

University of South Carolina

Horizon I Research Facility



This prominently sited, five-story structure ties the University of South Carolina (USC) traditional campus to its new urban "innovista" research campus. The facility supports programs in engineering, technology, scientific research, and industrial development of alternative energy sources.

Research includes two floors dedicated to hydrogen fuel cell studies with laboratory areas for Proton Enhanced Membrane (PEM) and Solid Oxide Fuel Cells (SOFC). The first floor is dedicated to characterization chemistry and the second floor has a program in nanopolymers. Ground and fourth floors are set aside for future development.

Each laboratory utilizes high performance variable air volume fume hoods with air flow control based on sash position. Fuel cell research laboratories have centrally piped hydrogen and nitrogen gases and also house cylinders for hydrogen rich specialty reformat gases. All laboratory process equipment utilizes a recirculating cooling system to reduce portable water usage.

SSOE was involved in the planning and programming efforts and provided mechanical, electrical, and fire protection construction documents for this building. Review of the contractor's shop drawings was performed to detect errors and omissions, which were found and corrected prior to the fire marshal's review. The fire alarm design was upgraded to meet code. This allowed the passing of the drawings by the jurisdiction on the first review. Life cycle analysis and careful evaluation of alternative energy usage systems were important to the sustainable aspects of this building. The construction was fast-track and accomplished by utilizing the Construction Manager at Risk (CMAR) method.

size 125,000 SF

location Columbia, South Carolina

highlights

Consulting for LEED Silver certification

Sustainable MEP / FP design

Energy modeling

Steam and chilled water utility tunnel

Laboratory design

Fire alarm system design

Construction support

Complete data, telecommunications, security, access control and fire alarm design