



# INDOOR AGRICULTURE CASE STUDY



## Key Results



**Integrated BMS**



**Lower Install Cost**



**Simpler System**



**Easier Maintenance**



**Environmental Control**

## Overview

Prior to the installation of new Air<sub>2</sub>O air handling units (AHUs) into an indoor agriculture facility in Canada, controls and automation contractor Stratus Designs, Ltd., sought a unique partnership that would enable them to tightly integrate Air<sub>2</sub>O's state-of-the-art units and the client's building management system into a single control system.

### ●Location

British Columbia, Canada

### ●Industry

Indoor Agriculture:  
Cannabis Cultivation and Processing

### ●Use Case

Integrating Controls for Air Handling Units &  
Building Management Systems

### ●Project

2 Dry Units, 6 Grow Units and 2 General Facility Units

### ●System Specs

- 10 AHUs
- Combined over 230 Tons of Refrigeration capacity & almost 70,000 CFM total airflow capacity
- Passive Wrap-Around Heat Pipe results in approximately 15% energy savings, without adding any additional complexity to system operation or Controls programming
- Three-stage filtration (MERV8, MERV13 & HEPA) as well as UV in the airstream (at the cooling coil)

## The Challenge

Industrial manufacturing facilities typically install separate AHU and BMS controls. However, large-scale indoor cannabis cultivation and processing facilities require exceptionally fine-grained control of AHUs to ensure the environment is continually maintained for optimal growing and processing conditions, each of which can vary significantly—and minutely—throughout the cycle. Stratus Designs Ltd., the controls and automation contractor for the facility's BMS, wanted controls for the two tightly integrated, as they would also be monitoring and operating the facility after start-up. They sought to collaborate with Air<sub>2</sub>O in a unique way to ensure the client's precise environmental specifications could be efficiently and precisely maintained at all times.

## The Approach

Air<sub>2</sub>O AHUs are engineered with extensive controls packages with versatile programming options to help facility operators maintain tight trending of set points and are customizable to allow for the integration of other controls systems. Stratus wanted to take that integration a step further to give them an unprecedented level of control—one that could only be achieved by incorporating the AHUs and the BMS into a single control system.



Thermal Management  
Innovation

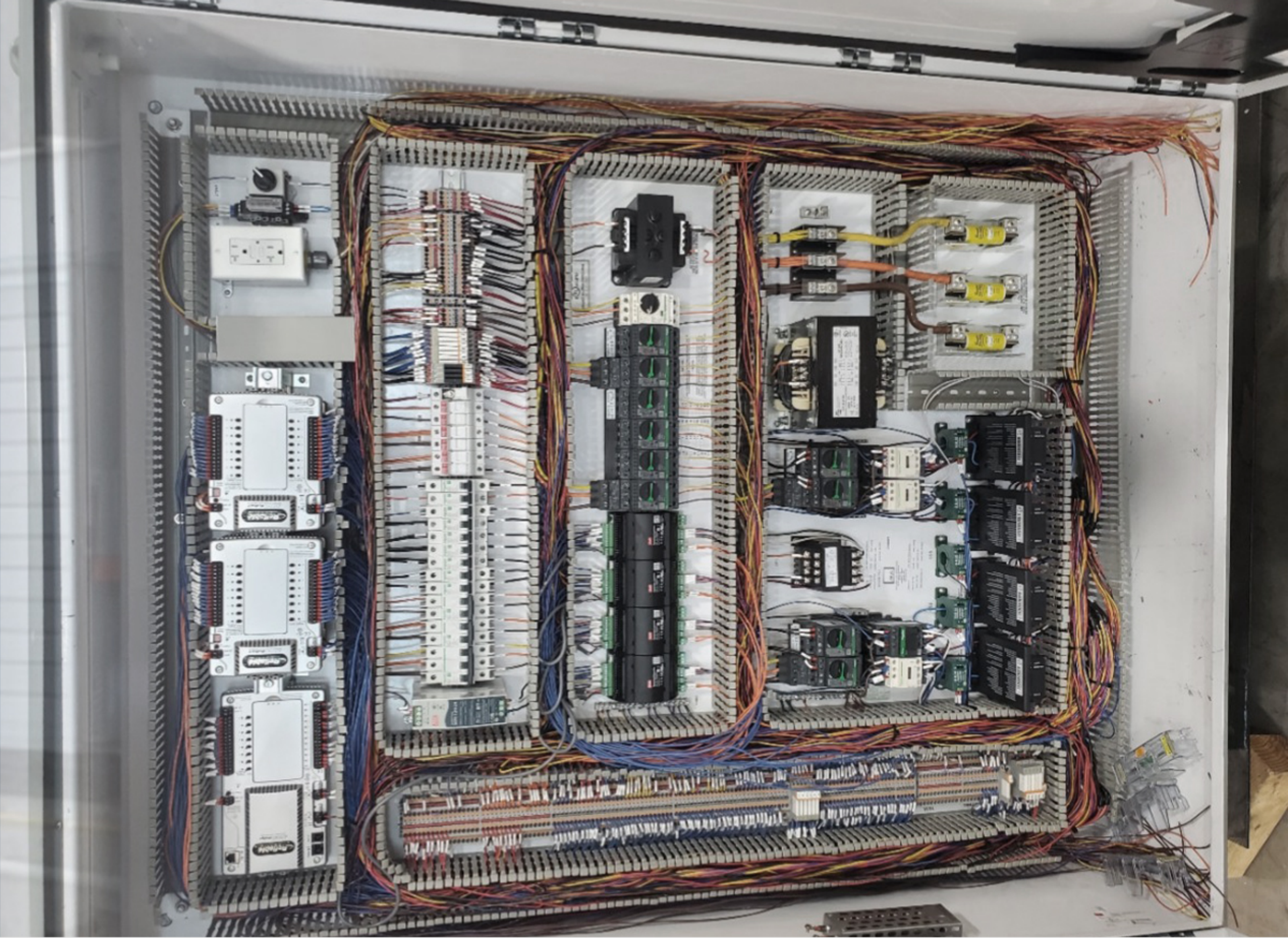
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*Tightly integrated, fine-grained AHU  
and BMS controls for optimal growing  
and processing conditions*



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## Solution

Air<sub>2</sub>O invited Stratus technicians to install their Reliable Controls™ system onsite at Air<sub>2</sub>O's manufacturing plant in Phoenix, Arizona. Sensors and wiring were brought to a terminal strip within the unit by the Air<sub>2</sub>O factory team for Stratus to then install the AHU controls. Stratus worked closely with Air<sub>2</sub>O staff to complete the installation and start up the AHUs as part of the Factory Acceptance Testing procedure before the units were shipped to the facility.

## Results

- Integrated the Building Management System (BMS) controls directly into the air handling unit (AHU) controls.
- Achieved more “fine-grained” control of the AHU, resulting in exceptionally tight environmental control.
- Extra visibility of AHU components allows for faster troubleshooting and reduced downtime in case of component failure or maintenance.
- Integration of the BMS and AHU controls results in less complexity and less duplication of system components, ultimately resulting in a lower install cost and a simpler system.

visit website: [www.stratusdesigns.ca](http://www.stratusdesigns.ca)



**“These AHUs are beautiful. They are every bit as nice as competitors’ units, and at a much better price point. I have never heard as many complements from the gas fitters, refrigeration techs and sheet metal foremen as I have on the Air<sub>2</sub>O product. Well done my friends!”**

**- Chapman Mechanical, British Columbia**

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