Break Out 01

Given

1. The first section of the checklist
2. The images of the Ball Room AHU that follow
3. The drawings provided

Item Number	Requirement	Initial and Date when Complete
Dampers, Actuators, and Linkage Systems		
1	**Is there an independent minimum outdoor air damper?** **Yes -** This is generally the best situation because it will allow the minimum outdoor airflow rate to be set and regulated independently from the economizer related maximum outdoor air function. ***Follow-up and Recommendations:*** Include functional testing in the Commissioning plan targeted at ensuring that the minimum outdoor air damper is set up properly to achieve the design intent for the system. **No -** Lack of an independent minimum outdoor air damper can lead to economizer related operating problems. The two most likely issues are: • The minimum flow is much higher than required because of the non-linear relationship between flow and damper stroke causing excessive energy consumption. • Low or no minimum outdoor airflow into the building causes indoor air quality problems (IAQ) and/or problems with pressure relationships. ***Follow-up and Recommendations:*** *Design Phase* - Recommend that the design team address the issue by providing a regulated, independent minimum outdoor air damper. Include functional testing in the Commissioning plan targeted at ensuring that the proper minimum outdoor air flow rate is set and maintained for the system. *Construction Phase* - Recommend that the outdoor air damper section be modified to provide a regulated, independent minimum outdoor air damper. *Retrocommissioning* - Consider modifying the existing minimum outdoor air damper assembly to provide an independent minimum outdoor air damper. Where this is not practical or possible, add a minimum outdoor air flow limit to the economizer control signal. Functionally test to ensure that the required minimum outdoor air flow is delivered.	

Assess the minimum outdoor air (MOA) flow regulation capability of the Ball Room AHU economizer

- *How well is it regulated?*
- *What are some of the assumptions behind the strategy?*
- *Can you estimate the MOA% required from the documents?*

Are their other things that you observe that would be items that should be added to your findings list?

Economizer/Mixed Air Section Plan View

Equipment Overview

Equipment Overview

Equipment Overview

Filter Bank

CamFil 30/30 24 x 12 x 2 Call 1-800-432-7726
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Filter Detail

Mixed Air Plenum Overview

Mixed Air Plenum Overview – Heating Coil Hidden

Outdoor Air Temperature Sensor

Return Air Temperature Sensor

Return Air Temperature Sensor

Dampers Viewed from Actuator Side

Outdoor Air Damper from Inside the OA Duct

Outdoor Air Damper Blade Close-up

Return Air Damper Blade Close-up

Relief Dampers - Overview

Relief Dampers – Close-up

Relief Dampers – Actuator and Blade Close-up

Return Air Damper Measurements - Overview

Return Air Damper Measurements - Height

Return Air Damper Measurements - Width

Outdoor Air Damper Measurements - Overview

Outdoor Air Damper Measurements - Height

Outdoor Air Damper Measurements - Width

Relief Dampers – Measurements Overview

Relief Dampers – Measurements - Width

Relief Dampers – Measurements - Height

Mixed Air Plenum Looking in the Direction of Airflow, Filters Hidden

Control Device

Hot Water Coil Leaving Air Temperature

Hot Water Coil Pipe Temperatures

Supply Air Temperature