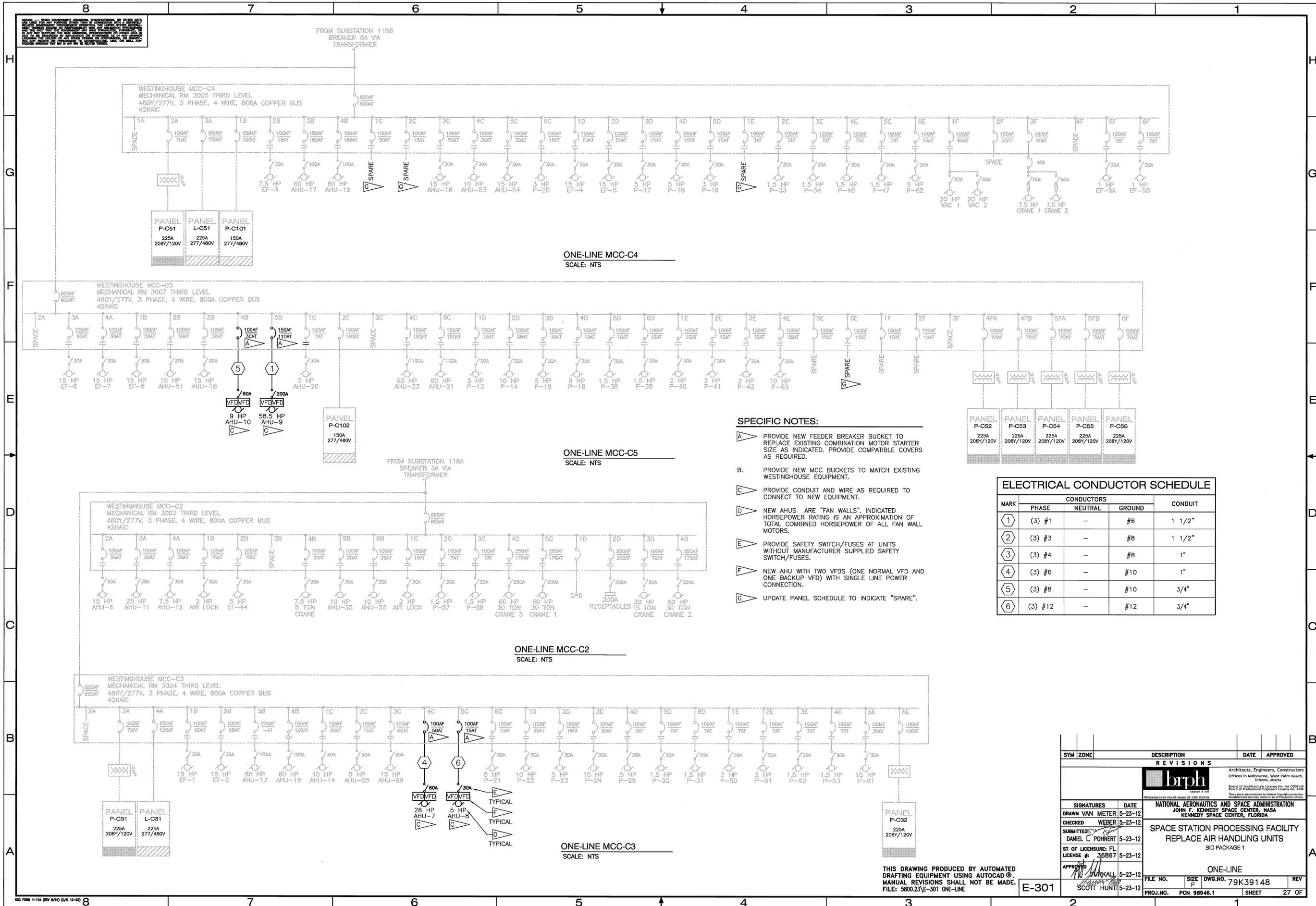
PARTIAL 3RD FLR FIRE ALARM PLAN  
SCALE: 1/8" = 1' - 0"

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

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<b>SIGNATURES</b>				
DRAWN VAN METER		DATE 5-23-12		
CHECKED WEBER		DATE 5-23-12		
SUBMITTED DANIEL C. POHNERT		DATE 5-23-12		
ST OF LICENSE: FL		DATE 5-23-12		
LICENSE #: 36867		DATE 5-23-12		
<b>APPROVED</b>				
DURKALL		DATE 5-23-12		
SCOTT HUNT		DATE 5-23-12		
<b>PARTIAL 3RD FLR FIRE ALARM PLAN</b>				
FILE NO.	SIZE	DWG. NO.	79K39148	REV
PROJ. NO.	PCN	98946.1	SHEET	25 OF





ONE-LINE MCC-C4  
SCALE: NTS

ONE-LINE MCC-C5  
SCALE: NTS

ONE-LINE MCC-C2  
SCALE: NTS

ONE-LINE MCC-C3  
SCALE: NTS

**SPECIFIC NOTES:**

- A PROVIDE NEW FEEDER BREAKER BUCKET TO REPLACE EXISTING COMBINATION MOTOR STARTER SIZE AS INDICATED. PROVIDE COMPATIBLE COVERS AS REQUIRED.
- B PROVIDE NEW MCC BUCKETS TO MATCH EXISTING WESTINGHOUSE EQUIPMENT.
- C PROVIDE CONDUIT AND WIRE AS REQUIRED TO CONNECT TO NEW EQUIPMENT.
- D NEW AHUS ARE "FAN WALLS". INDICATED HORSEPOWER RATING IS AN APPROXIMATION OF TOTAL COMBINED HORSEPOWER OF ALL FAN WALL MOTORS.
- E PROVIDE SAFETY SWITCH/FUSES AT UNITS WITHOUT MANUFACTURER SUPPLIED SAFETY SWITCH/FUSES.
- F NEW AHU WITH TWO VFDs (ONE NORMAL VFD AND ONE BACKUP VFD) WITH SINGLE LINE POWER CONNECTION.
- G UPDATE PANEL SCHEDULE TO INDICATE "SPARE".

**ELECTRICAL CONDUCTOR SCHEDULE**

MARK	CONDUCTORS			CONDUIT
	PHASE	NEUTRAL	GROUND	
①	(3) #1	-	#6	1 1/2"
②	(3) #3	-	#8	1 1/2"
③	(3) #4	-	#8	1"
④	(3) #6	-	#10	1"
⑤	(3) #8	-	#10	3/4"
⑥	(3) #12	-	#12	3/4"

SYM	ZONE	DESCRIPTION	DATE	APPROVED
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SUBMITTED DANIEL L. POHNET		SPACE STATION PROCESSING FACILITY REPLACE AIR HANDLING UNITS BID PACKAGE 1		
ST OF LICENSE: FL LICENSE # 36867				
APPROVED		ONE-LINE		
E-301		FILE NO.	SIZE	REV
		PCN 98946.1	F	79K39148
		PROJ. NO.	DATE	SHEET
		5-23-12	27	OF

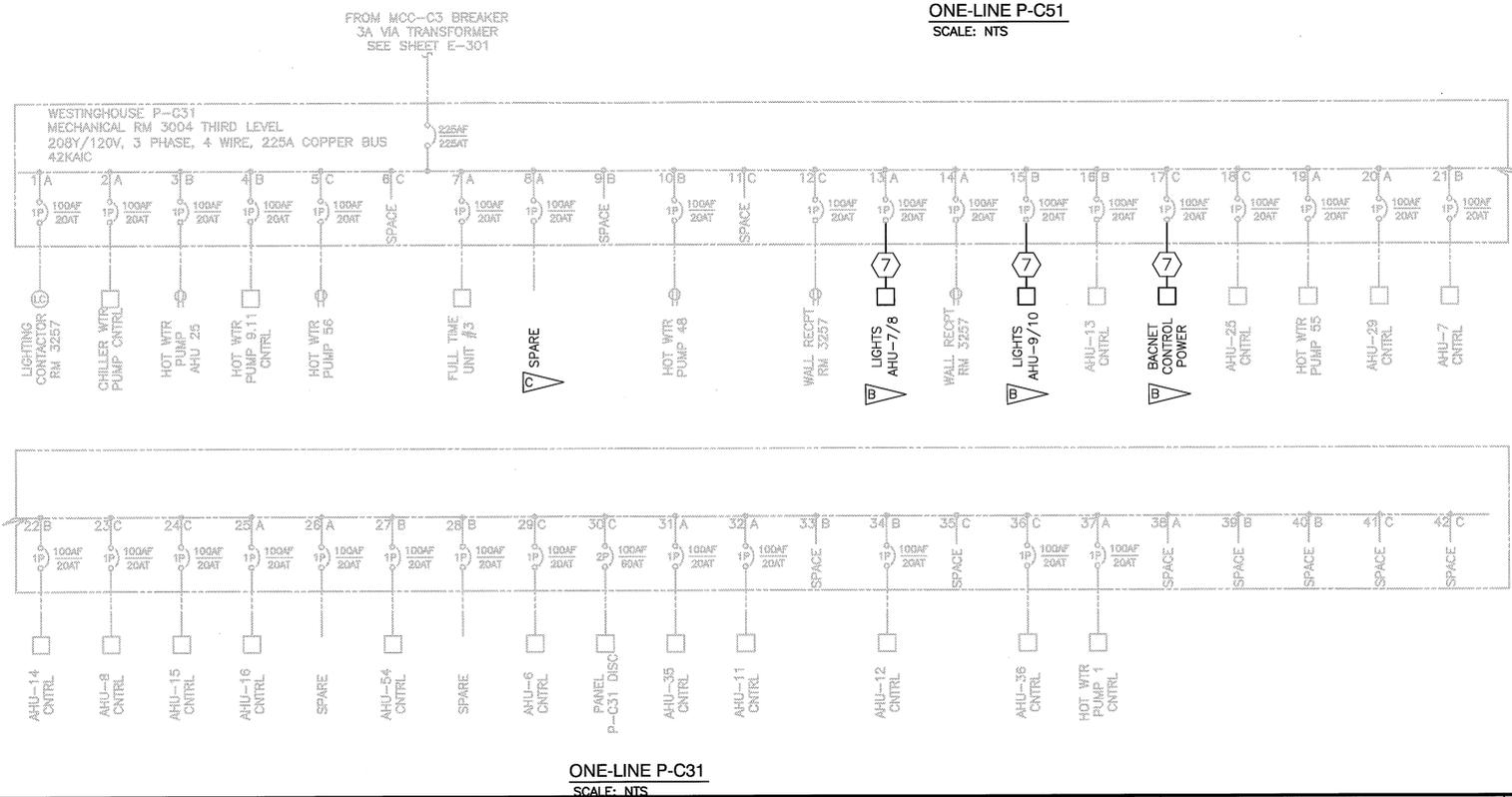
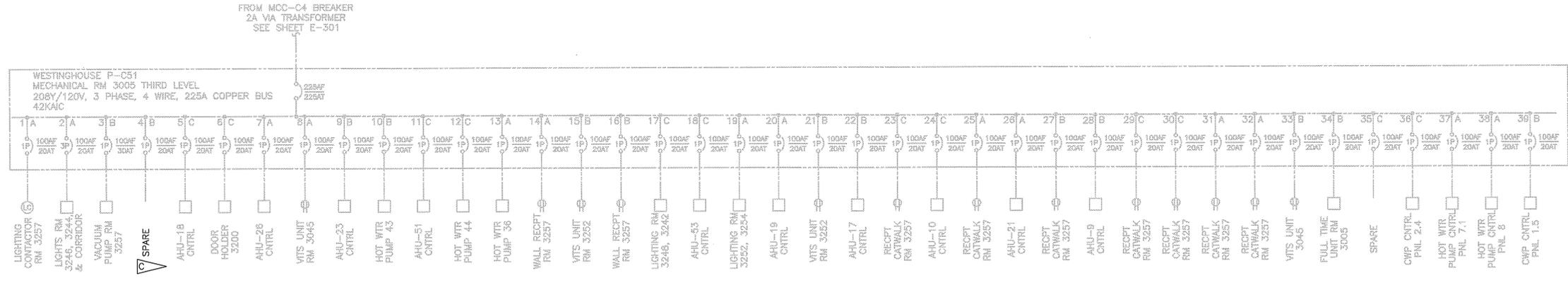
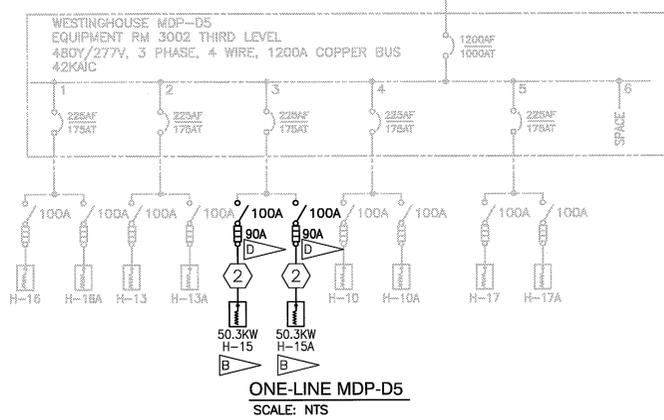
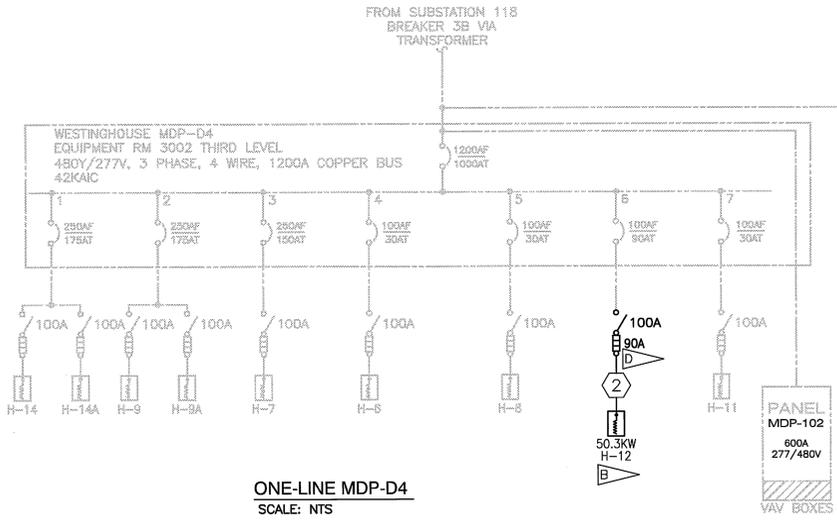
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- SPECIFIC NOTES:**
- A. PROVIDE NEW MCC BUCKETS TO MATCH EXISTING WESTINGHOUSE EQUIPMENT.
  - B. PROVIDE FUSED DCONDUIT AND WIRE AS REQUIRED TO CONNECT TO NEW EQUIPMENT.
  - C. UPDATE PANEL SCHEDULE TO INDICATE "SPARE".
  - D. PROVIDE NEW 100A 3P, FUSED DISCONNECT, FUSED AS INDICATED.

**ELECTRICAL CONDUCTOR SCHEDULE**

MARK	CONDUCTORS			CONDUIT
	PHASE	NEUTRAL	GROUND	
①	(3) #1	-	#6	1 1/2"
②	(3) #3	-	#8	1 1/2"
③	(3) #4	-	#8	1"
④	(3) #6	-	#10	1"
⑤	(3) #8	-	#10	3/4"
⑥	(3) #12	-	#12	3/4"
⑦	#12	#12	#12	3/4"

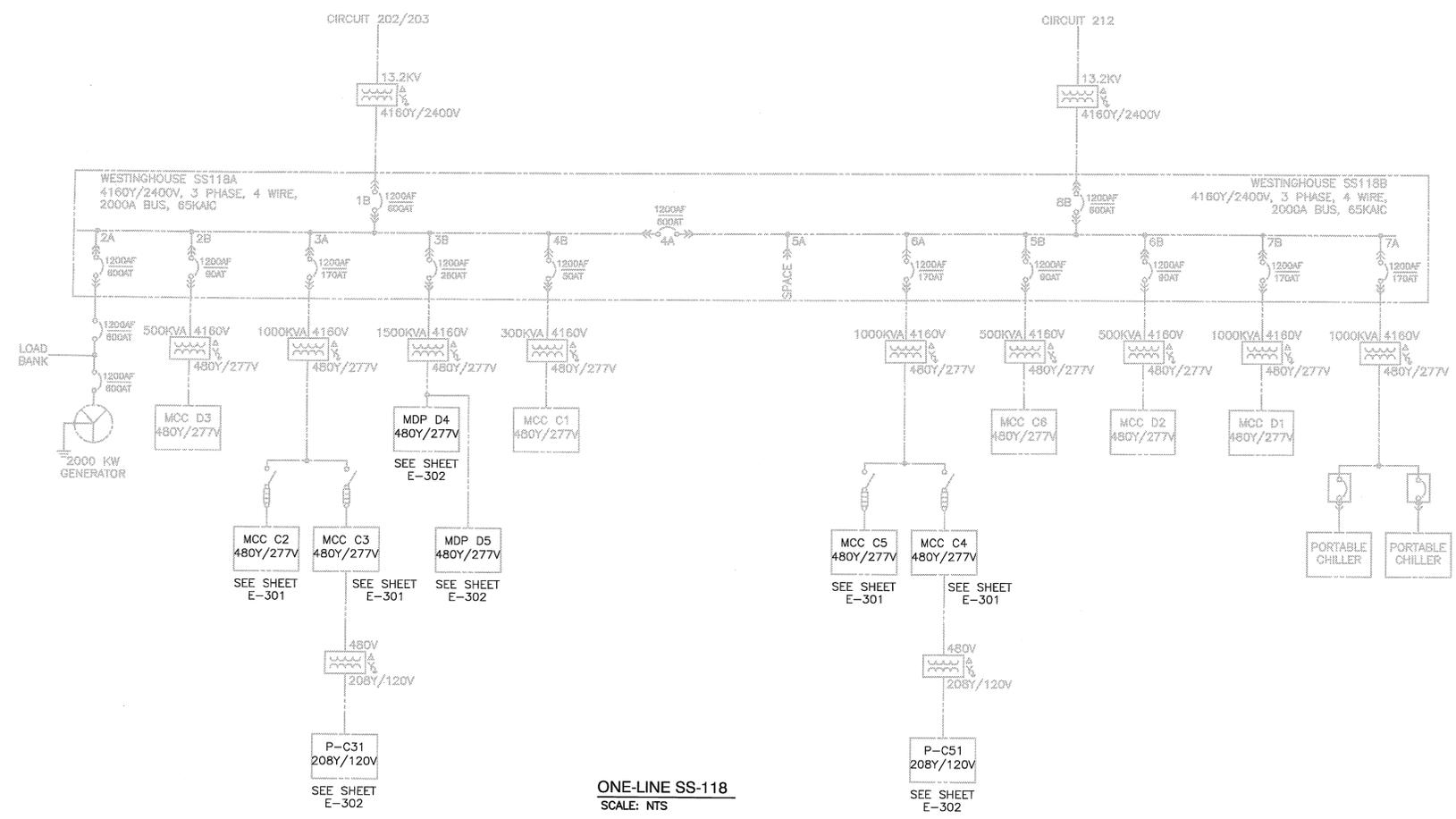


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		SPACE STATION PROCESSING FACILITY REPLACE AIR HANDLING UNITS BIO PACKAGE 1		
		ONE-LINE		
		FILE NO.	SIZE	DWG. NO.
		PROJ. NO.	PCN	98946.1
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CHECKED	WEBER	DATE	5-23-12	
SUBMITTED	DANIEL L. POHNERT	DATE	5-23-12	
ST OF LICENSE:	FL	DATE	5-23-12	
LICENSE #:	36867	DATE	5-23-12	
APPROVED	SCOTT HUNT	DATE	5-23-12	
APPROVED		NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA SPACE STATION AIR PROCESSING FACILITY REPLACE AIR HANDLING UNITS BID PACKAGE 1 ONE-LINE		
FILE NO.	SIZE	DWG. NO.	79K39148	REV
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