

Executive Summary

The Suburban Wellness Community Center is a two story 57,200 square foot building which contains a variety of spaces. On the first level is a fitness center and on the second level are conference rooms, offices and private practicing doctor's offices. In the northwest corner of the first floor is the swimming pool area which consists of a large four lane lap pool, a therapy pool, public spa as well as a sauna and steam room. South of this room is the basketball court and racquetball courts which are two stories in height. In the center of the building are the men's and women's lockers rooms and a two story tall atrium with cardiovascular machines and the registration desk. The east side of the first floor holds the free weight rooms in the north and studio spaces for group exercise classes in the south. On the second story in the center of the north part of the building are restrooms and conference rooms. The southeast corner of the second story includes an imaging office which can perform X-Rays, MRIs and ultrasounds. The rest of the space on the second floor has yet to be leased out.

The ventilation rate procedure explained in ASHRAE Standard 62.1 Section 6.2 was used to evaluate the HVAC design of the SWC. The building envelope and lighting power density requirements explained in ASHRAE Standard 90.1 Sections 5 and 9 were also used to evaluate the design of the SWC. Trane Trace 700 was also used to build an energy model of the building for analysis and estimated annual expenses.

The calculations performed in this technical report show that the design for the SWC does not meet ASHRAE Standard 62.1 or 90.1. The outside air being supplied to the spaces is not adequate to meet the demand and the light power density is too high.

This report finds that although the SWC may have met the Standard in years past, it does not meet the current standard. Since each tenant has installed their own individual systems, it would be convenient to combine all the systems into one centralized location. Although the initial cost would be great, the energy savings in the future would pay for the difference in cost.