PURCHASING DEPARTMENT
DIVISION OF BUDGET & FINANCE

100 West Washington Street, Room 3200 | Hagerstown, MD 21740-4748 | P: 240.313.2330 | F: 240.313.2331
www.washco-md.net

PUR-1340
ADDENDUM NO. 1
INVITATION TO BID

HEATING, VENTILATION, AND AIR CONDITIONING EQUIPMENT UPGRADE AT DEPARTMENT OF WATER QUALITY ADMINISTRATION BUILDING

DATE: Friday, March 24, 2017 **BIDS DUE: Wednesday, March 29, 2017 2:00 P.M.**

To Bidders:

This Addendum is hereby made a part of the Contract Documents on which all bids will be based and is issued to correct and clarify the original documents.

Please acknowledge receipt of this Addendum at the appropriate space on the Proposal Form. This Addendum consists of two (2) pages, a *Revised* Scope of Work/Specifications, a *Revised* Form of Proposal, and one (1) attachment consisting of 5 drawing sheets.

NOTE: All Bidders must enter the Washington County Administration Complex through either the front door at the 100 West Washington Street entrance or through the rear entrance (w/blue canopy roof) which is handicap accessible, and must use the elevator to access the Purchasing Department to submit their proposal and/or to attend the Pre-Proposal Conference. Alternate routes are controlled by a door access system. Washington County Government has announced new security protocols being implemented at the Washington County Administration Complex at 100 West Washington Street, Hagerstown. The new measures took effect Tuesday, February 14, 2017. The general public will be subject to wand search and will be required to remove any unauthorized items from the building prior to entry. Prohibited items include, but are not limited to: Weapons of any type; Firearms, ammunition and explosive devices; Cutting instruments of any type - including knives, scissors, box cutters, work tools, knitting needles, or anything with a cutting edge, etc.; Pepper spray, mace or any other chemical defense sprays; and Illegal substances.

ITEM NO. 1: *Inquiry*: Have there been any dwgs released or are there any available for PUR-1340 - HVAC Upgrade at Department of Water Quality Administration Building?

Response: Yes, see the *"PDF"* drawings attached to this Addendum. The drawings are not to scale and are being provided for informational purposes only.

***(NOTE:** The wording of all "Inquiries" submitted are displayed exactly as received.)*

ITEM NO. 2: *Conference Inquiry*: Is it the Bidders' responsibility to purchase the pipping along with the equipment?

Response: Yes.

ITEM NO. 3: *Conference Inquiry*: Is it listed as to how many feet of tubing are needed?

Response: Yes, refer to the bid document, Page 28, Form of Proposal, Item No. 13.

ITEM NO. 4: *Conference Inquiry*: Are all of the accessories, pieces, and components spelled out in the document (ex. baffles, condensers and evaporates)?

Response: Yes, refer to the bid document, Pages 27 & 28, Form of Proposal.

ITEM NO. 5: *Conference Inquiry*: Is it a simultaneous or independent cooling/heating?

Response: It is an independent cooling/heating.

ITEM NO. 6: *Conference Inquiry*: How are the bids to be submitted, electronically or hand delivered?

Response: Bids cannot be submitted electronically; they must be hand delivered or mailed to the Washington County Purchasing Office no later than the bid submission deadline of 2:00 P.M. on Wednesday, March 29, 2017.

BY AUTHORITY OF:

Karen R. Luther

Karen R. Luther, CPPO
Director of Purchasing

***(NOTE:** The wording of all "Inquiries" submitted are displayed exactly as received.)*

PUR-1340
HEATING, VENTILATION, AND AIR CONDITIONING UPGRADE AT DEPARTMENT OF WATER QUALITY ADMINISTRATION BUILDING

SCOPE OF WORK / SPECIFICATIONS
(Complete and Submit with Form of Proposal)

	ONE (1) MULTI VRF SYSTEM	Remarks / Exception
1	PAC-YT53CRAU: Simple MA Controller	
2	PURY-HP192TSKMU-A-H: Hyper-Heat R2 Series Outdoor Unit	
3	PURY-HP96TKMU-A-H: Hyper-Heat R2 Series Outdoor Unit	
4	CMB-P1016NU-GA1: BC Controller Main	
5	CMB-P108NU-GB1: BC Controller Sub	
6	CMB-P106NU-G: BC Controller Single	
7	PLFY-P08NCMU-ER4: Ceiling Cassette (4-way airflow) Type Indoor Unit	
8	PLFY-P12NCMU-ER4: Ceiling Cassette (4-way airflow) Type Indoor Unit	
9	PVFY-P54NAMU-E: Vertical Type Indoor Unit	
10	AE-200: System Remote Controller	
11	3/8” Ball Valves	
12	5/8” Ball Valves	
13	Pre-Insulated Linesets	
14	**Two (2) air baffles to allow for operation of condensing air unit at low ambient temperatures**	
15	Start-up	

_____
Bidder’s Name

PUR-1340

HEATING, VENTILATION, AND AIR CONDITIONING EQUIPMENT UPGRADE AT DEPARTMENT OF WATER QUALITY ADMINISTRATION BUILDING

FORM OF PROPOSAL

Item No.	One (1) Multi VRF System	Unit of Measure	Quantity	Unit Price / Each	Total Price
1	PAC-YT53CRAU: Simple MA Controller	EA	26	$ _____	$ _____
2	PURY-HP192TSKMU-A-H: Hyper-Heat R2 Series Outdoor Unit	EA	1	$ _____	$ _____
3	PURY-HP96TKMU-A-H: Hyper-Heat R2 Series Outdoor Unit	EA	1	$ _____	$ _____
4	CMB-P1016NU-GA1: BC Controller Main	EA	1	$ _____	$ _____
5	CMB-P108NU-GB1: BC Controller Sub	EA	1	$ _____	$ _____
6	CMB-P106NU-G: BC Controller Single	EA	1	$ _____	$ _____
7	PLFY-P08NCMU-ER4: Ceiling Cassette (4-way airflow) Type Indoor Unit	EA	23	$ _____	$ _____
8	PLFY-P12NCMU-ER4: Ceiling Cassette (4-way airflow) Type Indoor Unit	EA	4	$ _____	$ _____
9	PVFY-P54NAMU-E: Vertical Type Indoor Unit	EA	1	$ _____	$ _____

_____
Bidder's Name

Item No.	One (1) Multi VRF System	Unit of Measure	Quantity	Unit Price / Each	Total Price
10	AE-200: System Remote Controller	EA	1	$ _____	$ _____
11	3/8” Ball Valves	EA	30	$ _____	$ _____
12	5/8” Ball Valves	EA	30	$ _____	$ _____
13	Pre-Insulated Linesets	EA	28	$ _____	$ _____
14	**Air baffles**	**EA**	**2**	$ _____	$ _____
15	Start-up	Lump Sum		**N/A**	$ _____
TOTAL SUM BID PRICE *(for items 1 through 15)*				$ _____	

MAKE AND MODEL: _____

REMARKS / EXCEPTIONS:

_____

_____

_____

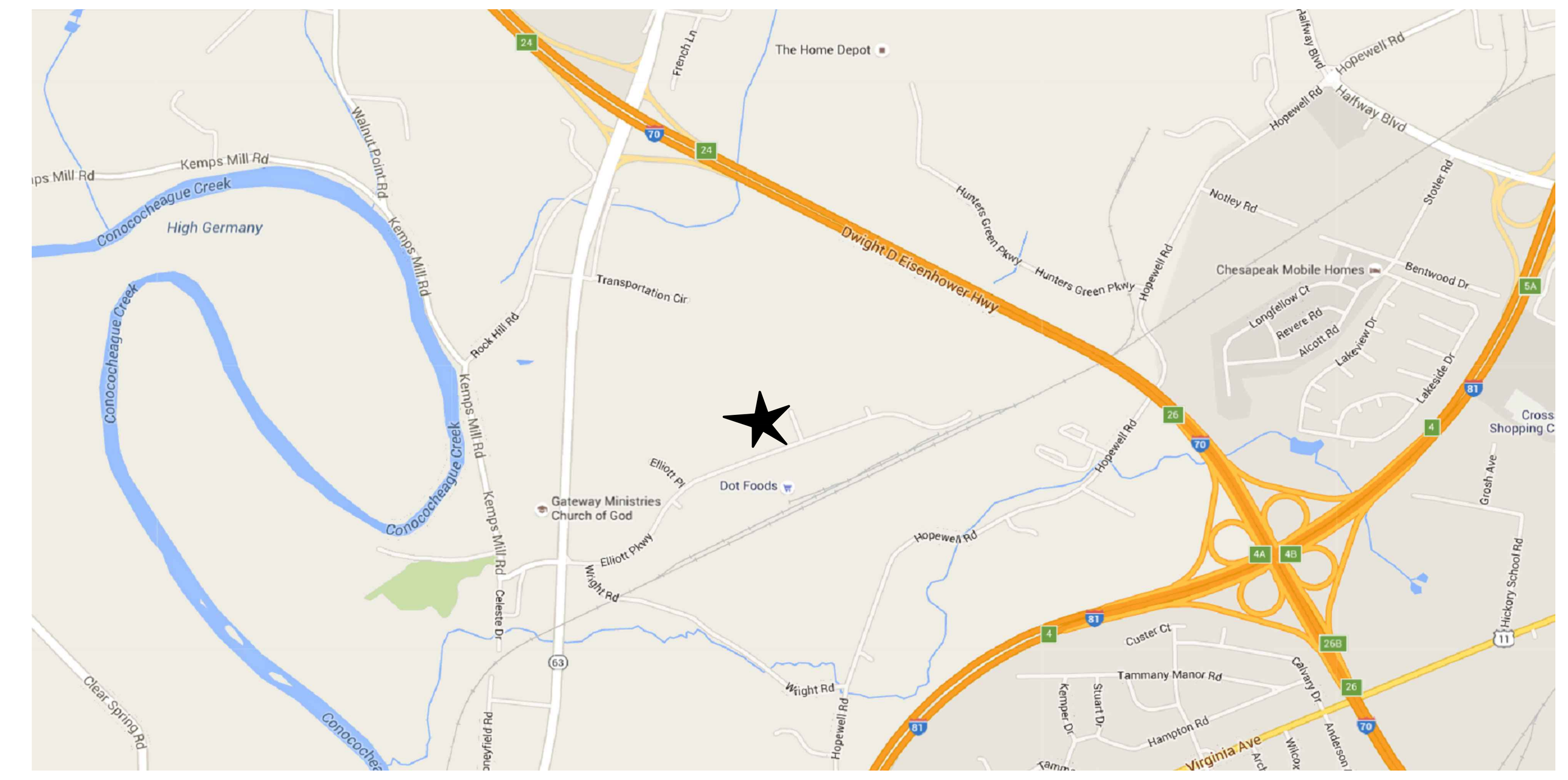
_____

_____
Bidder’s Name

WASHINGTON COUNTY WATER QUALITY GENERAL OFFICE

HVAC UPGRADE PROJECT

WILLIAMSPORT, MD 21795



VICINITY MAP
NOT TO SCALE

PROJECT DESCRIPTION AND SCOPE OF WORK SUMMARY

THE FOLLOWING IS A SUMMARY OF THE NATURE AND INTENT OF THE WORK, IT INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

1) REMOVAL OF EXISTING SPLIT SYSTEM HVAC SYSTEMS IN ENTIRETY

2) INSTALLATION OF A NEW VARIABLE REFRIGERANT HEAT PUMP SYSTEMS FOR THE ENTIRE AREA.

3) ELECTRICAL FEEDERS, AND OTHER ITEMS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM.

4) STRUCTURAL MODIFICATIONS AS REQUIRED TO SUPPORT NEW HVAC SYSTEMS.

5) INCIDENTAL FINISHES, ACOUSTICAL CEILINGS, DRYWALL, CUTTING/PATCHING/PAINTING AS REQUIRED TO INSTALL AND CONCEAL NEW HVAC SYSTEMS.

6) REFER TO MITSUBISHI HVAC EQUIPMENT LITERATURE FOR MORE DETAILS AND REQUIREMENTS.

DRAWING LIST

15-054

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2275 RESEARCH BLVD., SUITE 500, ROCKVILLE, MD 20850

WATER QUALITY CENTRAL OFFICES
HVAC UPGRADE
WILLIAMSPORT, MD

PROJECT COVER SHEET

Professional Certification
I certify that these documents were prepared or approved by me, and that I am a duly licensed engineer under the laws of the State of Maryland
License Number: 14401
Expiration Date: 4/21/2017

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LESLIE SCOTT GRIM, P.E.

MD PROF. ENGINEER NO. 14401
VA PROF. ENGINEER NO. 023240
WV PROF. ENGINEER NO. 10764
DC PROF. ENGINEER NO. PE901201
PA PROF. ENGINEER NO. PE032636E
NJ PROF. ENGINEER NO. 39497
NY PROF. ENGINEER NO. 075414
GA PROF. ENGINEER NO. PE032582
NC PROF. ENGINEER NO. 033364
HI PROF. ENGINEER NO. PE13943

ISSUED:
95% PROGRESS PRINT
2-25-15 FOR REVIEW
3-7-2016 PERMIT SET

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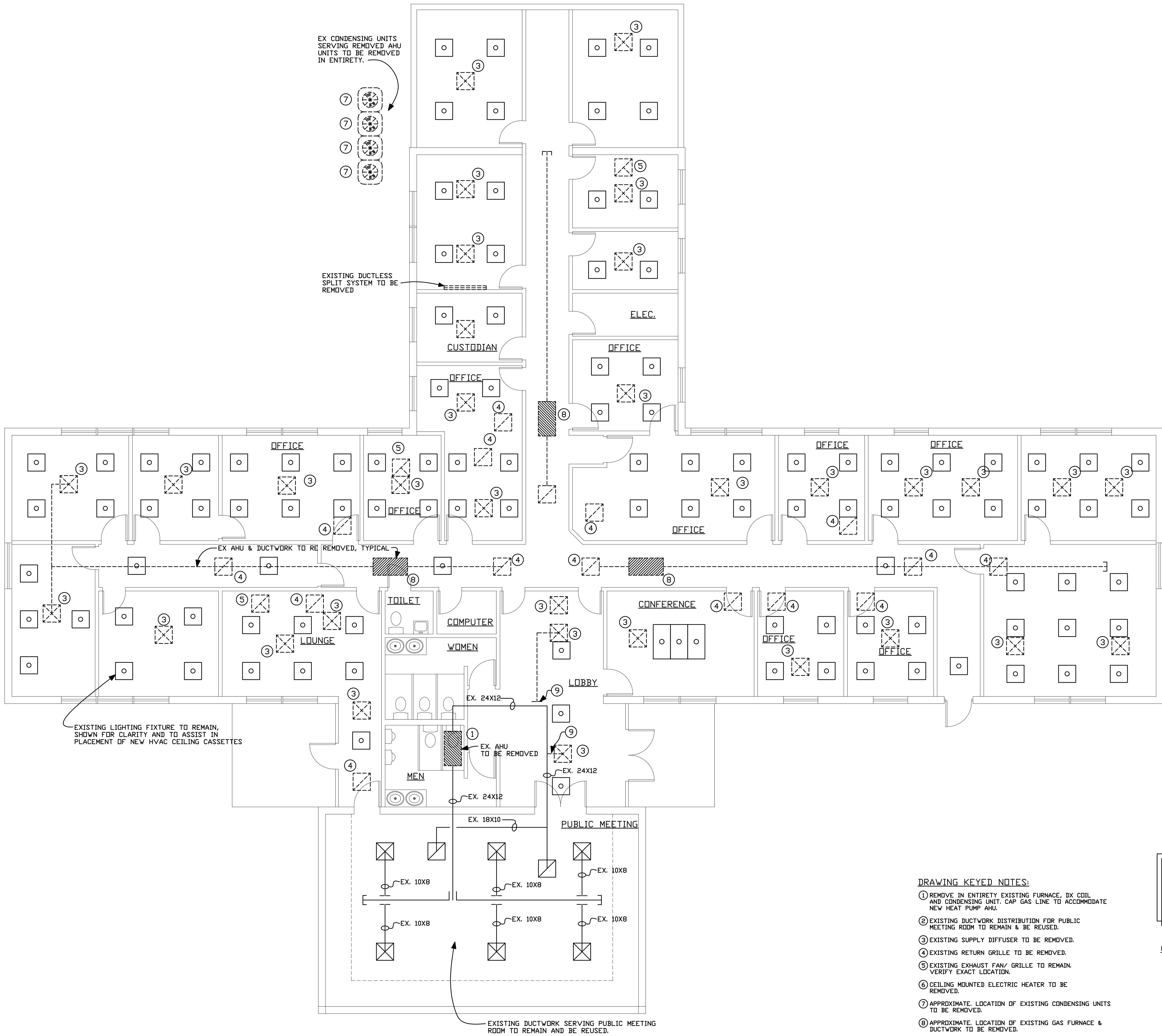
C-1.0
OF 5 SHEETS
DATE: MARCH 7, 2016



MECHANICAL DEMOLITION PLAN

SCALE: 3/16"=1'-0"

DRAWING KEYED NOTES:

1. REMOVE IN ENTIRETY EXISTING FURNACE, DX COIL AND CONDENSING UNIT. CAP GAS LINE TO ACCOMMODATE NEW HEAT PUMP AHU.
2. EXISTING DUCTWORK DISTRIBUTION FOR PUBLIC MEETING ROOM TO REMAIN & BE REUSED.
3. EXISTING SUPPLY DIFFUSER TO BE REMOVED.
4. EXISTING RETURN GRILLE TO BE REMOVED.
5. EXISTING EXHAUST FAN/ GRILLE TO REMAIN. VERIFY EXACT LOCATION.
6. CEILING MOUNTED ELECTRIC HEATER TO BE REMOVED.
7. APPROXIMATE. LOCATION OF EXISTING CONDENSING UNITS TO BE REMOVED.
8. APPROXIMATE. LOCATION OF EXISTING GAS FURNACE & DUCTWORK TO BE REMOVED.
9. REMOVE BRANCH RUN-OUT & CAP MAIN W/ SHEET METAL AND SEAL.

SCOPE OF WORK (SOW) AND BASIS OF DESIGN

1) THE PROJECT CONSIST OF REMOVAL OF EXISTING HVAC EQUIPMENT IN ENTIRETY AND REPLACE WITH NEW METERED REFRIGERANT HVAC SYSTEMS.

2) SELECTIVE DEMOLITION AND ELECTRICAL WORK TO ACCOMMODATE THE NEW SYSTEMS.

GENERAL NOTES:

1) THE CONTRACTOR SHALL REMOVE ANY EXISTING DUCTWORK DIFFUSERS/ GRILLES NOT RETAINED BY THE NEW WORK.

2) CONTRACTOR SHALL PROVIDE NEW CEILING TILES TO MATCH EXISTING AS REQUIRED WHERE GRILLES & DIFFUSERS ARE REMOVED.

3) ALL GRILLES/ DIFFUSER/ LIGHT LOCATION ARE APPROXIMATE AND CONTRACTOR SHALL SHIFT EQUIPMENT AS REQUIRED TO CLEAR EXISTING LIGHTS/ SPRINKLERS, ETC.

4) EXISTING EXHAUST FANS/ DUCTWORK AND GRILLES TO REMAIN, VERIFY LOCATION IN FIELD.

5) CONTRACTOR SHALL REMOVE POWER CIRCUITS BACK TO PANEL FOR ANY REMOVED HVAC EQUIPMENT.

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WATER QUALITY CENTRAL OFFICES
HVAC UPGRADE
WILLIAMSPORT, MD

MECHANICAL DEMOLITION PLAN

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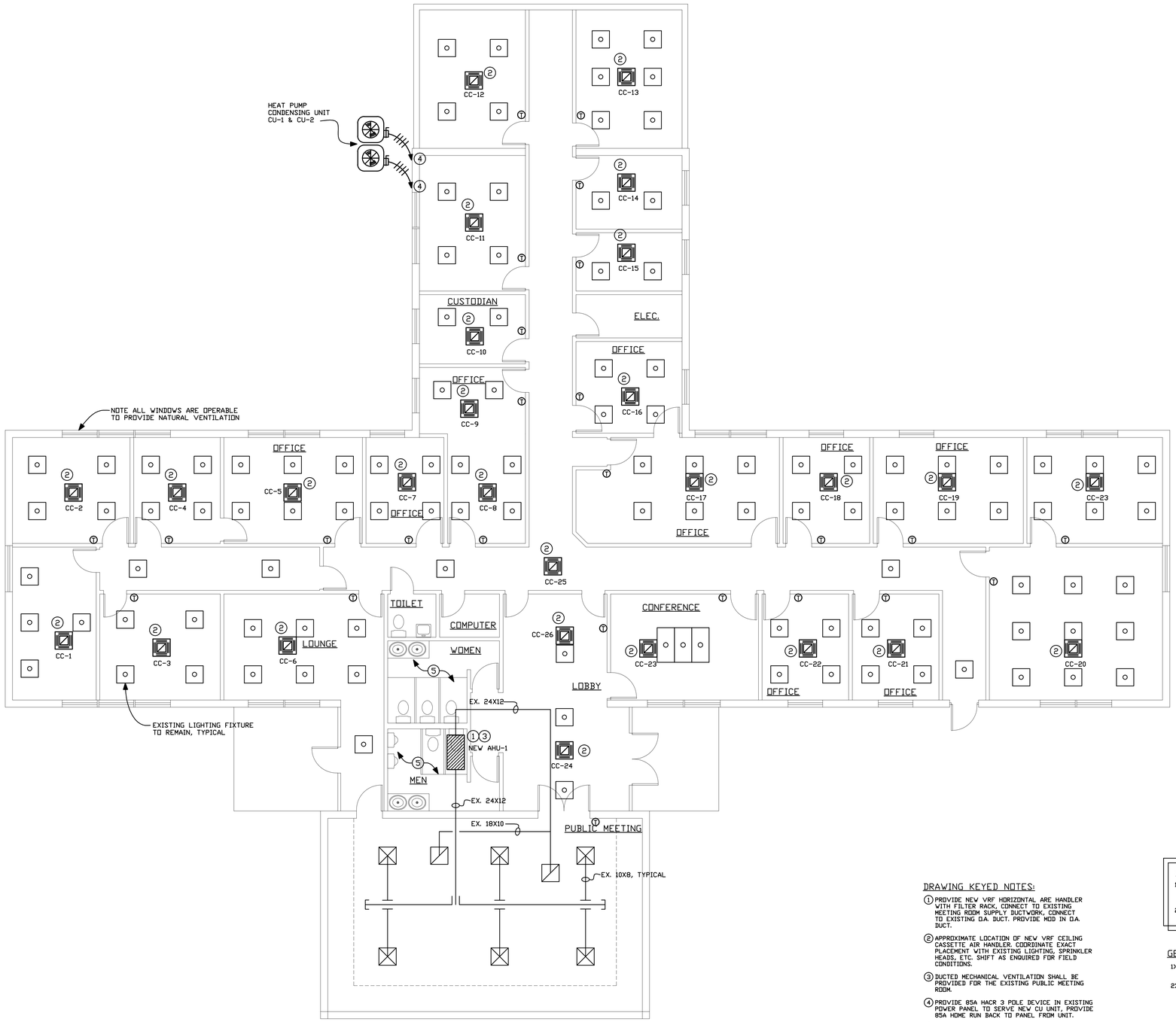
M-1.1
OF 5 SHEETS
DATE: MARCH 7, 2016



MECHANICAL NEW WORK PLAN

SCALE: 3/16"=1'-0"

DRAWING KEYED NOTES:

1. PROVIDE NEW VRF HORIZONTAL ARE HANDLER WITH FILTER RACK, CONNECT TO EXISTING MEETING ROOM SUPPLY DUCTWORK, CONNECT TO EXISTING D.A. DUCT. PROVIDE MOD IN D.A. DUCT.
2. APPROXIMATE LOCATION OF NEW VRF CEILING CASSETTE AIR HANDLER. COORDINATE EXACT PLACEMENT WITH EXISTING LIGHTING, SPRINKLER HEADS, ETC. SHIFT AS ENQUIRED FOR FIELD CONDITIONS.
3. DUCTED MECHANICAL VENTILATION SHALL BE PROVIDED FOR THE EXISTING PUBLIC MEETING ROOM.
4. PROVIDE 85A HACR 3 POLE DEVICE IN EXISTING POWER PANEL TO SERVE NEW CU UNIT, PROVIDE 85A HOME RUN BACK TO PANEL FROM UNIT.
5. EXHAUST FANS AND ELECTRIC HEATERS IN TOILET ROOMS SHALL REMAIN. NO WORK IN THIS AREA.

SCOPE OF WORK (SOW) AND BASIS OF DESIGN

1) THE PROJECT CONSIST OF REMOVAL OF EXISTING HVAC EQUIPMENT IN ENTIRETY AND REPLACE WITH NEW METERED REFRIGERANT HVAC SYSTEMS.

2) SELECTIVE DEMOLITION AND ELECTRICAL WORK TO ACCOMMODATE THE NEW SYSTEMS.

GENERAL NOTES:

1) PROVIDE A NEW T-STAT FOR EACH SPACE/ SYSTEM

2) CEILING CASSETTES UNITS ARE POWERED FROM ITS RESPECTIVE CONDENSING UNITS.

15-054

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WATER QUALITY CENTRAL OFFICES
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MECHANICAL NEW WORK PLAN

Professional Certification

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HI PROF. ENGINEER NO. PE13943

ISSUED:
75% PROGRESS SET
2-25-16 FOR REVIEW
3-7-2016 PERMIT SET

DRAWN BY: LSG

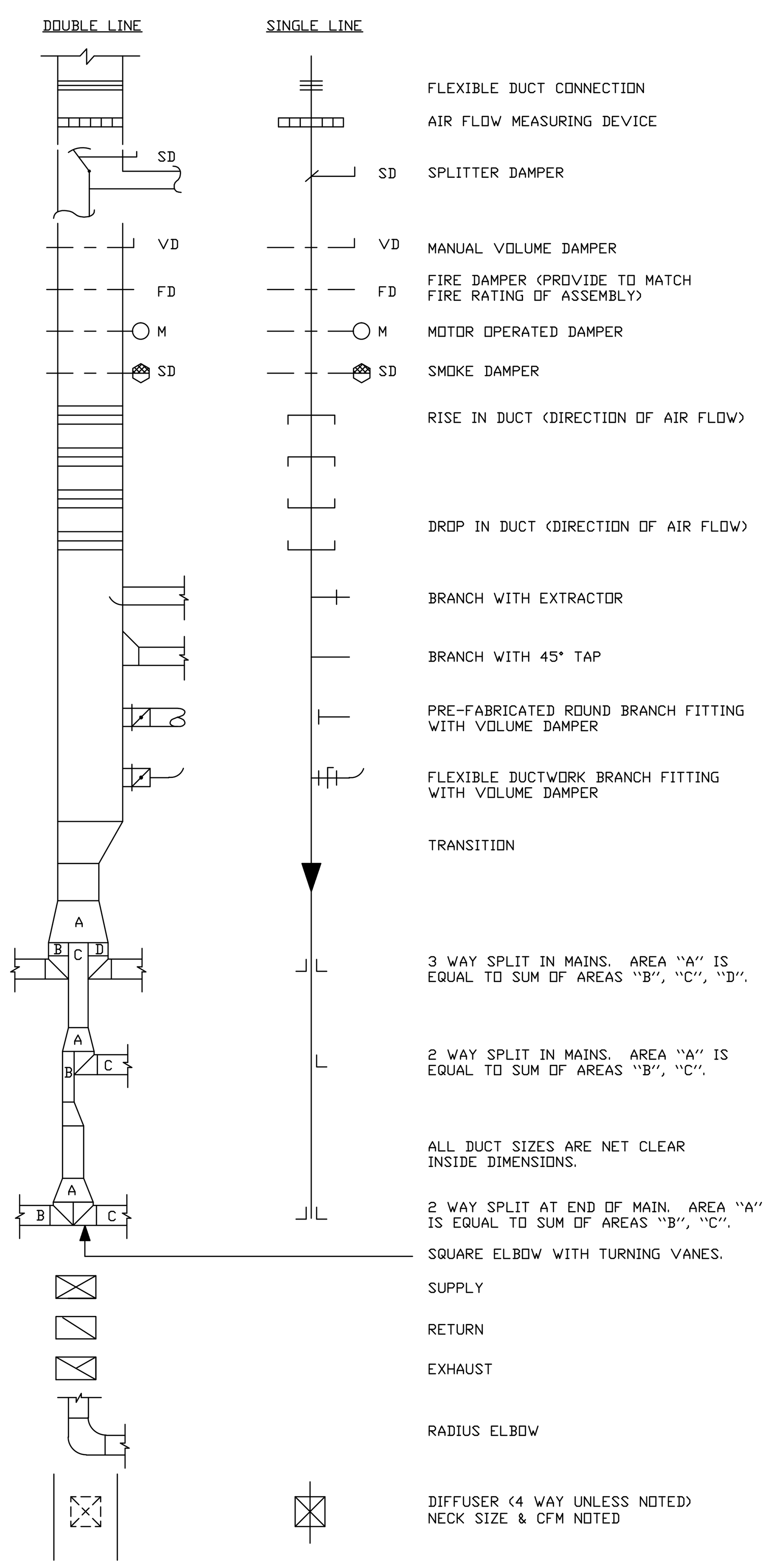
M-1.2
OF 5 SHEETS
DATE: MARCH 7, 2016

VRF - AIR HANDLING UNIT SCHEDULE

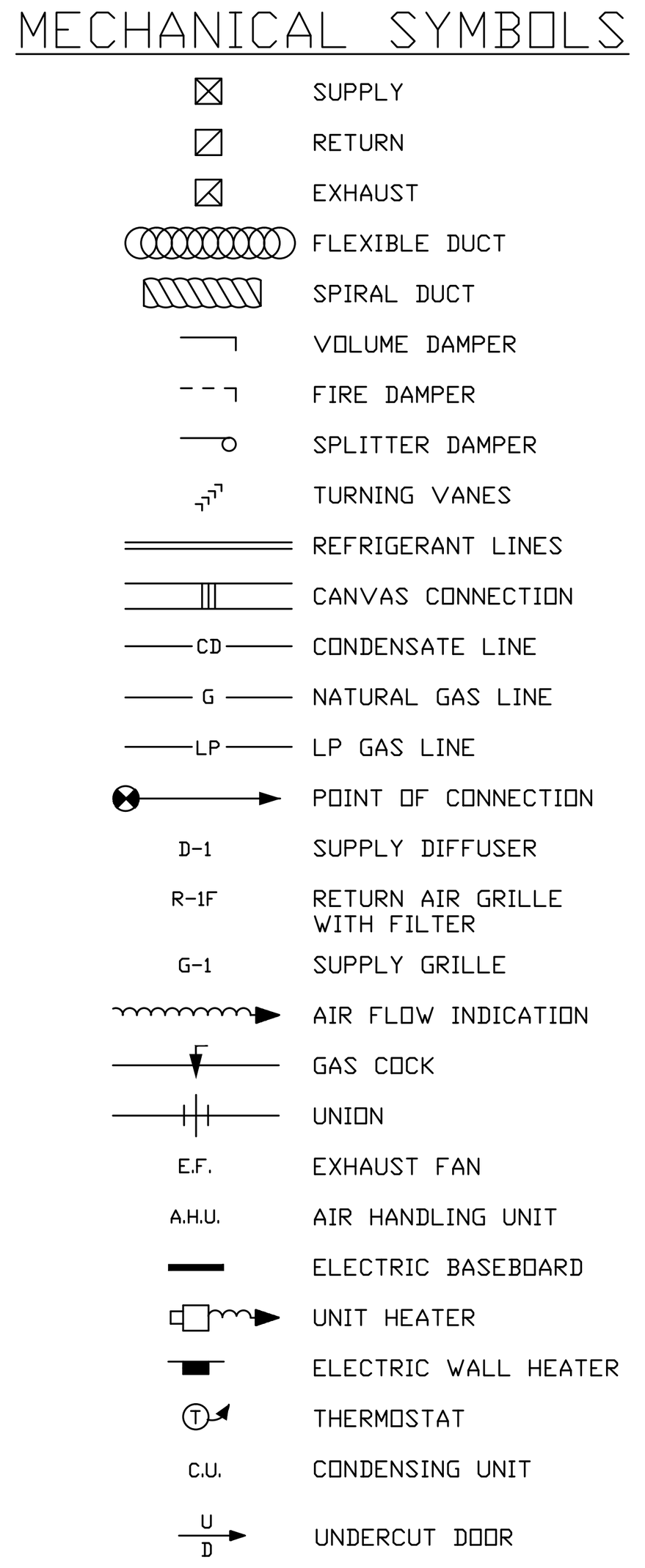
MARK	CFM	SP	VOLTS	COOLING CAPACITY	HEATING CAPACITY	MANUFACTURER & MODEL#
AHU-1 MEETING ROOM	1585	0.50	208V	54 MBH	60 MBH	MITSUBISHI #PVFY-D54E00B
CC-1	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-2	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-3	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-4	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-5	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-6	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-7	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-8	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-9	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-10	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-11	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-12	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-13	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-14	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-15	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-16	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-17	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-18	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-19	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-20	388	N/A	208V	10 MBH	12 MBH	MITSUBISHI #PLFY-NCMU
CC-21	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-22	388	N/A	208V	8 MBH	8 MBH	MITSUBISHI #PLFY-NCMU
CC-23	388	N/A	208V	12 MBH	12 MBH	MITSUBISHI #PLFY-NCMU
CC-24	388	N/A	208V	10 MBH	10 MBH	MITSUBISHI #PLFY-NCMU
CC-25	388	N/A	208V	12 MBH	12 MBH	MITSUBISHI #PLFY-NCMU
CC-26	388	N/A	208V	12 MBH	12 MBH	MITSUBISHI #PLFY-NCMU

CONDENSING UNIT SCHEDULE

MARK	COOLING CAPACITY	VOLTS	MAXIMUM FUSE	MINIMUM CIRCUIT	MANUFACTURER & MODEL #
CU-1	20 TON	208V 3Ø	2@ 85A	2@ 70A	MITSUBISHI #PURY-P240TSKMU-A



MECHANICAL SYMBOLS



GENERAL MECHANICAL NOTES:

1. FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SERVICE NECESSARY AND INCIDENTAL TO INSTALL ALL MECHANICAL/PLUMBING WORK AND RELATED SYSTEMS AS SHOWN ON DRAWINGS AND INDICATED IN THE SPECIFICATIONS OR NECESSARY TO PROVIDE A FINISHED INSTALLATION. THE FINISHED INSTALLATION SHALL BE IN PERFECT WORKING CONDITION AND READY FOR CONTINUOUS AND SATISFACTORY OPERATION.
2. ALL EQUIPMENT AND MATERIAL FURNISHED SHALL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIAL. ALL EQUIPMENT AND MATERIALS SHALL MEET THE REQUIREMENTS OF ALL CODES AND STANDARDS OF LOCAL AND STATE AGENCIES HAVING JURISDICTION.
3. WHERE A SUBCONTRACTOR PROPOSES TO USE AN ITEM OF EQUIPMENT OTHER THAN THE SPECIFIED OR DETAILED ITEM ON THE DRAWINGS THAT IS APPROVED BY THE ENGINEER AND THAT REQUIRES REDESIGN OF THE STRUCTURE, PARTITIONS, FOUNDATIONS, PIPING, WIRING, OR ANY OTHER PART OF THE MECHANICAL, ELECTRICAL, OR ARCHITECTURAL LAYOUT, THEN SUCH REDESIGN, NEW DRAWINGS, AND DETAILING REQUIRED FOR IT SHALL BE PREPARED BY THE SUBCONTRACTOR WITHOUT EXTRA COMPENSATION.
4. THE CONTRACTOR'S SUBMITTAL INDICATES HIS/HER UNDERSTANDING AND APPROVAL OF THE SUBMITTED ITEM FOR ITS INTENDED USE. THE CONTRACTOR'S SUBMITTAL INDICATES THAT HE/SHE IS COMPLYING WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOTE ON THE SUBMITTAL ANY DEVIATIONS WITH THE CONTRACT DOCUMENTS.
5. THE SUBMITTAL WHICH HAS BEEN REVIEWED BY THE ENGINEER, WITH OR WITHOUT COMMENTS, DOES NOT RELIEVE THE CONTRACTOR FROM THE REQUIREMENTS OF COMPLYING WITH THE CONTRACT DOCUMENTS. ONLY SUBMITTALS WHICH EXPLICITLY REQUEST THE ENGINEER TO REVIEW DEVIATIONS WITH THE CONTRACT DOCUMENTS RELIEVE THE CONTRACTOR FROM THE SPECIFIC ITEM OF COMPLIANCE.
6. THE LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE, AND ARE TO SERVE AS A GUIDE FOR THE INSTALLATION. THE SHIFTING OF LOCATIONS TO MEET CONDITIONS (BEFORE INSTALL-ATION) WILL BE EXPECTED, AND THIS SHALL BE DONE AT NO INCREASED COST.
7. THE CONTRACTOR SHALL COORDINATE THE MECHANICAL WORK AND EQUIPMENT WITH THE WORK TO BE PERFORMED AND THE EQUIPMENT TO BE PROVIDED UNDER OTHER DIVISIONS OF THIS SPECIFICATION.
8. IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO INFORM THE ELECTRICAL CONTRACTOR AS REGARDS TO THE EXACT SERVICE REQUIREMENTS OF EACH PIECE OF MECHANICAL EQUIPMENT.
9. RENOVATION WORK: FOR RENOVATION WORK THE CONTRACTOR SHALL VISIT THE EXISTING FACILITY AND NOTE THE EXISTING CONDITIONS AND JOB SITE LIMITATIONS, PRIOR TO BIDDING.
10. FOR PURPOSES OF CLEARNESS AND LEGIBILITY, MECHANICAL DRAWINGS ARE ESSENTIALLY DIAGRAM-MATIC AND INDICATE ONLY SIZES, CONNECTION POINTS, AND ROUTES. IT IS NOT INTENDED OR IMPLIED THAT ALL OFFSETS, RISES, AND DROPS ARE AS SHOWN.
11. ALL SUPPLY AND RETURN DUCTWORK SHALL BE INSULATED SHEET METAL UNLESS NOTED OTHERWISE. SEE SPECIFICATIONS FOR SIZE AND TYPE. ALL DUCTWORK SHALL BE SEALED WITH A MASTIC SEALER.
12. FABRICATE AND INSTALL DUCTWORK AND ACCESSORIES IN ACCORDANCE WITH ASHRAE GUIDE AND SMACNA DUCT MANUAL. VISIT AND MEASURE THE EXISTING CONDITIONS PRIOR TO FABRICATION OF DUCTWORK. ALL TRUNK DUCTS LARGER THAN 12" IN ANY DIRECTION SHALL UTILIZE "DUCTMATE" OR EQUAL GASKETED JOINTS.
13. PROVIDE HOLLOW-FORMED CURVED METAL TURNING VANES IN ALL RECTANGULAR ELBOWS.
14. PROVIDE FLEXIBLE CONNECTION AT FAN DISCHARGES AND INLETS AND AS OTHERWISE SHOWN. CONNECTIONS SHALL BE 0'6" LONG MINIMUM, HALF OF WHICH IS TO BE FLEXIBLE. CONNECTIONS SHALL BE REMOVABLE.
15. THE CONTRACTOR SHALL BALANCE THE SYSTEM IN ACCORDANCE WITH THE AIR VOLUMES AS SHOWN ON THE DRAWINGS AND MAKE OTHER MINOR ADJUSTMENTS AS DIRECTED.
16. PAINT OUT VISIBLE METAL INTERIOR OF SUPPLY AND RETURN DUCTS WITH FLAT BLACK SPRAY PAINT (TYPICAL).
17. LENGTH OF FLEXIBLE DUCT RUN OUTS ARE LIMITED TO 10 DUCT DIAMETERS.

VRF-HVAC EQUIPMENT NOTES:

1) PROVIDE MITSUBISHI #CMB-P10 BRANCH CONTROL BOX
2) PROVIDE MITSUBISHI #MA REMOTE WALL CONTROL
3) PROVIDE MITSUBISHI #AE-200E WALL MOUNTED SYSTEM CONTROLLER (WEB BASED)
4) PROVIDE REFRIGERATION BALL VALVE SETS
5) ALL SYSTEM COMPONENTS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS & PRACTICES

15-054

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WATER QUALITY CENTRAL OFFICES
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MECHANICAL SCHEDULE + NOTES

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ISSUED:
95% PROGRESS SET
2-25-16 FOR REVIEW
3-7-2016 PERMIT SET

DRAWN BY: LSG

DATE: MARCH 7, 2016

Water Quality Central Office

DIAGRAM SYMBOL LEGEND	
DISPLAY	DESCRIPTION
—///—	POWER WIRE
———	CONTROL WIRE
———	REF. PIPE

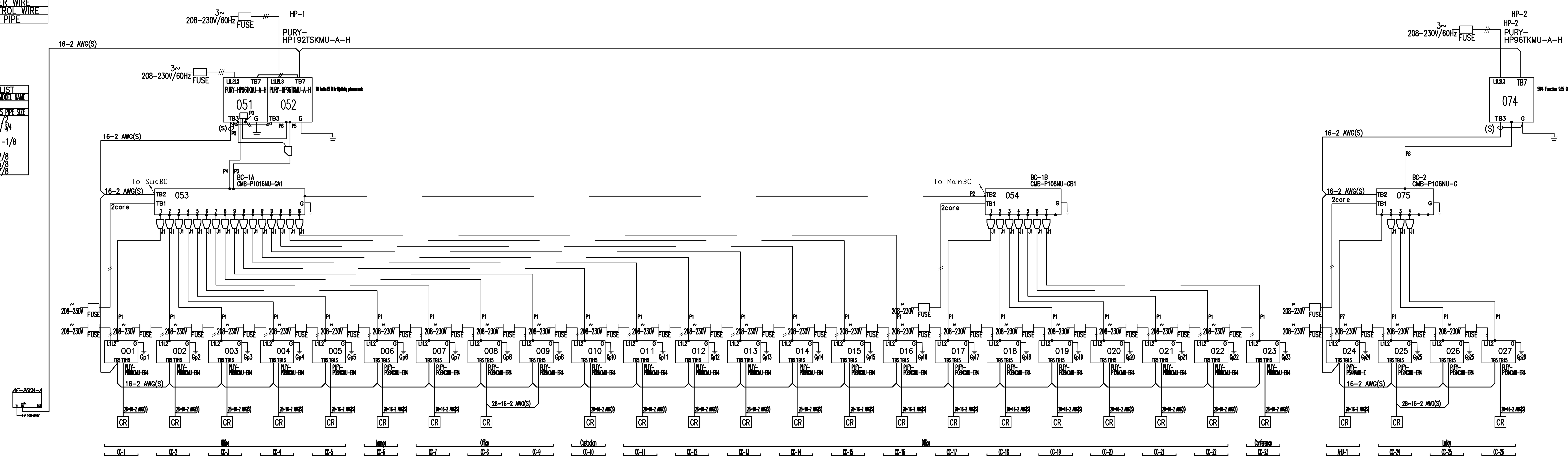
CONT.No		PAGE	

CITY MULTI

SYSTEM SCHEMATIC DWG.

Additional refrigerant charge is needed depending on the size and length of extended piping. Please refer the amount of pre-charge and the formula of calculation which is mentioned on the data book.
1.25mm²(16 AWG) : 1.25mm²(16 AWG) or more. 0.75mm²(20 AWG) : between 0.5mm²(24 AWG) and 0.75mm²(20 AWG).

PIPING LIST	
SYMBOL	BRANCH PIPE MODEL NAME
J1	Reducer
SYMBOL	LIQUID PIPE/GAS PIPE SIZE
P1	1/4 / 1/2
P2	3/8 / 5/8 / 3/4
P3	7/8 /
P4	/ 1-1/8
P5	3/4 /
P6	/ 7/8
P7	3/8 / 5/8
P8	3/4 / 7/8



REMARKS
Comments:

15-054

L.S. GRIM, INC.
Consulting Engineers

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19922 JEFFERSON BLVD., HAGERSTOWN, MD 21742-4367
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DC METRO OFFICE
2275 RESEARCH BLVD., SUITE 500, ROCKVILLE, MD 20850

WATER QUALITY CENTRAL OFFICES
HVAC UPGRADE
WILLIAMSPORT, MD

REFRIGERANT PIPING SCHEMATIC

Professional Certification
I certify that these documents were prepared or approved by me, and that I am a duly licensed engineer under the laws of the State of Maryland
License Number: 14401
Expiration Date: 4/21/2017

L.S. GRIM, INC. PRACTICES AS A CORPORATION IN: MARYLAND, PENNSYLVANIA, WEST VIRGINIA, AND DISTRICT OF COLUMBIA. LESLIE S. GRIM, P.E. PRACTICES AS AN INDIVIDUAL IN NEW YORK, VIRGINIA, AND NEW JERSEY.

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GA PROF. ENGINEER NO. PE032582
NC PROF. ENGINEER NO. 033364
HI PROF. ENGINEER NO. PE13943

ISSUED:
3-7-2016 PERMIT SET

DRAWN BY: LSG

M-2.1
OF 5 SHEETS
DATE: MARCH 7, 2016