

## Case Study

### Dust Filtration System Handling Explosive Materials

SFS Intec, manufactures a wide variety of screw fasteners that are used in the residential and commercial building markets. The majority of their products are used to secure roofing and siding to structures. Accordingly, the head of the fastener is exposed to the weather. Frequently, these products are used in coastal areas where they are exposed to severe weather. To prevent corrosion and prolong life, the fasteners are zinc coated and a zinc cap is pressed on to the drive head.

The manufacturing process is completely automated and utilizes vacuum and compressed air to handle and position the fasteners. Since there was no form of dust control, a significant amount of fugitive zinc dust was released into the assembly area. The zinc dust created a house keeping issue and offered concerns about the operator's health and safety.

This process was to be relocated to a new, air-conditioned area of the facility. Since the new area was enclosed, management was very concerned with the fugitive dust issue and contacted SysTech Design for a solution.

SysTech Design developed an effective dust control system that integrated an exhaust hood/duct into the automated assembly machines. The exhaust hoods capture the dust at the source and convey it to a properly sized Donaldson® Cartridge style dust collector where the zinc dust is removed from the air stream. The clean air then travels thru a HEPA final filter and is returned to the air-conditioned work area.



A complicating factor with this application was the explosive nature of the very fine zinc dust. The solution was to incorporate explosion vents on the dust collectors along with an explosion suppression system in the intake duct to prevent the return of an explosion.

The resulting system provides a high quality atmosphere for the employees, minimized house keeping requirements, provides significant energy savings by re-circulating the cooled/heated air and protects the work area from a potential explosion.

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