

LET'S CONNECT

EXPERIENCE: COMMISSIONING



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Case Study: Higher Ground's Dorothy Day Place

INTRODUCTION:

The project's design was started in January 2017, with final construction documents issued for permit submitted in September 2017. Construction notice to proceed occurred in August 2017 and was completed winter 2019. The formal commissioning process required as part of the MN-B3 certification process was completed in early 2020.

PROJECT INFORMATION:

Building Location: Saint Paul, MN
Building Type: Public Housing
Building size: 169,010 sq ft.

BUILDING DESCRIPTION:

The building equipment included: energy recovery Air Handling Units (AHUs) with multi-zone Variable Air Volume (VAV) terminal units, energy Recovery Roof Top Units (RTUs) serving active chilled beams. All AHUs and RTUs have economizers and employ active building pressure control. A 100% OA make-up air unit is used for the kitchen hood and was interlocked with a hood exhaust fan which is to be operated when the grill was in service. The building was served by district heating hot water and chilled water systems.

This project is comprised of the following spaces:

- Private tenant housing rooms
- Private offices and open offices
- Conference rooms
- Mechanical / electrical room
- Lobby / reception
- Break area and Restrooms



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ISSUES OVERVIEW:

Sometimes during a design review, a sequence of operations is written that does not follow the owners' project requirements or the capabilities of the installed equipment. Even with multiple parties involved during the design and submittal reviews, items are sometimes missed.

Issue 1:

During the commissioning installation verification, it was noted that the heating coils on the Roof Top Units (RTUs) were installed prior to the cooling coils. To dehumidify air through an air handling unit, the air must be subcooled below the saturation point and reheated to release the moisture from the air stream. The configuration of the units installed will not allow for any dehumidification of the supply air into the building.

After going back into the RTU submittals it was discovered that these units had been submitted, approved and ordered with the coils in this arrangement (see attachment 1). The controls submittal indicated that the cooling coil was installed prior to the heating coil, which was not the configuration of the units that were submitted and would be programmed for dehumidification control of these systems (attachment 2). It should be noted that all submittals were reviewed by the design team with no major issues noted, and ALL RTUs were to have dehumidification control per the approved Sequence of Operation (SOO).

The following was taken from a SOO which was issued by the design team to the control's contractor:

Dehumidification Control:

When the return air humidity level rises above the dehumidification setpoint of 55% (adj.) the cooling valve will fully open and the heating valve will modulate to maintain the calculated discharge air setpoint.

Once the discharge air humidity level drops below the return air dehumidification setpoint plus 2% deadband, the unit will revert to normal operation.

The SOO as written will work, but on the units that were submitted and approved by the designer, the cooling coils are mounted after the heating coil, which will not allow for dehumidification of the supply air. This is an example of how multiple discipline reviews must be done to ensure each system is captured correctly prior to being ordered or installed.



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GET IN TOUCH

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