

## **CALDWELL HALL**

Caldwell Hall was originally constructed in 1979 and has undergone a number of partial HVAC renovations since this time. The two primary air handling units were replaced in 2001 and the building was progressively converted from constant air volume with separate heating and cooling units and duct systems, to a modern variable air volume system beginning in the late 1990s.

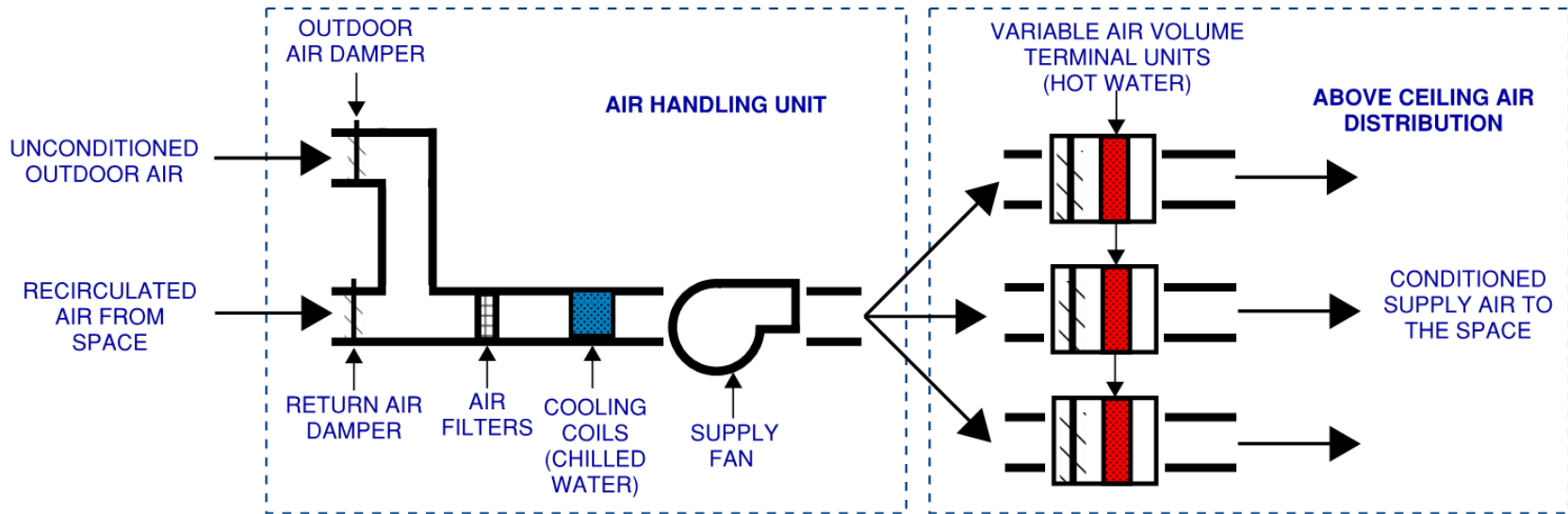
The building primarily consists of two large Air Handling Units (AHUs) located in the ground floor mechanical room. Each AHU provides air movement, cooling, ventilation and dehumidification functions for the building. AHU-1 is dedicated to serving the Ground, 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> floors with AHU-2 dedicated to serving the 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> floors.

The air handling unit delivers a variable volume of conditioned air consisting of 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 two building air handling units before being supplied to rooms throughout the building through above ceiling ductwork. Space heating is provided by Variable Air Volume terminal units (VAVs) with hot water reheat coils located in supply ductwork throughout the building. The VAVs are equipped with an air damper to regulate the volume of air delivered from the central AHU to the space based on the current space temperatures and a hot water reheat coil to provide space heating when needed. A portion of the VAVs also include a fan and a filter combination that will mix in air from the above ceiling plenum with the conditioned air from the central AHU when the space requires heating.

Air is recirculated from the spaces back to the air handling unit through ceiling mounted air return registers located in each space. Return air is pulled from a plenum space above the ceiling, in lieu of ductwork. Exhaust is provided in restrooms on each floor to remove odors and to maintain a slightly positive building pressurization.

Chilled water is supplied throughout the building from a chiller located in the basement mechanical room along with being imported from the North Campus Chilled Water District.

Hot water is provided by a steam to water heat exchanger which uses steam delivered from the Central Campus Steam Plant to heat water used for air heating 3968+399 in the building.



**CALDWELL VARIABLE AIR VOLUME AIR DISTRIBUTION SCHEMATIC**