


**CITYMULTI®** Model: CMB-P108NU-GA

Job Name: Charles Washington Hall  
Schedule Reference: \_\_\_\_\_ Date: 3/5/15

**BC-1,2**



**Indoor Unit Capacity**  
Connectable to one Branch  
• Model P54 or smaller  
• Use optional port connector combining two branches when the total unit capacity exceeds 55,000 Btu/h  
• Use the reducer (standard accessory) when an indoor unit of 18,000 Btu/h or smaller is connected

**Refrigerant** ..... R410A

**Refrigerant Piping Diameter**  
To Outdoor and Water-source Units  
P72  
High Pressure Pipe ..... 5/8" / 15.88 mm Braze  
Low Pressure Pipe ..... 3/4" / 19.05 mm Braze  
P96  
High Pressure Pipe ..... 3/4" / 19.05 mm Braze  
Low Pressure Pipe ..... 7/8" / 22.2 mm Braze  
P120  
High Pressure Pipe ..... 3/4" / 19.05 mm Braze  
Low Pressure Pipe ..... 1-1/8" / 28.58 mm Braze  
P144/P168/P192  
High Pressure Pipe ..... 7/8" / 22.2 mm Braze  
Low Pressure Pipe ..... 1-1/8" / 28.58 mm Braze  
P216/P240  
High Pressure Pipe ..... 1-1/8" / 28.58 mm Braze  
Low Pressure Pipe ..... 1-1/8" / 28.58 mm Braze

To Indoor Unit  
Liquid Pipe ..... 3/8" / 9.52 mm Flare  
Gas Pipe ..... (1/4" / 6.35 mm with attached reducer used) / (1/2" / 12.7 mm with attached reducer used, 3/4" / 19.05 mm and 7/8" / 22.2 mm with optional port connector used)

To Sub BC Controller  
Total indoor unit capacity ≤ 72,000 Btu/h  
High Pressure Pipe ..... 5/8" / 15.88 mm Braze  
Low Pressure Pipe ..... 3/4" / 19.05 mm Braze  
Liquid Pipe ..... 3/8" / 9.52 mm Braze  
Total indoor unit capacity between 73,000 to 108,000 Btu/h connected to this Sub BC Controller  
High Pressure Pipe ..... 3/4" / 19.05 mm Braze  
Low Pressure Pipe ..... 7/8" / 22.2 mm Braze  
Liquid Pipe ..... 3/8" / 9.52 mm Braze  
Total indoor unit capacity between 109,000 to 126,000 Btu/h  
High Pressure Pipe ..... 3/4" / 19.05 mm Braze  
Low Pressure Pipe ..... 1-1/8" / 28.58 mm Braze  
Liquid Pipe ..... 1/2" / 12.7 mm Braze  
Drainpipe ..... O.D. 1-1/4" / 32 mm

**MAIN BC CONTROLLER FEATURES**

- Used with R2-Series and WR2-Series outdoor units only
- Each branch supports 54,000 Btu/h or less
- Reducers are included for indoor units 18,000 Btu/h or less
- Option of connecting up to two Sub (-GB) BC Controllers

**OPTIONS**

- Joint Adapter (Port Connector).....CMY-R160C-J
- Branch Joint (T-Branch).....CMY-Y102SS-G2
- Condensate Pump (BlueDiamond).....X87-721
- Condensate Pump (Sauermann).....S13100-230
- Ball Valve (3/8" SAE Flare).....BV38FFS12
- Ball Valve (5/8" SAE Flare).....BV58FFS12
- Sub BC Controller.....CMB-1018NU-HB\*
- Sub BC Controller.....CMB-P104NU-GB\*
- Sub BC Controller.....CMB-P108NU-GB\*

\*See Submittal for information on each option.

**SPECIFICATIONS**

**Power**  
Power Source ..... 208 / 230V, 1 phase, 60Hz  
Power Input  
Cooling ..... 0.112 kW  
Heating ..... 0.053 kW  
Current  
Cooling (208 / 230) ..... 0.54 / 0.49 A  
Heating (208 / 230) ..... 0.25 / 0.23 A  
Minimum Circuit Ampacity (MCA) ..... 0.68 / 0.61 A  
Maximum Overcurrent Protection (MOCP) ..... 15 A

**External Finish** ..... Galvanized Steel Plate  
Lower Drain Pan: Pre-coated Galvanized Sheets with Powder Coating

**External Dimensions**  
Inches ..... 11-7/16 h x 43-3/4 w x 20-1/2 d  
mm ..... 289 h x 1,110 w x 520 d

**Net Weight** ..... 122 lbs. / 55 kg

**Number of Branches** ..... 8

Notes: \_\_\_\_\_

Specifications are subject to change without notice.  
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Charles Washington Hall

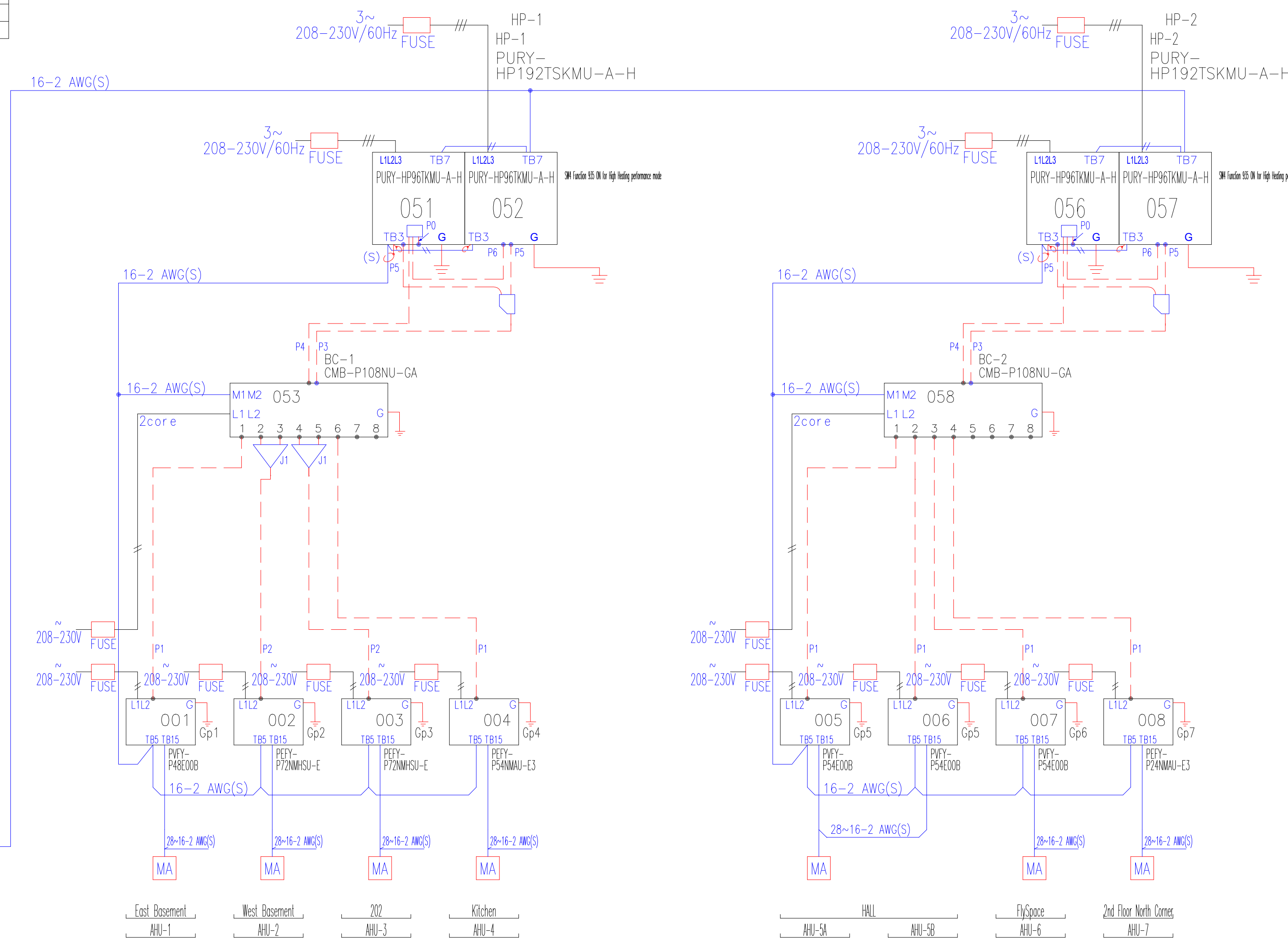
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CITY MULTI SYSTEM SCHEMATIC DWG.

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.  
1.25mm<sup>2</sup>(16 AWG) : 1.25mm<sup>2</sup>(16 AWG) or more. 0.75mm<sup>2</sup>(20 AWG) : between 0.5mm<sup>2</sup>(24 AWG) and 0.75mm<sup>2</sup>(20 AWG).


**PIPING LIST**

SYMBOL	BRANCH	PIPE MODEL	NAME
J1	CMY-R160C-J		
SYMBOL	LIQUID PIPE/GAS PIPE SIZE		
P1	3/8" / 5/8"		
P2	3/8" / 3/4"		
P3	7/8"		
P4	1-1/8"		
P5	3/4"		
P6	1/8"		



**CITYMULTI®** Model: AE-200A

Job Name: Charles Washington Hall  
Schedule Reference: \_\_\_\_\_ Date: 3/5/15



**AE-200A Centralized Controller**

- Temperature set point range limits can be set for local remote controllers
- On/Off
- Monitoring and Operation
- Operation mode:
  - Auto\* (Dual or Single set point)
    - Cool
    - Heat
    - Fan
    - Drying
    - Setback\*
  - Note: \*R2 Series only (connected equipment dependent)
    - Temperature Setting
    - Fan Speed
    - Airflow Direction
- Monitoring and Control:
  - CITY MULTI® indoor units
  - M & P Series units (Requires M-Net adapter)
  - Lossnay units
  - PWPFY hydronic heat pump units
  - DIDO controllers
  - CITY MULTI® DCAS
  - Interlock setting enables integration of general equipment inputs/outputs and indoor units
- Scheduling
  - Daily
  - Annually
  - Five pattern weekly seasonal schedule
  - Twenty four scheduled events per day, indoor unit model dependent:
    - ON/OFF
    - Mode
    - Temperature Setting
    - Wind Direction
    - Fan
    - Speed
    - Operation Prohibits
  - Trend data:
    - Fan operation time
    - Thermo-on time
    - Set temperature
    - Room temperature
    - AI Controller temperature and humidity (Requires PAC-YG63 MCA, 2 inputs total for each controller)
    - 10.4" back lit, high resolution LCD color, touch panel, diagonal display
- Memory back up via USB (universal serial bus) port

**OPTIONAL SOFTWARE**

- SW-Charge: Tenant Billing
  - Calculates per tenant CITY MULTI® energy usage based on the refrigerant capacity used of the outdoor unit(s) divided among the associated indoor units
  - Requires TG-2000 software Ver. 8.40 or later installed on a dedicated, networked PC connected to a RS-485 watt hour meter (WHM)
- SW-PWeb: Online Personal Browser
  - Allows individual users (up to 50) to control their respective zone conditions via personal networked PC with or without local remote controllers installed in the space

**AE-200A CENTRALIZED CONTROLLER SPECIFICATIONS**

- Manages up to 50 indoor units individually, in a group or in a collective batch operation
- Manage up to 200 indoor units when installed with three AE-50A expansion controllers
- Supports dual set point functionality (connected model dependent)
- Displays:
  - CITY MULTI® compressor speed and hi/low pressure
  - Advanced HVAC Controller (DC-A210) input/output status
  - Indoor unit free contact input/output status
  - Space Temperature and Humidity (from Smart ME or AI controller)
  - Error code
  - Unoccupied setback up temperature range
- Functions:
  - Hold function (temporarily disables schedules indoor unit model dependent)
  - Initial setting
  - Operation data back-up
  - Permits or prohibits remote controller functions:
    - On/Off
    - Change Operation Mode
    - Change Set point Temperature
    - Filter Status
    - Change Fan Speed
    - Change Air Direction
- External input/output signals can be used for batch operations such as Start/Stop and Emergency Stop (Requires PAC-YG10HA)

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Model: AE-200A - Specifications, cont.

**AE-200A Centralized Controller**

Item	Specifications
Power Supply	100-240 VAC ± 10%; 0.3-0.2 A 50/60 Hz Single-phase
M-NET power feeding capability	250 VAC 8.3 A Time-Lag type (IEC 60121-2S S.5) No specifications* Only an MN converter can be connected.
Ambient conditions	Temperature Operating Range 0° C ~ +40° C (+32° F ~ +104° F) Non-operating Range -20° C ~ +60° C (-4° F ~ +140° F) Humidity 30-90% RH (No condensation)
Weight	2.3 kg (5.064 lbs)
Dimensions (W x H x D)	11-5/32" x 7-55/64" x 2-17/32" in. (284 x 200 x 65 mm)
Installation conditions	Indoor only **To be used in a business office or similar environment

**Web Browser Requirements**

Item	Requirements
CPU	1 GHz or faster
Memory	512 MB or more
Screen Resolution	1024 x 768 or higher recommended
Compatible Browser	Windows® Microsoft® Internet Explorer 8.0 Microsoft® Internet Explorer 9.0 * Java execution environment is required. (Oracle® Java Plug-in Ver. 1.7.0_11) * Install Oracle® Java Plug-in that is appropriate for your operating system. When using a 64-bit Internet Explorer, install a 64-bit Java Plug-in. ** The version of the Oracle® Java Plug-in can be verified by clicking [Java] in the Control Panel. Safari® * Java execution environment is required. (Oracle® Java Plug-in Ver. 1.7.0_11) ** The version of the Oracle® Java Plug-in can be verified by clicking [Help]-[Installed Plug-ins] on the Safari browser.
Onboard LAN Port or LAN Card	One connector (100BASE-TX)
Other	Pointing device such as a mouse.

**NATURAL VENTILATION TABLES FOR CHARLES WASHINGTON HALL**  
Determined per 2009 International Mechanical Code Section 402

SYSTEM AHU-1	TOTAL EXTERIOR DOOR/ WINDOW OPENINGS (FT <sup>2</sup> )	FLOOR AREA	4% FLOOR AREA	TOTAL OPENINGS(FT <sup>2</sup> ) TO ADJACENT AREA W/ NATURAL VENTILATION	8% FLOOR AREA
104 Transportatn/waiting area	38.5	652	26	N/A	
109 Corridor	38.5	586	23	N/A	

SYSTEM AHU-2	TOTAL EXTERIOR DOOR/ WINDOW OPENINGS (FT <sup>2</sup> )	FLOOR AREA	4% FLOOR AREA	TOTAL OPENINGS(FT <sup>2</sup> ) TO ADJACENT AREA W/ NATURAL VENTILATION	8% FLOOR AREA
103 Market	38.5	717	29	N/A	
106 Corridor	15	197	8	40.5	16
107 Restroom-Transfer Air	0	94	4	Mechanical Ventilated	
108 Restroom-Transfer Air	0	122	5	Mechanical Ventilated	

SYSTEM AHU-3	TOTAL EXTERIOR DOOR/ WINDOW OPENINGS (FT <sup>2</sup> )	FLOOR AREA	4% FLOOR AREA	TOTAL OPENINGS(FT <sup>2</sup> ) TO ADJACENT AREA W/ NATURAL VENTILATION	8% FLOOR AREA
102 Restaurant	65	652	26	N/A	

SYSTEM AHU-4	TOTAL EXTERIOR DOOR/ WINDOW OPENINGS (FT <sup>2</sup> )	FLOOR AREA	4% FLOOR AREA	TOTAL OPENINGS(FT <sup>2</sup> ) TO ADJACENT AREA W/ NATURAL VENTILATION	8% FLOOR AREA
105 Kitchen	40.5	655	26	N/A	

SYSTEM AHU-5A & 5B	TOTAL EXTERIOR DOOR/ WINDOW OPENINGS (FT <sup>2</sup> )	FLOOR AREA	4% FLOOR AREA	TOTAL OPENINGS(FT <sup>2</sup> ) TO ADJACENT AREA W/ NATURAL VENTILATION	8% FLOOR AREA
201 Hall	172	1804	72	N/A	

SYSTEM AHU-6	TOTAL EXTERIOR DOOR/ WINDOW OPENINGS (FT <sup>2</sup> )	FLOOR AREA	4% FLOOR AREA	TOTAL OPENINGS(FT <sup>2</sup> ) TO ADJACENT AREA W/ NATURAL VENTILATION	8% FLOOR AREA
202 Stage	88	630	25	N/A	

SYSTEM AHU-7	TOTAL EXTERIOR DOOR/ WINDOW OPENINGS (FT <sup>2</sup> )	FLOOR AREA	4% FLOOR AREA	TOTAL OPENINGS(FT <sup>2</sup> ) TO ADJACENT AREA W/ NATURAL VENTILATION	8% FLOOR AREA
203 Corridor	18	407	16	N/A	
204 Bathroom-Transfer Air	18	118	5	Mechanical Ventilated	
205 Bathroom-Transfer Air	0	42	2	Mechanical Ventilated	
206 Janitor Closet	21	9	0	N/A	1



**Charles Washington Hall**  
**RENOVATIONS**  
Corner of George & Washington Streets  
Charles Town, W.Va.

For the  
**City of Charles Town**  
**City of Ranson**

Planning & Engineering (prime)  
**Hall Planning & Engineering, Inc**  
316 Williams Street  
Tallahassee, FL 32303

Landscape Architecture  
**Stromberg/Garrigan & Assoc.,Inc.**  
102 E. Main Street-The Penn Bldg  
Somerset, PA 15501

Historic Preservation & Architecture  
**Landmarks SGA, LLC**  
102 E. Main Street-The Penn Bldg  
Somerset, PA 15501

Structural Engineer  
**R.L. Silman Associates**  
1053 31st Street NW  
Washington D.C. 20007

Mech/Elect Engineer  
**Comfort Design, Inc.**  
620 Pennsylvania Avenue  
Winchester, VA 22601



Issue/Revision Seal  
REVISED VRF MARCH 4, 2015

Drawing Title

**Mechanical Piping & Details**  
Date 9/26/14  
Scale \_\_\_\_\_ Project Number 11105  
Drawing Number \_\_\_\_\_

**M1.3**