

CASE STUDY

BEVERAGE DISTRIBUTION & MANUFACTURING FACILITIES



JOHNSON
AIR-ROTATION® HVAC SYSTEMS

JOHNSON AIR-ROTATION® SYSTEMS MAINTAIN CONSISTENT TEMPERATURE & HUMIDITY CONTROLS FOR BEVERAGE FACILITIES

EVEN TEMPERATURES THROUGHOUT

Temperature requirements, indoor air quality, and humidity control are just a few of the key issues facing beverage manufacturing and distribution facilities. Multiple dock doors and inconsistent racking temperatures, further add to the tough job of facility managers.

NO DUCTWORK, NO ROOFTOP SUPPORT, QUICK INSTALLATION

Installation of a Johnson Air-Rotation® System removes many of these concerns. One Johnson Air-Rotation System can heat and/or cool 150,000 square feet. In addition, Johnson Air-Rotation® Systems can guarantee even temperatures within +/- 2 degrees throughout a facility. The low first equipment cost, low installation costs, and long-term utility savings prove that Johnson Air-Rotation HVAC Systems just makes sense!

GLOBAL BEVERAGE DISTRIBUTOR USES JOHNSON AIR-ROTATION SYSTEMS TO CONTROL TEMPERATURE & HUMIDITY AT SOUTHWEST DISTRIBUTION CENTER

In a recent example in the Southwest, one of the world's largest producers of beverage products needed a solution for humidity and temperature control. Johnson Air-Rotation® Systems installed (2) 110 ton heating/cooling systems that maintained the required 75-77 degree range and solved the moisture control and humidity challenges in the space. Cognizant of the limited floor space, Johnson designed an outdoor system to ensure valuable floor space would not be compromised.

The customer is also extremely satisfied with the Johnson system because it allowed them to save substantially during installation as a result of not requiring additional rooftop support, no ductwork and fewer utility hook-ups to the original rooftop units designed. Johnson's engineering team worked closely with the engineering firm tasked with the overall project to design-build a system that would accommodate the company's transportation lines which ran through the facility. After a year of system performance, the engineer and customer are glowing references of the positive impact a Johnson HVAC System can have on a company. With a product lifespan of nearly 30+ years, the Johnson system will provide decades of dependability in the ever-changing beverage manufacturing and distribution industry.



Named one of the Fastest Growing Companies by Inc. Magazine



Johnson Air-Rotation® HVAC Systems are Manufactured in the USA



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CASE STUDY

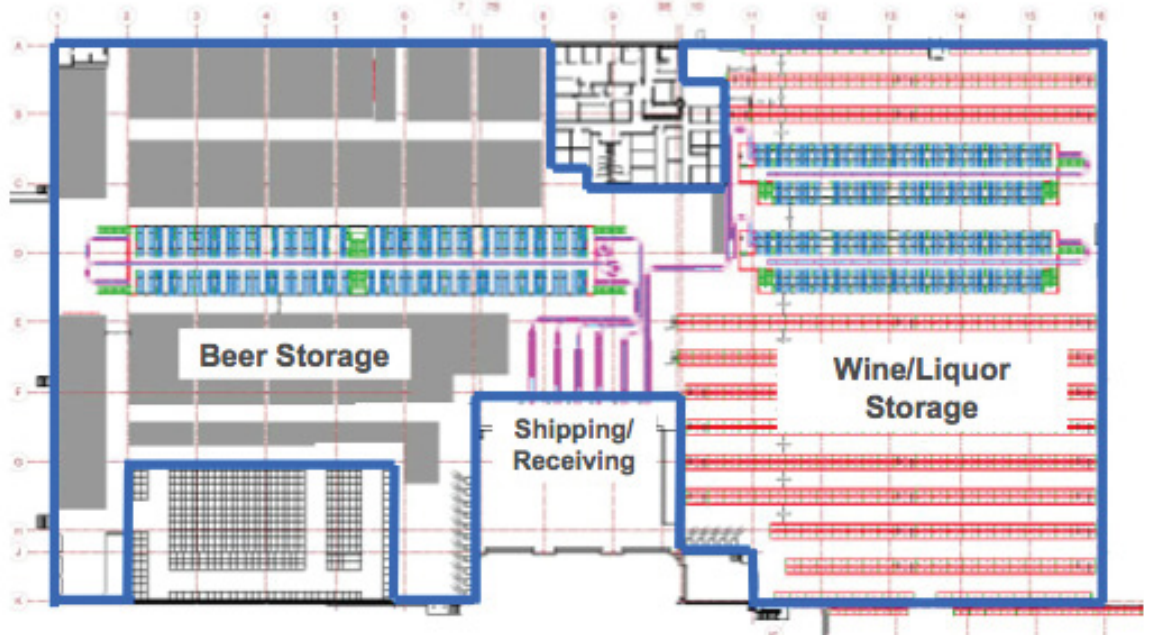
BEVERAGE DISTRIBUTION & MANUFACTURING FACILITIES

INDEPENDENT CASE STUDY: BEVERAGE DISTRIBUTION

NORTHEAST BEER & WINE BEVERAGE DISTRIBUTOR USE JOHNSON AIR-ROTATION SYSTEMS TO MAINTAIN FACILITY'S TEMPERATURE REQUIREMENTS

After a recent installation of the Johnson Air-Rotation® System, a Northeast beverage distribution company hired an independent firm to ensure that their temperature requirements were met throughout the year. This investigation looks at the temperature distribution in a warehouse that stores beer and wine.

Conditioned Floor area: 165,866 ft² [15,409 m²]



STUDY PARAMETERS

The customer required temperatures for the warehouse as follows:

- Temperature gradients in the storage warehouse not more than 1.5oF per 10 ft. vertically and 2oF from wall to wall.
- Maximum relative humidity is 70%; no humidifier requirement

RESULTS OF THE INDEPENDENT STUDY

- In each case, January, May and August have an average temperature at or lower than the specified maximum temperature.
- Each case complies with the temperature range 1.5oF temperature change for each 10 ft of height.
- The August and May cases show lower average room temperatures than expected. This is most likely due to an oversizing of equipment, the simulations also use the minimum temperatures available for the supply air. The units will vary this air temperature in real life, depending on the temperature sensors in the warehouse.
- Mostly all cases show the temperature variation of no more than 2oF from wall to wall. In the cases where this is not shown it is either that the air from the AHU is cold or that the heat from the lighting is influencing the result.
- The supply air temperature can be increased a little in both August and May cases without exceeding the allowable maximum room temperature.
- With the correct angle of the vertical louvers, the heat from the lighting can be contained using the air curtain created by the AHUs.

MONTHLY TEMPERATURES AS FOLLOWS:

JAN.	FEB.	MAR.	APR.	MAY	JUN.
60°F	60°F	60°F	60°F	61°F	67°F
JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
67°F	68°F	67°F	60°F	60°F	60°F

IT WAS SUGGESTED THAT THE INVESTIGATION LOOK AT THE WAREHOUSE AT THREE DIFFERENT TIMES OF YEAR

JAN.	MAY	AUG.
Winter situation, cold air infiltration & low outside temperatures	Swing season, outside temperatures vary between hot & cold	Summer situation, hot air infiltration & high outside temperatures
60°F setpoint	61°F setpoint	68°F setpoint

THE FOLLOWING INPUTS ARE THE SAME FOR ALL THE MODELS:

MESH AND CONSTRUCTION	INTERNAL LOADS	HVAC
The warehouse and the shelf position are drawn according to floor plans, all the components are static and do not change from simulation to simulation	A lighting load of 3.3 Btu/ft ² has been included in the August and May simulations.	Each air handling unit provides 35,000 cfm to the room at varying temperatures throughout the year.



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