

# Leasing Space with a Dedicated Outdoor Air System (DOAS)

## What is a DOAS?

DOAS stands for Dedicated Outdoor Air System. It is a high performance HVAC system that maximizes building energy efficiency and usable square footage.

A DOAS achieves these benefits through two main processes:

- It uses water to transport heating and cooling energy, consuming less energy and requiring smaller equipment compared to a typical all-air system
- It preconditions the required outdoor air separately from tenant space conditioning air, which reduces the quantity of air that circulates through the building and minimizes the size of associated ductwork

## How Do Tenants Benefit From a DOAS?

Compared to typical all-air systems, the energy use reductions and smaller HVAC infrastructure that a DOAS can offer creates the potential for:

- Higher ceilings
- Increased usable square footage
- Superior energy efficiency
- All levels of LEED certification, including Platinum

In addition, a DOAS can virtually eliminate the overcooling associated with Variable Air Volume (VAV) systems that have fixed outdoor air percentages.



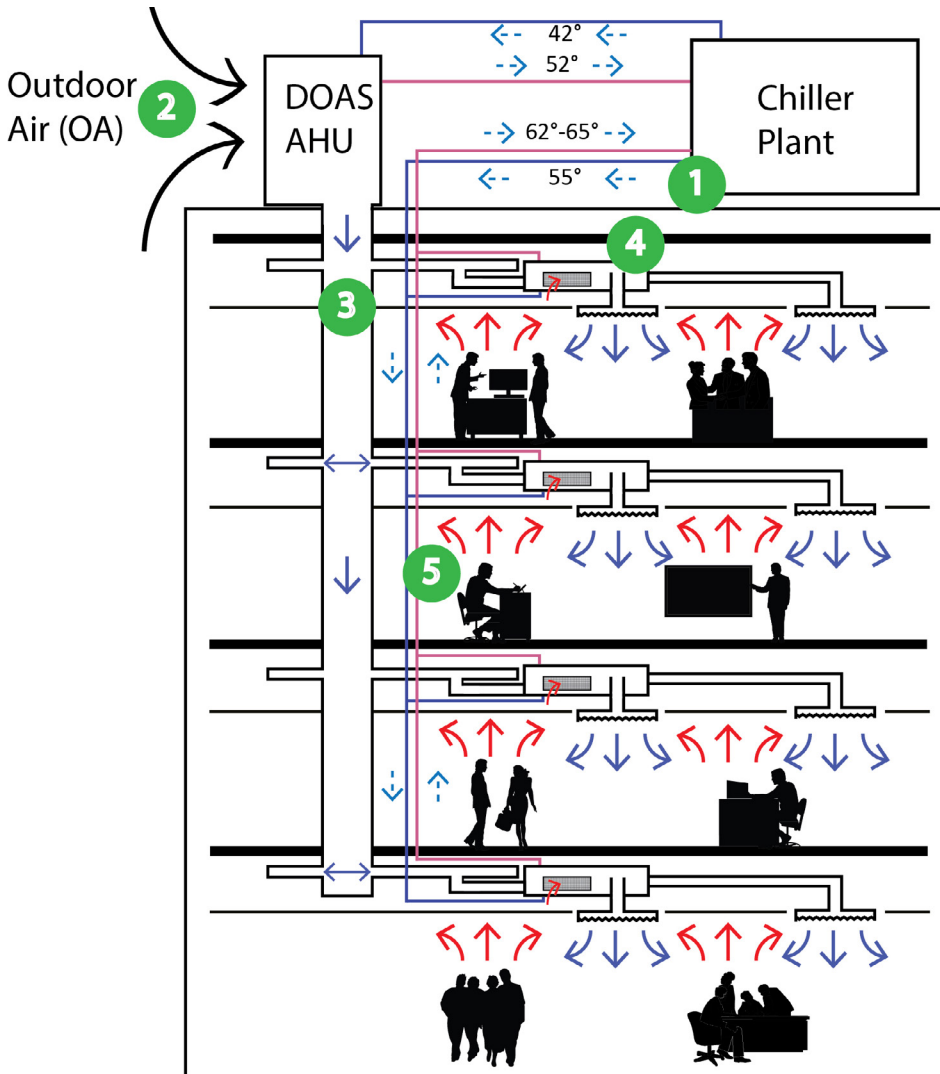
DOAS Terminal Unit in Exposed Ceiling | 1325 G Street NW | Washington, DC

## GHT DOAS PROJECTS

- 1000 Maine Avenue SW at The Wharf
- 1200 17th Street NW
- Washington Gas Springfield Operations Center
- American Congress of Obstetricians and Gynecologists (ACOG) Headquarters
- 1325 G Street NW | DOAS Conversion
  - Base Building DOAS Upgrade + 3rd, 4th, 7th, 9th, and 10th Floor DOAS Upgrade
- Confidential Government Training Facility
- Public Radio Station Studio and Office Renovation
- Decisive Analytics | 1400 Crystal Drive
- US Department of the Interior (DOI) Renovation | 1849 C Street NW
  - DOAS Serving Fan Coil Units
- George Mason University (GMU) | Potomac Science Center
  - Under Construction
- GSA Tenant Parklawn Building Renovation | DOAS Terminal Units
- 1401 New York Avenue NW Repositioning
- 901 N Capitol Street NE
  - In Design
- 1301 Pennsylvania Avenue NW
  - Concept Designs

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## DOAS in Section View



### HOW DOES A DOAS **SAVE ENERGY** COMPARED TO OTHER SYSTEMS?

- Moving energy in water is 2/3 more efficient than moving energy in air
- A DOAS uses 70-80% less fan energy than a typical all-air system because it moves a smaller quantity of air
- A DOAS generates cooling energy with warmer water than a typical VAV system, which increases chiller efficiency

### HOW DOES A DOAS **SAVE SPACE** COMPARED TO OTHER SYSTEMS?

- A DOAS central plant features smaller air handling equipment than an all-air system
- A DOAS uses significantly smaller ducts than an all-air system, which can reduce required shaft space by ~ 80%
- Reduced duct sizes can also free up space in the ceiling plenum and support lower floor-to-floor heights
- There is no requirement for typical mechanical rooms on each floor with a DOAS, which reduces mechanical runs

- 1 Chiller Plant delivers cooling energy via 55° water to terminal units and 42° water to DOAS AHU (air handling unit)
- 2 Outdoor air (OA) enters DOAS AHU, where it is preconditioned
- 3 OA is delivered to terminal units via dedicated ductwork
- 4 OA and return air is mixed in the DOAS terminal unit and cooled by coils before it's delivered to the tenant space by fans and diffusers
- 5 Heat generated by people and equipment warms the air, which rises and returns to the ceiling plenum where process 4 repeats

