CARSON SOLUTIONS

DISPLACEMENT INDUCTION & CHILLED BEAMS

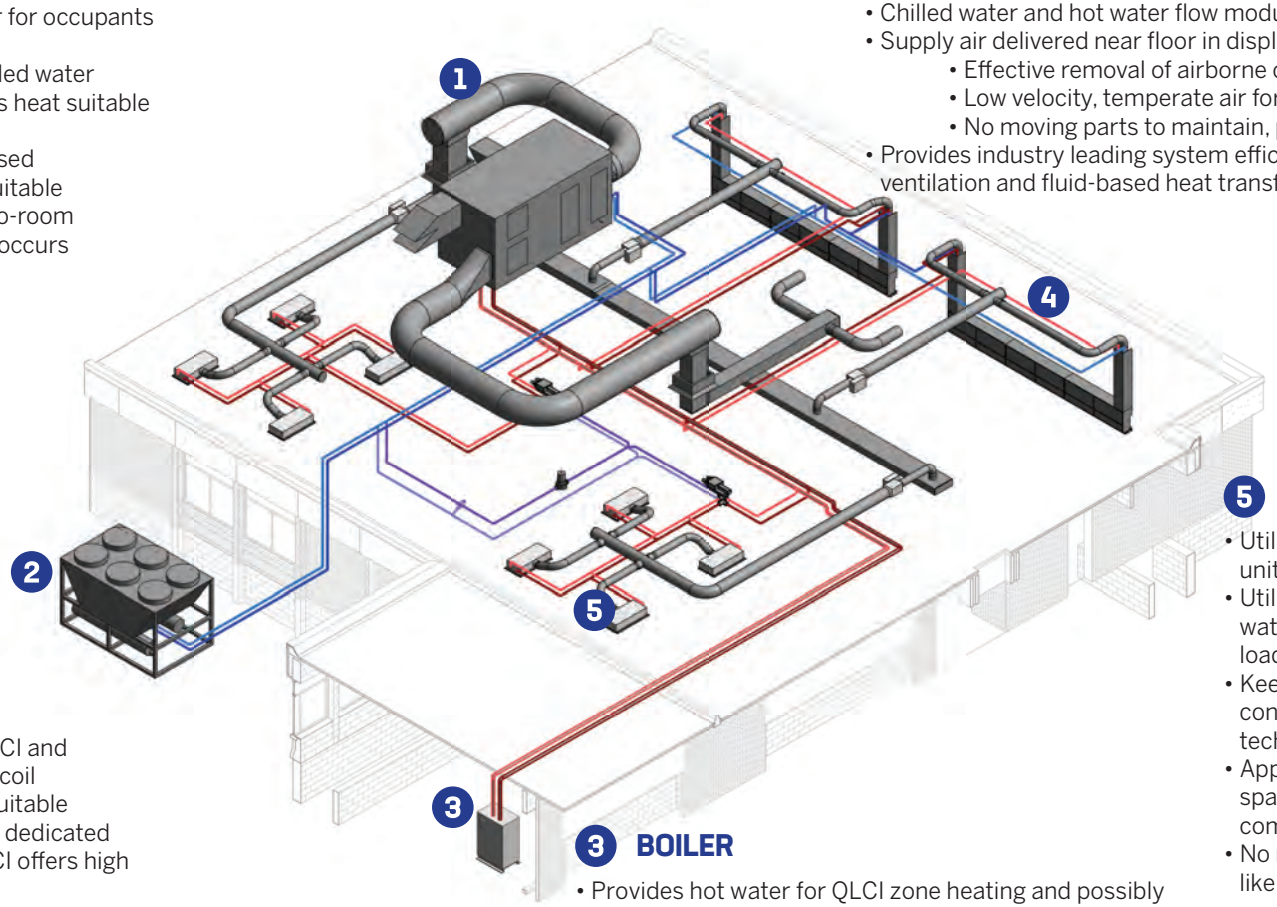
THE COMBINATION CORNERSTONE TO A WINNING HVAC SYSTEM

1 DOAS UNIT

- Provides 100% dehumidified outside air for code required ventilation needs
- Delivers verifiable outside air for occupants
- Rooftop or indoor mounting
- Shown with hot water or chilled water
    - Packaged DX and gas heat suitable
    - Geothermal suitable
- Typically energy recovery based
    - Desiccant devices suitable
- Isolates rooms so no room-to-room airside cross contamination occurs

4 QLCI

- Receives 100% outside air from DOAS unit to drive room air induction process across integral coil
- Chilled water and hot water flow modulated to control sensible space loads
- Supply air delivered near floor in displacement mode for:
    - Effective removal of airborne contaminants for better IAQ
    - Low velocity, temperate air for enhanced thermal comfort
    - No moving parts to maintain, produce noise, or consume electricity
- Provides industry leading system efficiency due to displacement ventilation and fluid-based heat transfer



5 CHILLED BEAMS

- Utilizes same 100% OA from DOAS unit for ventilation air to spaces
- Utilizes same chilled water and hot water to control sensible space loads
- Keeps the HVAC mechanical system congruent versus applying another technology
- Applied in smaller, less occupied spaces for improved thermal comfort and acoustics
- No moving parts to maintain, just like QLCI

2 CHILLER

- Provides chilled water for QLCI and possibly DOAS chilled water coil
- Air-cooled or water-cooled suitable
- If DOAS unit is packaged DX, dedicated elevated chilled water to QLCI offers high efficiency operation
- Alternatives:
    - No Chiller Design Option (only HW available) Packaged DX DOAS applied and designed to deliver cool, dehumidified primary air for recognized sensible cooling in space
    - Geothermal water applied - Electrification
    - Heat recovery chiller - Electrification

3 BOILER

- Provides hot water for QLCI zone heating and possibly DOAS hot water coil
- Often high efficiency condensing style boilers applied
- Gas fired or electric boiler suitable
- Alternatives:
    - If existing steam source available, apply a steam-to-hot water conversion
    - Some climate designs may not require hot water in the zone
    - Geothermal water applied - Electrification
    - Heat Recovery Chiller - Electrification

v2.0 – Issue Date: 6/2023