AIRZONE

Office Solutions

VRF zoning solutions that can deliver enhance performance and reduced cost for Office Spaces.

Traditional VRF HVAC Solution
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Traditional VRF HVAC Solution

Designers and contractors are turning to VRF HVAC systems in commercial building applications to drive efficiency and support the realization of carbon reduction goals by both building owners and occupants. Control of building environments is essential in delivering the benefits associated with VRF systemsl.

Airzone has worked with most of the top VRF manufacturers to increase the efficiency of their systems to deliver the owner and occupant sustainability goals. . All while maintaining the architects design intent of the space and flexibility of the use of the space. How do we do this? Through zoning control with Airzone's Easyzone system.

Recent Application.

A recent Airzone project demonstrates teh power of Airzone's products. This project involved a traditional VRF application for a 3-story office building using a LG VRF sytem with ductless indoor cassette-type units. In this example, zone control is achieved through the individual cassetts. Some zones connected to a ducted unit do not have individual zone temperature control, making it difficult to deliver comfort..

The Airzone solution:

Airzone combined the Easyzone and Aidoo products to deliver both zone control and comfort to the space. The powerful combination of these products reduced the number of indoor cassetts needed while achieving the efficiency and comfort requirements.

The Airzone solution allows for tighter temperature control of offices and balances comfort levels throughout the space without additional indoor units.

We will present an actual case study of an HVAC application of a building located in Tampa, Florida. The office consists of three floors, with twenty separate zones in total.

The Opportunity or Challenge

Why is the refrigerant capacity oversized?

- The higher the number of indoor cassette units, the greater the amount of refrigerant running through the space. This can negatively impact installation costs associated with piping, distribution and pose service challenges post-installation
- The indoor cassette unit introduces additional noise into the space as a result of the fans in each unit.
- A traditional VRF heat pump or heat recovery system requires more indoor units which can result in an increase in the initial budget.

Scenario 1.

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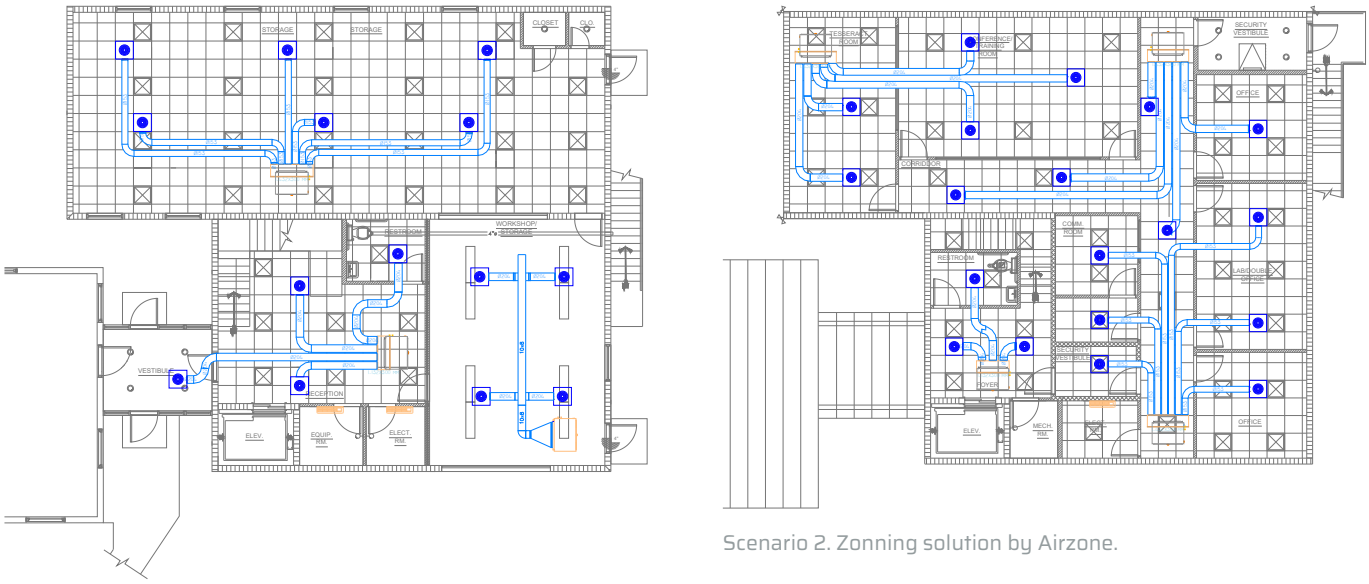
The Solution: Airzone zoning control for VRF

The solution proposed to optimize the application is comprised of:

- Airzone Easyzone zoning system and Aidoo controllers.
- Centralized and remote management through the Airzone Cloud Webserver HUB.
- VRF indoor units.



Scenario 2. Zonning solution by Airzone.

Easyzone is an easy to install solution that enables the zoning of a flexible ducted indoor AC unit, controlling from 3 to 6 zones independently. Its integrated regulation unit contains all the elements necessary to control a ducted AC unit:

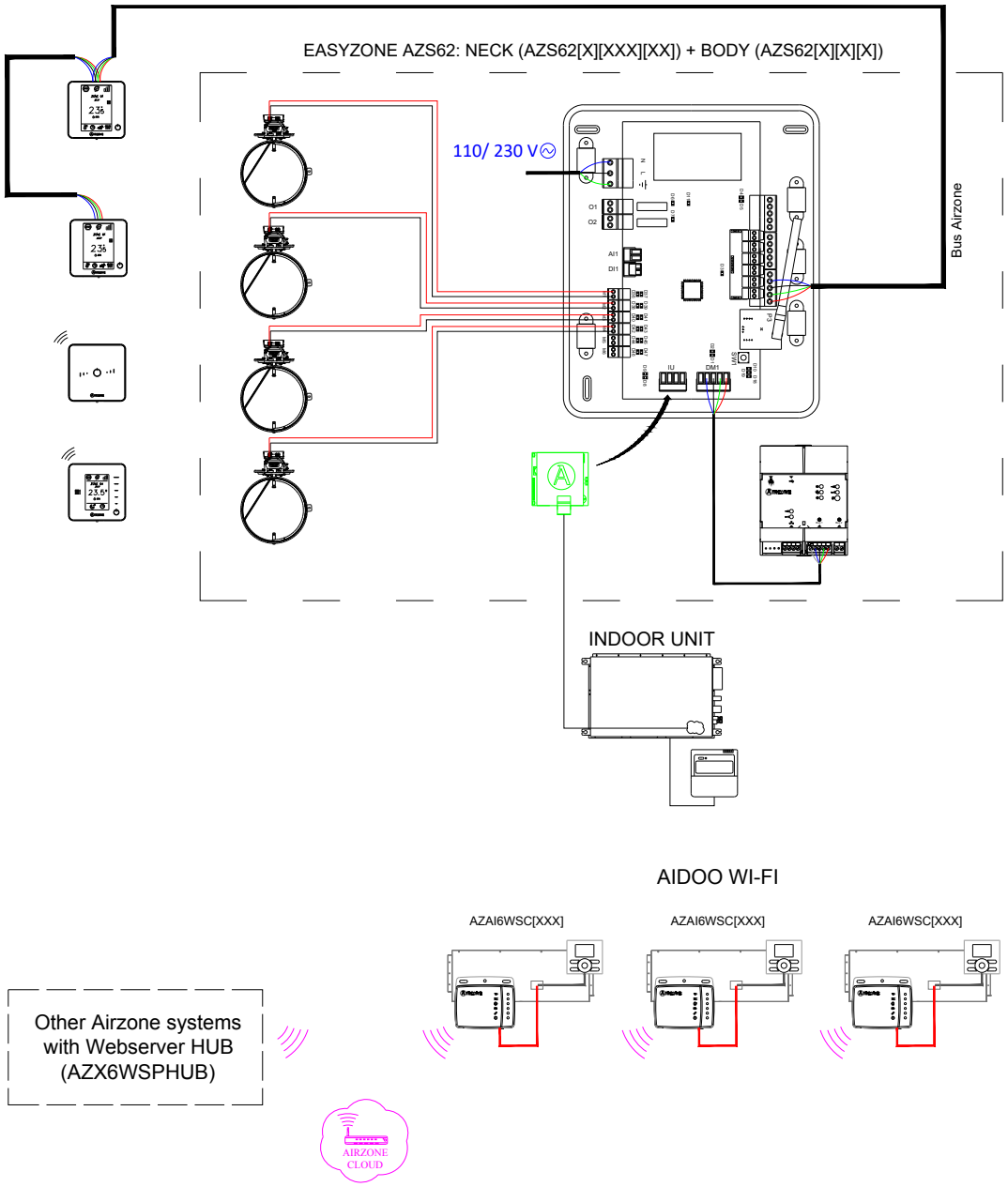
- integrated system main control board, Airzone communication gateway, 6" or 8" circular dampers and a neck that adapts to the ducted AC units.
- This system will be supplemented by Aidoo control devices, as maintaining the unit-per-zone approach is considered the best option due to the floor plan of the office.
- The thermostat of each unit is replaced by an interface designed for the end user, enabling the configuration of different unit control modes from any mobile device or computer.

Airzone Integration

Our Communication with building management systems is based on BACnet IP or MS/TP. We can also support the ModbusRTU native protocol.
We can apply Airzone control to home and building automation systems for secure control applications.

In order to continue to offer fully integrated solutions, we work directly with integrated building management companies. An example is our collaboration with Lutron and Crestron.
Users with an Airzone Cloud webserver connected to their systems will be able to enjoy voice control functionalities, using Amazon Alexa or Google Assistant.

Connection diagram



Airzone wiring diagrams.

The Easyzone system is completely pre-wired and pre-insulated in the factory, thus avoiding any possible connection errors. It also incorporates all the fixing elements required to complete the installation, such as fixtures for the ceiling or the motorized damper flange for mounting flexible ducts. The system offers the possibility of integrating the Airzone Cloud Webserver, in addition to other controllers.

The Airzone communication gateway provides full integration with the operation of the manufacturer's indoor AC unit and the system. Aidoo devices allow easy integration with any Airzone system and their installation is based on connecting the device to the indoor unit using the cable supplied, which is specifically designed for the required unit model.

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Rationale for the Airzone HVAC Control Solution

Airzone's projects team is available to review the benefits of applying an Airzone solution to your project. Typical analysis is less than 3 days. Why talk to Airzone? Often we can help you find project savings associated with: :

- **Savings in installation costs.**
- **Savings in installation and commissioning.**
- **Savings in operation costs.**
- **Savings in maintenance time and procedures (replacing less filters and checking just a few AHU).**
- **Reduce refrigerant in the occupied space, minimizing future costs associated with service and leaks**

Traditional VRF vs. Airzone's solution

The original VRF HVAC solution involved the use of ducted cassette units in building. The following was the orignal selections.

SCENARIO 1: TRADITIONAL VRF

	ZONE	AHU MODEL	UNIT'S CAPACITY (kBtu/h)
INDOOR UNITS			
FIRST FLOOR	Storage	ARNU363M2A4	36.2
	Lobby	ARNU183M1A4	19.1
	Reception		
	Restroom		
	Workshop/storage	ARNU363M2A4	36.2
	Equip. RM.	ARNU073SJA4	7.5
	Elect. RM.	ARNU073SJA4	7.5
SECOND FLOOR	Tesseract Room	ARNU093TRD4	9.6
		ARNU093TRD4	9.6
	Conference/Training room	ARNU093TRD4	9.6
		ARNU093TRD4	9.6
	Hallway I	ARNU183M1A4	19.1
	Office	ARNU093TRD4	9.6
	Lab/Double Office	ARNU093TRD4	9.6
		ARNU093TRD4	9.6
	Office	ARNU093TRD4	9.6
	Comm. Room	ARNU183M1A4	19.1
	Security lobby		
	Hallway II		
	Room		
	Restroom	ARNU183M1A4	19.1
	Entrance hall		
	Elect. RM.	ARNU073SJA4	7.5
OUTDOOR UNIT		ARUM192BTE5	192

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Traditional VRF vs. Airzone's solution

SCENARIO 2: VRF WITH AIRZONE

	ZONE	AHU MODEL	UNIT'S CAPACITY (kBtu/h)
INDOOR UNITS			
FIRST FLOOR	Storage	ARNU363M2A4	36.2
	Lobby	ARNU183M1A4	19.1
	Reception		
	Restroom		
	Workshop/storage	ARNU363M2A4	36.2
	Equip. RM.	ARNU073SJA4	7.5
	Elect. RM.	ARNU073SJA4	7.5
SECOND FLOOR	Tesseract Room	ARNU363M2A4	36.2
	Conference/Training room		
	Hallway I	ARNU243M2A4	24.2
	Office		
	Hallway II		
	Lab/Double Office	ARNU243M2A4	24.2
	Office		
	Comm. Room		
	Security lobby		
	Room		
	Restroom	ARNU183M1A4	19.1
	Entrance hall		
	Elect. RM.	ARNU073SJA4	7.5
OUTDOOR UNIT		ARUM168BTE5	168

Installed capacity

The Airzone HVAC and control solutions allow you to adjust the capacity of the ducted AC unit to be installed.

OUTDOOR UNIT COMPARISON

Heading	Traditional VRF Solution	VRF Solution with Airzone	% of savings
Total installed capacity (kBTU/h)	192	168	13%

REFRIGERANT CHARGE COMPARISON

Heading	Traditional VRF Solution	VRF Solution with Airzone	% of savings
Refrigerant charge (lbs)	60,38	51,05	15%

INDOOR UNIT COMPARISON

Heading	Traditional VRF Solution	VRF Solution with Airzone	% of savings
AHU total refrigerant capacity (kBTU/h)	248,1	217,17	12%
Number of AHU	17	10	41%

PIPE LENGTH COMPARISON

Heading	Traditional VRF Solution	VRF Solution with Airzone	% of savings
Refrigerant piping length (ft)	345	260	25%

The owner and occupant benefits

- With Airzone, the final cost of the HVAC application is lower than the solution proposed without Airzone, in addition to reducing the cost of the office project described above units by 20% and the installed capacity by 13%.
- The reduction in the amount of refrigerant used by 15% due to the decrease in the number of indoor units installed implies lower refrigerant costs and an important reduction in the greenhouse gas emissions.
- The advantages of zoning each room allow to reduce the number of indoor units and increase the confort in each zone. Moreover, the integration with BMS allows to control the system via Bacnet, or thorugh the Airzone Cloud App. In addition, if this building had an IT system such as Crestron, Airzone could be connected to it as well.
- By having the Airzone Webserver HUB the system will enable remote updates, which means that any available updates to the Airzone system regarding IT and BMS, could be added to the system. Therefore, by using Airzone, the HVAC unit can be connected to the latest IT technology.

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EASYZONE CONTROL

HEADING	REFERENCE	MATERIAL	Units
AIRZONE MATERIAL	AZS62MLGE02	M neck for LG Airzone Easyzone S62	2
	AZS62M84	Motorized M plenum for LG Airzone Easyzone 62	2
	AZS62LLGE02	L neck for LG Airzone Easyzone S62	4
	AZS62L85	Motorized L plenum for LG Airzone Easyzone 62	2
	AZS62L66	Motorized L plenum for LG Airzone Easyzone 62	2
	AZS62BLUEZEROCB	Airzone Blueface thermostat wired. [B/W]	16
	AZAI6WSCLGE	Aidoo Airzone LG Wi-Fi controller	3

HEADING	REFERENCE	MATERIAL	Units
WEBSERVER	AZX6WSPHUB	Webserver HUB Airzone Cloud	1

Call Airzone today to explore how we might improve performance and cost of your next office property.

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AIRZONE NORTH AMERICA CORPORATION

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