

Plumbing

1. The existing domestic water service shall remain in Jonas Academic which supplies water to Jonas Science.
2. There is no fire protection service, the building is not protected by a NFPA 13 system.
3. The existing sanitary sewer shall remain and is accessed through the crawlspace.
4. The existing roof drains and rain leaders shall remain, they discharge through the existing exterior walls with down spouts around the perimeter of the building
5. The lawn sprinkler system is provided by campus system.
6. Plumbing fixtures shall be as follows:
 - A. The existing restrooms shall remain and have been recently upgraded.
 - B. The existing electric water heater will be demoed. New fixtures shall be connected to existing domestic water system.
 - C. The existing Mop sink shall remain.
 - D. There are no existing freeze proof hydrants around the building.
 - E. Integral lab sinks provided by the casework manufacturer and installed by MC.
 - F. Relocate existing Emergency eye wash and shower.

Existing HVAC System

- A. The existing building is heated and cooled via the original 1966 unit ventilator system connected to a two pipe heating/cooling (HC) system. The HC piping system switches over from heating to cooling either automatically or manual based on building demand. The unit ventilators are ducted to the exterior either through the walls or roof to allow for ventilation and the use of economizer cooling. This original system will be utilized as necessary during the construction phasing but ultimately removed when the new central VAV system is operational. In addition the existing building is heated via a hot water heating loop that is connected to baseboard radiation. These piping systems shall be removed back to the mains in the crawlspace for reconnection once the new VAV system is in place.
- B. Cooling for the existing building is provided via a chilled water loop from the central chiller plant to heat exchangers located in basement of Jonas Academic, these systems shall remain.
- C. Heating for the existing building is provided via a central steam distribution system from the central boiler plant with two steam to hot water convertors located in the basement of Jonas Academic, these systems shall remain. One convertor serves the heating only loop and one serves the heating/cooling (HC) loop.

Proposed HVAC System

- A. The new HVAC system shall be a Central Variable Air Volume (VAV) system with a factory enclosed Rooftop Air Handler serviceable within the enclosure.
- B. Each zone in the building will be served by a (VAV) terminal box with hot water heating coil. Each terminal box shall be connected to local duct distribution system to diffusers and return grilles. The heating coils will be piped to the existing heating only loop.
- C. The terminal boxes shall be supplied with ventilation and cooling air via a medium pressure duct distribution system from a centrally located roof top air handler. The main duct distribution shall be located on the roof to reduce the impact to the occupied spaces, the mains will feed three areas through roof penetrations for better distribution. The mains on the roof will be framed/sheathed/insulated and roofed over.
- D. The roof mounted air handler will be supported by the existing concrete structural columns with a steel structural frame. The base will be framed/sheathed/insulated and roofed over to support the curb for the air handler.
- E. The air handler will be supplied heating and cooling capability from piping to the existing HC system. The existing HC system fluid is treated water, therefore face and bypass dampers will be provided with freeze stats to protect the air handler coil from freezing. A unit heater will be provided in the air handler to provide additional heat to the air handler enclosure.
- F. A heat wheel in the air handler shall recover the heat from the ventilation air to temper the outside air required for ventilation makeup and infiltration control.
- G. The existing restroom exhaust fans shall remain.
- H. New Lab hood exhaust shall be exhausted through the roof via lab exhaust fans.
- I. Temperature Control System
 - 1. The temperature control system shall be DDC control system integrated into the existing campus system.