

> Case Study: Design and Implementation of Material Handling System

Client: Federal Express (Location: Lester B. Pearson International Airport, Toronto, Canada)

The Challenge:

Create project design specifications for parcel and freight material handling system and provide system design, structural & mechanical engineering, documentation & training as well as testing & commissioning support.

BACKGROUND:

FedEx contracted TES to develop the Toronto YYZ Project Specifications for the international sorting hub at the Lester B. Pearson International Airport. TES continued to be involved with the project by working with the chosen system integrator, Northrop Grumman, in providing:

- System Design Support
- Structural & Mechanical Engineering
- Structural Analysis
- Installation Drawing Package
- Illustrated Parts Lists
- Operations & Maintenance
- Documentation & Training
- Test & Commissioning Support

THE TES SOLUTION:

TES's involvement spanned the entire project from system conceptual design to training and through testing and commissioning.

TES used its knowledge of the material handling industry and understanding of FedEx business and standards to develop an initial sort system design and the final bid package that was sent to all vendors for this undeveloped international "Greenfield" site.

From an ethical standpoint, TES chose to not be involved in the selection process of the System Integrator. This allowed TES the freedom to work with the selected integration firm on specific project details. Northrop Grumman was selected as the firm to further design, fabricate, install, and test the semi-automated system. TES worked

with Northrop Grumman to finalize the design, provide structural and mechanical details, documentation and training as well as testing and commissioning support.

THE RESULTS:

The site was officially opened for service in 2002 and because of the quality of the work performed, TES was invited by FedEx to attend the opening ceremony for this key new international hub in the Federal Express System.

TES provided value to both FedEx on the up-front aspect of the project, as well as to Northrop Grumman on conceptual design and physical implementation of the material handling system.



MATERIAL HANDLING SYSTEMS

Including: System Design, Structural & Mechanical Detail Design, Training & Documentation and Field Support

> Material Handling Systems

Thinkpath Engineering Services, LLC. (TES) – When You Insist on a Professional

TES professionals have extensive experience in this area and have secured our reputation as experts in the field over many years.

We're Experts in Material Handling

The specialists at TES have vast experience working with major system integrators, equipment manufacturers and end-users throughout the material handling industry.

According to the U.S. Department of Commerce and Bureau of Labor Statistics, material handling logistics is one of the largest and fastest growing industries. Material handling is a complete process absolutely vital to business success.

We Offer the Full Range of Capabilities

Our Services

- Conceptual Design
- Structural Design and Analysis
- Mechanical Engineering
- Training and Documentation
 - Maintenance Manuals & Training
 - Operations Manuals & Training
 - Electronic Documentation
- Field Support
 - Structural Inspections
 - On-site Project Management
 - Field Engineering Support
 - Construction Management
 - Operations & Safety Audits

We Specialize in Material Handling Systems for the Following Market Segments

Baggage

Together with our in-house experts in material handling, mechanical, electrical and controls engineering, site project management and training and documentation, the TES team can support baggage handling system design, installation, commissioning, inspection or maintenance to ensure a tailored solution to match your precise requirements.

TES has technical experts that are experienced with all types of outbound and inbound baggage systems and components including:

- Claim Carousels
- Make-up Units
- Check-In Counters
- Early Bag Storage
- Conveyor
- Pusher, Tilt Tray and DCV Sortation
- Controls and Software
- Explosive Detection and Security Systems

Distribution / Warehouse

- Apparel
- Catalog / E-Commerce
- Department Stores
- Footwear
- Specialty Retail
- Third Party Logistics

Our specialists have been involved in projects that include the world's most sophisticated high-throughput distribution centers and warehouses within varied and numerous industries which share a common demand for utterly dependable, productive and efficient goods distribution.

In the area of Distribution and Warehousing, TES has designed performance solutions for high-speed, high-accuracy sortation and processing of full-case and split-case items. We have also provided detailed operation and maintenance documentation as well as extensive training for our high-end systems.

Whether it's a small warehouse, a high-throughput distribution center, or a cross-docking operation, TES will help you optimize your product flow.



Parcel & Freight

From project design, installation and commissioning, right through to training and documentation, TES has provided services to some of the world's top parcel and freight transporters. Our experience with manual, semi-automated or fully automated systems has made us the natural choice for clients such as Federal Express, United Parcel Service and DHL.

These systems provide the very latest technologies, conveyors, software and controls to provide precisely controlled, reliable high-speed sortation and tracking of parcels for the world's largest on-demand and overnight delivery centers. Our expertise allows us to develop systems which continually optimize flow throughout operations, helping our customers overcome challenges presented during times of peak demand and ensuring each unique material handling system delivers the required results.

Manufacturing

Whether your goal is to increase your organization's productivity, improve efficiency or customer service, or to optimize your storage space and inventory, the experts at TES can ensure that your manufacturing operation will perform as projected, with absolute reliability. We possess an in-depth understanding of the options available to you, and implement the best fit for your facility. TES will help you meet your production goals.

Postal

Our knowledge and understanding of postal processing operations and our ability to configure effective system solutions makes us the ideal partner for material flow automation projects.

TES has extensive experience supporting the installation, maintenance and operations of new and expanded USPS Sort Systems with operational and maintenance training as well as quality documentation and parts provisioning.

We have worked on numerous equipment programs at various postal facilities as well as individual projects including:

- TMS (Tray Management System)
- SPBS (Small Parcel & Bundle Sorter)
- SSIU (Singulate Scan Induction Unit)
- HSIU (High Speed Induction Unit)
- AAA (Automated Airline Assignment)
- SASWYB (Semi-Automated Scan Where You Band)

You Can Count on TES

TES's creative engineering team designs innovative, streamlined and effective material handling systems tailored to match your precise needs. Experience, insight and absolute dedication to our clients make TES the right choice.