

Webinar: Why Daikin is a Leader in the Commercial HVAC Building Sector

Q&A with the Presenters

JS Rancourt, Greg DiNardo, and, Jon Hacker

1. How does the ERV block CO2?

- a. The blockage of CO2 comes from the membrane we used in the Core construction. The membrane has a gas barrier layer that preferentially absorbs and transports water vapour. CO2 is a gas at atmospheric conditions and is largely blocked from transferring through the gas barrier layer. <https://core.life/en/>

2. For the DOA unit, what preheat options are available for OA temps below 0F for climates like Vermont.

- a. Can tie in Hydronic or electric heat to the DOAS WSHP Unit
<https://www.daikinapplied.com/products/water-source-heat-pumps/doas>

3. You mentioned UV to disinfect air. Can you please talk a bit more about it? Is UV really effective to disinfect air at the velocities in the AHUs and ducts?

- a. ASHARE recommends UV within a set nm range (265 nm as optimal). You would need to work with local reps and manufacturer to ensure kill on the fly, but it has been proven by ASHRAE to have the capability.

4. Can you fit sufficient UV lights in a Rebel Applied to kill COVID in a single pass?

- a. Not yet. At this moment we have UV for coil cleaning. Looking to have UV for air purification/disinfection in late 2021.

5. Are you guys working on unitized heat pumps, for retrofits they are great especially! and in doing so, are you making them air tight enough for a passive house?

- a. [JSR] This possibly means just individual ASHPs, which Daikin has a whole line-up of. The discussion about air tightness is a bit confusing. I would respond: Daikin does have a full suite of individual ASHPs, from single splits to multi-splits, both in standard and cold climate. The condensing units can be mounted on the balconies or on the roof, and the air tightness of the building would be dependent on the proper installation and sealing of the piping penetrating through the envelope. (Maybe add the link to the 3rd session on multi-rez)

6. Have you done a vehicle-maintenance building?

- a. [JSR] Yes, the Rebel VRV Rooftops mentioned by Greg and JS can also be used for recirculation type applications, therefore large maintenance buildings are good applications for them. There are also other larger style equipment by Daikin, both indoor and outdoor mounted that can be used for these applications.

- 7. For the 2 story plus penthouse where all space are supplied by cassettes and Condensing units on roof, How is ventilation (Fresh Air) provided to the building?**
- [JSR] This building used a separate ERV on each floor, tucked away towards the back end of the building, with small painted ductwork that bring the air to the open areas of the office.
- 8. Do you have a water cooled VRV condenser units. We are working in tall building over 50 stories with no roof area. Want to use the condenser water risers and retrofit in phases.**
- Yes, Daikin is a leader in water-source VRV heat pumps for high-rise towers. You can find more information here, or reach to your local Daikin Rep for support. [JSR] One of JS's flagship project was a 43 story tower in Toronto all done with water-source VRV, stacked on each floor. He would be happy to discuss this further.
- 9. For AHU rebel, it looks like it has different fit for filters thickness, for instance 2" and 4". How does it impact the unit air flow (CFM) since it may have different pressure drop across the filters?**
- When our sales rep selects the unit they will be selecting the necessary filtration for the project. Our software will base the fan selection off this information. In retrofit application - we would need to go into the software to determine the amount of pressure drop (and potentially increased filtration) the existing fan could support.
- 10. What was the source of water for the water-source system?**
- [JSR] This could be geothermal, and water-source VRV tied with geothermal is being used on some projects in the North East. For the one project presented, this retrofit did make use of some existing hydronic infrastructure, and there was no geo loop available. Therefore, the source of the water was from a typical boiler - tower condenser loop.
- 11. What is a chilled Beam?**
- [JSR] Don't think I want to write this out... maybe send them to a YouTube video (ha-ha). I'm not sure who made this one or who they are, but here is an option:
https://www.youtube.com/watch?v=kwhvoGhSt0w&ab_channel=TechINPtyLtd
- 12. What kind of air quality equipment does Daikin offer for residential homes, say, 1500 to 2500 square feet? Thank you.**
- There are a variety of air quality products available from Daikin for residential applications. You can review them here. [JSR] maybe also point them to session 2 and session 3 for single family homes and multi rez?
- 13. Please discuss defrost in a cold climate**
- [JSR] A very important climate for any air source heat pumps in cold climate. Daikin incorporates a multitude of advance defrost technologies to help reduce defrost cycle times, frequencies and impacts to efficiency and comfort. Some of those technologies include the ability to do continuous heating during defrost with multi module heat recovery systems, as well as the hot gas base pan refrigerant circuit, which is kept continuously warm using the inverter heat to help reduce defrost cycle length and frequency, as well as ice buildup in the drain pan.