DISTECH CONTROLS™

Innovative Solutions for Greener Buildings™

K-12 School

PLAINFIELD HIGH SCHOOL

Plainfield, IN, USA

Overview

- One of the largest high schools in the state of Indiana (was the largest at the time of construction).
- Total of 8,756 control and integration points, including:
  - 46 LONMARK® Certified LONWORKS® programmable controllers
  - 256 LONMARK® Certified LONWORKS® configurable VAV and fan coil unit controllers
  - 5,800 integration points via EC-Net^{AX} platform with LONWORKS and Modbus® equipment

Integrated Control and Monitoring Solution

- Web-based EC-Net^{AX} platform for integrated control of HVAC equipment and other applications:
  - Central cooling plant controlled with LONWORKS programmable controllers and EC-Display, local user interface and scheduler, including:
    - Air cooled chillers with remote barrels – LONWORKS integration to three York® chillers
    - Variable speed chilled water pumps – LONWORKS integration/interface to pumps' variable frequency drives
  - Central heating plant controlled with LONWORKS programmable controllers and EC-Display, local user interface and scheduler, including:
    - Variable speed hot water pumps – LONWORKS integration/interface with pumps' variable frequency drives
    - Modbus integration to ten AERCO boilers
- Air handling units:
  - Variable volume and single zone air handling units controlled with LONWORKS programmable controllers and EC-Display, local user interface and scheduler
  - Monitors and controls outside air flow and CO_2 levels to meet ASHRAE® Standard 62 for Indoor Air Quality, as well as indoor relative humidity
- Energy recovery units:
  - Variable volume fresh air units with energy wheel and hydronic heating and cooling coils controlled with LONWORKS programmable controllers
- Roof top units:
  - Variable volume and single zone rooftop units controlled with LONWORKS programmable controllers
- Pool air handling unit:
  - LONWORKS programmable controllers used to condition the space as well as maintain indoor relative humidity levels and indoor air quality
  - Monitors power consumption of the pool condensing unit's compressor and hot water pump for trending and monitoring on the system graphics
- VAV terminal units:
  - Shutoff and fan powered VAV terminal unit with hot water reheat controlled with LONWORKS configurable VAV controllers
- Fan coil units:
  - Fan coil units controlled with LONWORKS configurable fan coil unit controllers
- Cabinet unit heaters:
  - Cabinet unit heaters controlled with LONWORKS configurable fan coil unit controllers

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- Exhaust fans:
  - Some units are controlled with LONWORKS programmable controllers. All units are monitored for status and alarming.
- Finned tube radiation and radiant ceiling panels:
  - Controlled with LONWORKS programmable controllers and sequenced with other networked equipment serving the same area
- Emergency generator:
  - Monitored for generator malfunction
- Fire alarm panel:
  - Monitored to alert maintenance personnel

Benefits

- The Distech Controls building management system has proven to be flexible and easy to use, while supporting the complex sequences of operation required by the school.
- EC-Net^{AX} Web-based, multi-protocol platform, provides integrated control and monitoring of all equipment within a unified interface.
- Building management system optimized for low energy consumption while preserving air quality – meeting ASHRAE Standard 62 for Indoor Air Quality – as well as indoor relative humidity.
- For its size, the school has relatively low energy consumption thanks to the use of energy efficient sequences.
  - One such energy efficient sequence includes the control of energy recovery units that re-use exhaust heat energy that would otherwise be exhausted outdoors.
  - Energy consumption is further reduced through time-of-day scheduling and optimum start/stop programming.
- Indoor air quality is enhanced through the monitoring and control of indoor CO_2 and relative humidity levels.
- The school and contractor received high levels of support from Distech Controls Authorized Partner Jackson Systems, throughout the project.
  - Due to the size and complexity of the project, Jackson Systems went above and beyond to make sure that all of the school's needs were met as far as understanding system operations, sequences, scheduling, trending, and alarming.
  - Jackson Systems provided additional system commissioning and modified project programming after the project was delivered to enhance system performance according to the school's additional needs.

Distech Controls Authorized Partner

Jackson Systems
Indianapolis, Indiana

For more information,
contact Distech Controls:
1-450-444-9898
1-800-404-0043

www.distech-controls.com