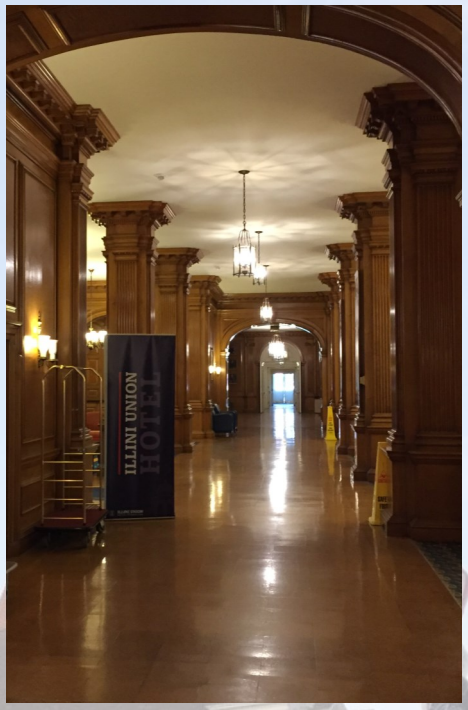
Illini Union #0023

Building Gross Sq.Ft.: 305,130 sq.ft.

Recent HVAC Work Period: Feb 2017—May 2017

Principal Building Use: Student services, dining, offices

Building & Project Overview



The Illini Union building was built in 1941 to house student organizations, meetings, and student programs. It now includes student services, offices, meeting rooms, a ballroom, food court, cooking facilities, shopping, and a hotel.

The most recent updates to the HVAC system include new DDC controls to allow for better AHU control and scheduling, and exhaust controls for the dining facilities. Schedules for the facility vary with offices being 8am-6pm, the food court varying with meal times, the ballroom being event driven, and the hotel lobby area operating until 3 AM.
These efforts have saved over $400,000 in avoided energy costs were"the tip of the iceberg when compared to the additional comfort in knowing and seeing that we have properly conditioned spaces. Before the project, we had mold conditions and improperly balanced systems, some people were hot some cold, and others were concerned about mold starting to grow around vents. Since the work of your team, staff are much more satisfied with their work environments and their individual offices" as quoted from the Illini Union's Senior Associate. Director

HVAC Update Highlights

All 27 Air Handling Units (AHUs) now have DDC controls with full data trending and scheduling:

- North Ballroom (AHU-19) airflow reduced from 20,000 CFM to ~10,000 CFM dependent on temperature and occupancy sensors. Nightly shutdown from 12 AM to 6 AM.
    - o Outdoor air dampers controlled based on CO2 sensors. Occupancy sensors used to set back the temperature and fan speed.
- North building (AHU-18) airflow reduced 30-50% in low-load hours by closing VAV boxes in unused spaces using a combination of schedules and occupancy sensors added to meeting rooms. Nightly shutdown from 3 AM to 6 AM. VAV boxes tested and balanced. CO2 sensors calibrated. Fan wall VFDs adjusted to reduce static safety trips. Enough capacity was gained to allow for the ISR kitchen cooling upgrade project.
- Dining area, Courtyard, and Illini Room AHUs converted from pneumatic to DDC controls to allow for scheduling, variable speed fans, and hood control integration. Melink kitchen hood controls and VFDs added to control exhaust fans.
- Building pressure balanced (30,000 CFM reduction), eliminating high humidity and temperature problems on the 4th floor and attic.
- Supply air temperature resets applied to reduce simultaneous heating and cooling. Return Air Humidity sensors added to control space Relative Humidity.
- Reconfigured airflow in the bowling alley to not need exhaust fans in the pinsetter areas.
- Two steam isolation valves added to automatically turn off perimeter steam in the summer. Radiator valves tested and replaced.
- Added insulation to bare steam pipes reducing the need for exhaust fans in mechanical spaces.
- Cleaned intake grills, coils, and diffusers.

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November 8, 2017

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