

Super warehouse



Wiptech logistics has been specialised for the past 10 years in the supply of 3PL services such as the preparation of orders at the B2B and B2C levels (E-commerce). They also offer a multitude of varied secondary services including kit assembly, packaging labeling, etc. As a supplier of logistics solutions, Wiptech oversees partially or totally the logistics operations of its clients.

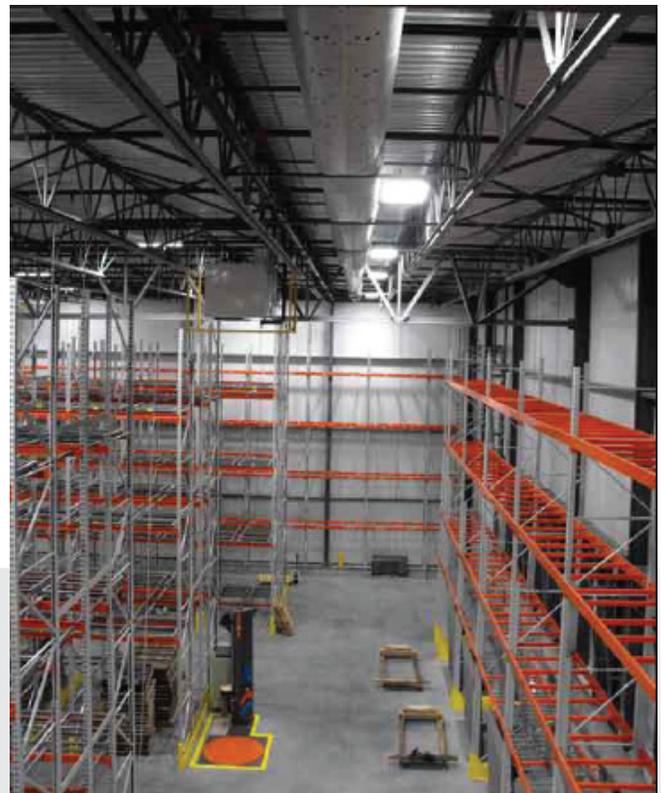
Their services are available throughout Canada: Montreal, Vancouver and their headquarters in Sherbrooke.

Ventilation criteria in the warehouse

The design of the ventilation system of a warehouse must be adapted to the activities and products that are stored there.

A precise control of the ventilation enables better storage conditions, healthy air quality and a comfortable working environment. Studies have shown that adequate ventilation in the workplace increases worker productivity.

However, standard air diffusers such as the steel grids within a sheet metal duct combined to ceiling fans often present air uniformity problems. Associated with this are increased energy consumption and higher operation and management costs.



Highlights :

- 125 000² Ft
- Height 40 Ft (12 m)
- 10 million \$ investment
- Largest warehouse in Sherbrooke

" With the economy on the upswing, its time to invest.
We shouldn't wait until the demand surpasses our capacity ".
Martin Ball, President, Wiptec inc.

PROJECT: Adequate ventilation Wiptec warehouse

The FDD diffusers were installed to insure adequate ventilation. The FDD is a flexible high induction diffuser developed for high volume applications. The FDD diffuser is manufactured from "PVC" waterproof polyester. Its performance surpasses the technical limits of traditional air diffusion. The multi-dimensional holes as well as their location allow for a rapid mixture of outside air with ambient air in the room. The high speed of the air supply is reduced and mixed with the ambient air and carried along in the wake. The mixture rapidly becomes isothermal allowing it to travel to occupied zones at low velocity.

Stratification is thus eliminated while creating an enjoyable air flow in occupied zones.

Problem

The height of the warehouse although well suited for stocking a high volume of inventory, presents certain problems with the exploitation of the superior shelving when using conventional air diffusion with the overheating of the stock on the top shelves.

Solution

The FDD duct diffusers has been installed between the roof joists to release the maximum of warehouse space. During the winter, the FDD operates in continuous mode using recirculated air to prevent the overheating of stock. The heating of the warehouse is assured by unit heaters.

FDD and unit heater combination assures optimal heating diffusion by mixing the ambient air to the heated air from the unit heaters to equalize the temperature over 40 feet of height. During the summer months the FDD's continue to recirculate the air however, the unit heaters are not functioning. The temperature is uniform all year around.



Heating cycle

- 1 - Turning on the unit heaters when needed.
- 2 - The FDD in continuous mode destratifies and mixes the hot air with the ambient air to reach the occupied zones.
- 3 - Turning off the unit heaters when the desired temperature is reached.
- 4 - Steps 1 through 3 are repeated when there is a demand for heat.

Conclusion

The installation of FDD diffusers has optimised the air diffusion in the warehouse area. Due to the high induction generated, the mixture of the hot air from the unit heaters and the air pulsating through the FDD's rapidly becomes isotherm throughout the entire area.

Temperature readings taken at many levels after the unit heaters have been turned off have demonstrated a temperature differential over the entire height of the warehouse of less than 1°C. This indicates that the lamination (stratification) effect has been virtually eliminated.

Furthermore, these performances allow for the reduction in run time of the unit heaters and consequently a reduction in energy consumption.

Smoke test video is available at :

<http://nadklima.com/images/Accueil-Highlight/Etude-de-cas/WiptecFDD.wmv>



The FDD can also be used as an air curtain in shipping zones or garage doors. The drilling pattern depends on the dimensions of the door and the air output necessary for effective coverage.



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