

# C&C System Collects and Returns Dust Safely

## Case Study of Cyclonaire C&C Dust Reclaim System application at a U.S.-based concrete-plant equipment manufacturer

### Project

A nationally known U.S. concrete-plant equipment manufacturer on the East Coast approached Cyclonaire — the York, NE-based designer and manufacturer of pneumatic conveying equipment — with a custom-order request. The concrete-plant equipment manufacturer asked if there was a way to produce a ground-level dust collection and reclaim system that will ensure environmental quality with the added benefit of worker safety. Cyclonaire combined two existing proven products to create a new one to answer the need and introduced the C&C.

### Problem

Rather than jeopardize worker safety by installing standard bin vents on top of silos — as is the typical industry practice — the company wanted a product that would conveniently operate from the ground level without compromising dependability. It was essential that the system work in cooperation with the customer's rail or truck unload operations, but come with available optional features for special applications. Additionally, the customer wanted the added convenience of automatic, unsupervised operation, rather than compromise productivity with a labor-intensive dust reclaim process. The new unit must then meet Cyclonaire's strict standards for reliability, ease of operation, and cost-effectiveness.

### Solution – The C&C Dust Reclaim System

The automatic Collect and Convey Reclaim System preserves air quality and conserves valuable material by capturing product dust from silo filling operations and automatically returning it directly to the source silo or another destination. "The individual components already existed at Cyclonaire," said Joe Morris, vice president of sales and marketing at the company. "By combining them into a single package, it makes it simple for the customer to get the whole system at one time." The first component, Cyclonaire's Pulse Jet Dust Collector, is conveniently located on ground level for added safety, easy servicing, and filter access. The unit is paired with a second component, the company's signature gravity-fed CycloLok® Dense Phase Pneumatic Conveyor, which operates on plant air and runs only when needed. There's no separate blower, and no wasted energy. Simply put, the system is used to recycle dust from all kinds of dry solids, including foodstuffs, corrosive chemicals, and highly abrasive materials such as cement or slag.

## How the C&C System Works

An exhaust fan draws particle-laden air from the silo into the dust collector — where reduced air velocity allows the trapped dust and particles to drop into the hopper. Automatic controls continually clean the filters using a high-pressure pulse jet reverse airflow. This action forces finer particles of dust and material from the filter media. As the particles accumulate in the hopper, a high-level sensor indicating that the hopper is full automatically activates the CycloLok Dense Phase Conveyor. Air entering the tank pushes captured particles through the convey system, returning them to the source silo or another destination. The duration of the convey cycle is controlled by preset timers, which allow for efficient and minimal supply-air usage. The entire process of cleaning bags and conveying reclaimed dust is controlled automatically by an on-board PLC. If there is a fault in the system, the PLC automatically triggers an alarm to alert an operator that maintenance is required. Requirements for the system — which is available in welded and bolted 10-gauge carbon steel construction or optional stainless steel construction — are as follows: 20–30 standard cubic feet per cycle at 25 psi for material convey; 5–7 cfm at 85 psi for filter cleaning; 110 volts for controls; and 230/460 volts for the exhaust fan.

## Additional Benefits

The unit is equipped with controls for automatic, unsupervised operation and no need to empty dust from the hopper — further ensuring productivity. Signals installed on the unit also will alert users when service is needed. “Customers especially benefit from low air usage and automatic operation,” Morris said. “There’s no need to have extra motors, rotary valves, blowers, or the added noise associated with them. Air is only used when it is required, thus adding efficiency and cost savings to the system.” The versatile C&C System will work in cooperation with customers’ rail or truck unload operations, and can be customized. The unit is factory tested and comes ready for installation to a high-pressure air supply, product supply, and convey line.

## Current Status

The idea worked so well that the same U.S. concrete-plant equipment company added the C&C as a standard offering in its system design. Cyclonaire has since launched its C&C Dust Reclaim System as a mainstay in its own vast product lineup. As marketplace demands and governmental requirements continue to warrant upgrades in environmental standards and worker safety, sales of Cyclonaire’s C&C System continues to expand. The highly efficient, economically priced system maximizes safety and environmental quality.



*Cyclonaire's automatic Collect and Convey Reclaim System preserves air quality and conserves valuable material.*

For more information on the project and equipment, visit [cyclonaire.com](http://cyclonaire.com) or call 1.800.445.0730.