KIRKWOOD HORTICULTURE
KIRKWOOD COMMUNITY COLLEGE
Cedar Rapids, Iowa

Cost:
Construction: $6,900,000
MEP Const: $2,360,000

Owner:
Kirkwood Community College
Cedar Rapids, Iowa
Tom Kaldenberg
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Team:
Principal in Charge:
Dwight Schumm, PE, LEED AP BD+C

Project Manager:
Marc A. Foster, PE, LC

Mechanical:
Kelly Harrer, PE, LEED AP

Electrical:
Marc A. Foster, PE, LC

Architect:
OPN Architects
Cedar Rapids, Iowa
Steve Knierim, AIA

This 40,200 sqft facility was built in 2007 on Kirkwood's main campus to house their Agricultural Sciences Program. This facility allows students to study in golf course and athletic turfgrass management, landscape maintenance, nursery and garden center management, parks and natural resources, and floral design. An 8,000 sqft greenhouse is divided up into 6 separately controlled environments and is the cornerstone to this interactive facility. Other educational amenities include a large lecture hall, 30 station computer lab, floral design lab, and outdoor display gardens.

The HVAC for this building has several sources. The main classroom building is conditioned from water to air heat pumps connected to a vertical ground heat exchanger (GHE). The greenhouse is tempered with evaporative coolers, radiant floor, perimeter radiant finned tube, radiant gutter heaters, bench heaters, and hydronic unit heaters. The Radiant floor and perimeter finned tube are heated using heat pumps connected to the GHE, the remainder of the heat comes from high efficiency gas boilers. The DDC system monitors soil temperature as well as space temperature to control the various heating and cooling systems.

The irrigation for the greenhouse comes from two sources. The main source is water stored from the buildings roof drains which is filtered and pumped to the various irrigation lines. If water is not available from recent rains it is pumped into the storage tank from an onsite well. The DDC system monitors space humidity and soil humidity for determining irrigation schedules.

This facility has many uses and the lighting design and controls match their use. In the greenhouse, grow lights and standard lighting were installed with grow lighting on timers and normal use lighting on occupancy sensors and switches. In the classroom environment direct-indirect, dimming, fluorescent fixtures and teaching wall lighting are utilized to enhance the experience with occupancy sensors and daylight harvesting in selected areas.