

HVAC Design Process for Health & Sport Clubs

Fitness centers, sportclubs, and buildings with pools and spas require specialized mechanical systems to maintain comfortable temperature and to control indoor humidity. ACCA offers a series of manuals that professional contractors use to properly design, install, operate, and maintain HVAC systems in commercial applications.

Each element in the HVAC System Design Process is interrelated and successful execution of one is dependent on proper completion of earlier elements. Illustrated below are the ACCA commercial system design elements that are important for ensuring customer satisfaction is achieved by following industry-recognized practices.

HVAC contractors working in the fitness center type of marketplace should be proficient in the following ACCA manuals:

- [Manual CS](#)[®] covers the fundamentals of system design and HVAC equipment selection for fitness centers, sport clubs, gyms, and other small to mid-size commercial buildings. Topics include:
 - Dynamics and interrelationships of the building, occupants, and HVACR system
 - Procedure for analyzing the heating and cooling loads for any possible operating condition, including minimum, intermediate, and maximum load conditions
- [Manual N](#)[®] details the load calculation procedure that addresses the advances in the commercial construction industry: new materials, methods of assembly, and operational requirements.
 - It provides instruction to help contractors and designers satisfy new, and often conflicting, energy, ventilation, and comfort requirements.
- [Manual SPS](#)[®] addresses the unique dynamics for buildings with pools and spas. It provides contractors with the information needed to properly include pools, spas, and fountains in buildings. Topics include:
 - Controlling dew point temperatures of space air as well as space temperature.
 - Compatibility with moist air and pool chemicals.
 - Sealing and insulating duct work.
 - Ventilation and fresh air makeup.
 - Dehumidification systems and indoor air quality.
- [Manual Q](#)[®] is the reference book on the low-pressure, low-velocity systems used in small and mid-size commercial buildings. Topics include:
 - Performance characteristics of fans, duct systems, air-side devices, and duct system materials and sizing methods
 - Examples on how to design constant volume, variable volume, rooftop multi-zone, and VVT duct systems
 - Building pressure control, ventilation, and air balance
- [Manual B](#)[®] covers the testing and balancing of airflow and hydronic systems. Topics include:
 - Problems encountered in the field, warnings, and commonly made mistakes
 - Technicians can use the information provided in the manual to improve their diagnostic skills and understanding of how HVAC system operate.

ACCA also offers a series of Guides and Workbooks as well as online training through its [Qtech](#)[®] program at: <http://www.acca.org/certification/qtech>. These courses position field practitioners to understand ACCA's design process. For instance, [Maria's Restaurant Technician's Guide and Workbook](#) was designed for technicians, business owners, and code officials as an easy to read guide to the commercial building design process. *Maria's Restaurant Technician's Guide and Workbook* training correlates to the requirements for designing a typical fitness center located in a typical strip mall or standalone commercial building.

System Design Process

