

CARSON SOLUTIONS SYSTEM COMPARISON

	DOAS - QLCI	AHU - VAV	DOAS - FCU	DOAS - VRF	UNIT VENT	EXPLANATION
IAQ (E _z)	Displacement Ventilation Cooling: 1.2 Heating: 1.0-1.2	Mixed Air Ventilation Cooling: 1.0 at best Heating: 0.8	Mixed Air Ventilation Cooling: 1.0 at best Heating: 0.8	Mixed Air Ventilation Cooling: 1.0 at best Heating: 0.8	Mixed Air Ventilation Cooling: 1.0 at best Heating: 0.8	With QLCI E _z > 1.0 => better IAQ (lower CO ₂) in room; DIV lifts contaminants up & away
ACOUSTICS	<35 dBA	>35 dBA	≥35 dBA	≥35 dBA	≥40 dBA	No moving pieces or parts in the QLCI, lower air velocity results in quieter airflow.
MAINTENANCE	Vacuum Coil 1x/yr	Repair/replacement on moving parts	Repair/replacement on moving parts	Repair/replacement on moving parts & refrigerant concerns	Repair/replacement on moving parts	Filtration localized at DOAS. Other devices, refrigerants, and moving parts require service.
SYSTEM EFFICIENCY	High	Medium	Medium+	High	Medium to Low	Higher E _z , results in smaller DOAS with DIV. No fan energy at QLCI. Refrigerant has high BTU capacity
ROOM-TO-ROOM CONTAMINATION RISK	None	High	None	None	Depends on bldg practices.	DOAS-QLCI has dedicated EA pulled from room & exhausted at DOAS, no recirculation during occupied hours
INSTALLED COSTS	1.0	0.95-1.0-1.05	1.05-1.1	1.0-1.05	0.75-1.0	DOAS- QLCI in line w/ DOAS-VRF, high voltage power req'd for VRF, FCU, and UV
LIFE CYCLE DURATION	30+ Years	20+ Years	20+ Years	20+ Years	20+ Years	Moving parts & refrigerants require better maintenance practices to extend life span of equipment.
INSTALLATION CONSIDERATIONS / RISKS	Low	Medium	Medium	Medium	Medium	FCU, VRF, & UV require high voltage installations. VAV requires additional ceiling space to accommodate ductwork.
PROPRIETARY TECHNOLOGY	No	No	No	Yes	No	VRF often includes complex controls, piping, & ducting.
PHYSICAL SPACE IMPACT	Minimal	Minimal	Minimal	Minimal	Medium+	UV often protrudes into room. Cannot store items on top. VAV can impact ceiling height.
OCCUPANT COMFORT	High	Medium	Medium	Medium+	Medium-	QLCI has lower air velocities & moderate temps delivered from full-wall array. FCU, VRF, & UV have localized drafts & noise