



## Case Study: Plastipak - Plant City, FL.

**Plastipak Holdings, Inc.** is a leading supplier of plastic containers, manufacturing technologies, equipment, and services. They are one of the largest users of PET and HDPE resin in the Western Hemisphere and an industrial leader in the production of dynamic custom containers.

### Opportunity:

Plant City, Florida, Includes 18 acres with a current structure approximately 30,000 square metres. Expansion of this facility is already being engineered.

### Challenge:

Building has a high heat load due to the many processes. Building needs to be under tight temperature and humidity control for the process to work properly. Controlled Temp needs to be 78 Degrees F. Plastic molds must not sweat. Humid Air condenses on cold surfaces. This condensation, often called "mold sweat" causes several problems.

The plastic containers can look like an orange peel where water droplets form bumps on the mold surface. Condensation can also accelerate corrosion, which will increase maintenance costs. The surface deformities on the containers prevent proper adhesion of labels. Use of the Munters desiccant dehumidifiers to keep the molds dry has been a success. Without condensation, coolant temperatures can stay low, allowing continuous, high-speed operation.

### Solution: IFA Series Air Turnover coupled with Munters Dehumidification.

#### Applied Air – (2) IFA-600 and (2) IFA-300 for Temperature control.

Air Turnover Cooling units (ATC) offer a wide range of benefits to the industrial consumer conditioning large volume, high ceiling bay facilities over traditional packaged roof top units (RTU). Below is a brief list of benefits that should be considered when air conditioning large volume spaces:

- ATC's provide uniform air distribution and prevent air stratification without ductwork. The ductless systems reduce overall installed and engineering costs while reducing operating costs.





- The modular design of the ductless ATC's allow for flexible plant layout and mobility of the units. If the plant design / layout changes, no need to re-duct air from one location to the other. If required, the units can be simply un-stacked and re-stacked at a new location. If the building is leased, the units can be moved to a new building in the future.
- ATC's are typically installed within the plant thereby protecting the air handlers from the weather reducing maintenance costs and extending the life cycle as much as ten years over RTU's. The indoor units are visible to maintenance personnel leading to regular filter changes and motor greasing.
- Since the ATC's are floor mounted, there is no need for costly structural analysis required for rooftop-mounted equipment. Roof penetrations are eliminated preventing possible roof leaks and damage to the roof during maintenance.
- ATC equipment is a split system (chilled water or DX) allowing for flexible design of the space set point conditions. ATC's can be engineered for high sensible loads or for heavy dehumidification. Because the ATC's prevent temperature stratification, temperatures and humidity will be held within close tolerances from floor to ceiling.



- ATC's are available in a wide range of standard options including: gas-fired, electric, hot water or steam heating; humidification, outside air economizer and variety of filtration efficiencies. Each ATC is designed and engineered for the specific application ensuring tight environmental control
- Because ATC's are not permanently affixed to the building structure, many customers have classified the ATC's as "process equipment" instead of "air-conditioning". The class distinction as process equipment of the ATC's leads to accelerated depreciation over packaged rooftops representing tax savings.
- ATC using chilled water have additional advantages over ATC using DX condensing units.
  1. Chilled water systems have less components to maintain.
  2. Chillers have a longer life span and operate more efficiently.
  3. Chilled water systems offer diversity and allows the water to follow the load enhancing the efficiency and flexibility of the system.
  4. The chiller can be oversized for future use for either air conditioning or process cooling.