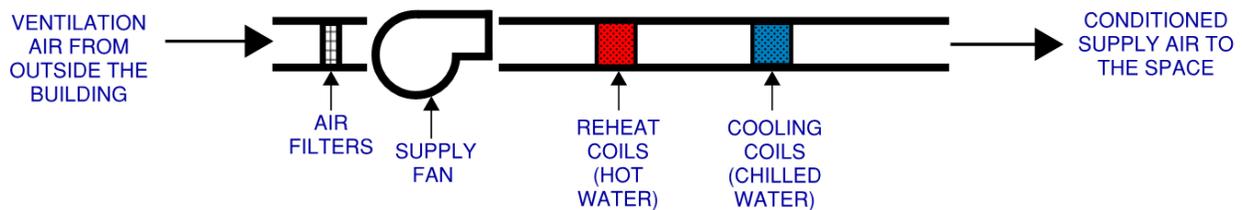


## **GILBERT HALL – OLD GILBERT (EAST BUILDING)**

The original Gilbert Hall's HVAC systems were renovated in 1974 to include two separate air distribution systems. One system is dedicated to providing ventilation air to each floor and the other system is dedicated to providing space heating and cooling.

### **VENTILATION SYSTEM**

The ventilation system can be thought of as a building fresh air system that brings in outside air, conditions it to a moderate temperature, and distributes it to each floor of the building. This also includes controlled exhaust which provides exhaust at restrooms on each floor to control odors and maintain appropriate building pressurization via roof mounted exhaust fans. The two Dedicated Ventilation Air Units located on the roof include hot water and chilled water coils for heating and cooling and a fan which delivers fresh air from outside of the building through a ductwork riser where it is delivered to each floor in the corridors of the East building.



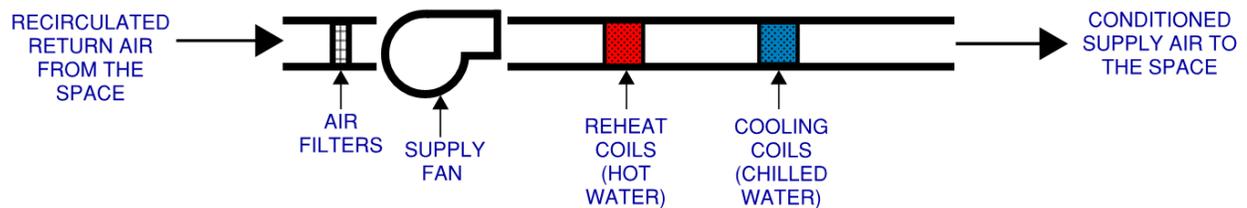
### **DEDICATED VENTILATION UNIT SCHEMATIC**

### **SPACE HEATING AND COOLING SYSTEM**

The space heating and cooling system consists of greater than 40 Fan Coil Units (FCUs) located above the ceilings with supply air ductwork distributing conditioned air from each FCU to ceiling diffusers in each space along with return air ductwork to carry recirculated room air back to the FCUs. Most offices along the East elevation have their own dedicated unit, while some FCUs providing conditioned air to multiple adjacent spaces.

With individual FCUs serving a small number of offices (generally 1, but not more than 2), there should be minimal room air circulated between spaces, except where room air from offices and classrooms is pulled through door undercuts into corridors and eventually exhausted through ceiling exhaust registers located in restrooms. The FCUs pull air from the space(s) they serve, condition as needed, and supply it back into the space. Both the fan in the fresh air system and the fans in the FCUs run all the time.

FAN COIL UNITS- A fan coil unit is fairly simple: it's a fan with a coil or coils (like a car radiator) that can add heating and cooling to the air stream flowing through it. The FCUs in Gilbert Hall have air filters to remove particulate matter from the air, a hot water coil and chilled water coil for heating and cooling the air, and a supply fan for forced air circulation through the unit and into the space. The hot water is produced in the mechanical room by way of a heat exchanger that takes heat from the campus steam system and adds it to Gilbert Hall's hot water loop. The chilled water is provided from a chiller located in Gilbert Hall's basement mechanical room and UGA's North Campus Chilled Water District.



**DEDICATED VENTILATION UNIT SCHEMATIC**

## GILBERT HALL – WEST ADDITION

The West addition to Gilbert Hall uses the original Dual Duct Air Handling Unit (AHU) from 1974, located in the penthouse mechanical room which provides ventilation, cooling, heating and air filtration and distribution functions for the building. The air handling unit delivers heated air and cooled air simultaneously through a hot deck and cold deck within the unit which comes from a mixture of recirculated building air and fresh air from outside of the building.

The building return air is filtered, mixed with outdoor air and cooled with chilled water coils in each of the four building air handling units before being supplied to rooms throughout the building through above ceiling ductwork. The mixed airstream goes through two sets of filters within the AHU, a set of pre-filters prior to entering the unit and a set of higher efficiency final filters where it leaves the unit. The original building design called for approximately 23% of the building's air to be composed of fresh air from outside the building.

Space heating and cooling is provided by duct mounted, mixing boxes in supply ductwork throughout the building. The dual duct mixing boxes blend hot and cold air from the hot air duct and cold air duct supplied by the central AHU to provide either heating or cooling to the spaces served by each box based on space temperatures.

Air is recirculated from the spaces back to the air handling unit through ceiling mounted air return registers located in each space. Recirculated air from the spaces is then drawn through ductwork up to the central AHU where it is mixed with outdoor air, filtered and conditioned with hot water and chilled water coils before being supplied back to the building. Exhaust is provided in restrooms on each floor to remove odors and to maintain a slightly positive pressure building.

The heating hot water is produced in the mechanical room by way of a heat exchanger that takes heat from the campus steam system and adds it to Gilbert Hall's hot water loop. The chilled water is provided from a chiller located in Gilbert Hall's basement mechanical room and UGA's North Campus Chilled Water District.

