DESIGN SYSTEMS
CANADA LTD.

Case Study

Slip Coat Manufacturer
Greenfield Facility

BOTTOM-LINE RESULTS:

- Four-fold increase in manufacturing space
- State-of-the-art manufacturing processes
- Expanded R&D capability
- Improved product quality and operational efficiency
- Full compliance with industrial safety and environmental regulations
- Increased flexibility for future product line expansion

Ref. DSC-1702

PROJECT

Design Systems Canada Ltd. was contracted to modernize and expand their slip coat manufacturing operation. The goal was to consolidate an existing rural operation consisting of several small buildings totaling approximately 15,000 sq ft into a new state of the art manufacturing facility in Windsor, Ontario.
The project involved the design and implementation of a 60,000 sq ft multi-level manufacturing facility that incorporated modern production equipment, advanced material handling processes, and regulatory compliance across all operational systems. DSC's involvement extended from initial concept development through installation support and commissioning, providing multidisciplinary engineering services throughout the project lifecycle.
The resulting facility significantly improved manufacturing capacity, operational safety, and product development capabilities while positioning the company for future growth.

CUSTOMER

Slip Coat Manufacturing Facility

OVERVIEW

Design Systems Canada Ltd. was engaged to support the consolidation and modernization of an existing manufacturing operation into a new, purpose-built facility in Windsor, Ontario. The objective was to replace several smaller facilities with a single, larger manufacturing environment designed to improve efficiency and support future growth.

DSC provided multidisciplinary engineering services throughout the project, guiding the development of the facility from early planning and design through implementation. The project focused on integrating modern production equipment, optimizing material flow, and ensuring compliance with applicable regulatory and safety requirements.

ENGINEERING CHALLENGES

Developing a completely new manufacturing facility while simultaneously modernizing the production process introduced several technical and operational challenges.

Key challenges included:

- Relocating and scaling an existing manufacturing operation into a much larger facility
- Designing a multi-level process layout for efficient material flow
- Ensuring full compliance with modern industrial safety and environmental regulations
- Integrating new production equipment and automated systems
- Maintaining flexibility for future production expansion
- Coordinating numerous contractors, vendors, and OEM suppliers across the project lifecycle

Additionally, the project extended over several years and required adaptability during delays caused by the COVID-19 pandemic.

ENGINEERING SOLUTION/ METHODOLOGY

Design Systems Canada implemented a structured engineering approach to design and deliver the new facility and process systems.

Concept Development

DSC worked with the customer to develop the initial concept for the facility, evaluating production requirements, material flow, and future expansion needs.

Facility Layout Engineering

A three-level production layout was developed to maximize operational efficiency while optimizing the use of building space.

Process System Design

DSC designed the manufacturing processes including:

- Material delivery and decanting
- High-speed mixing systems
- Powder treatment processes
- Packaging and labeling systems
- Finished material handling

Safety and Regulatory Compliance

The engineering design ensured compliance with multiple regulatory requirements including:

- PSHSR requirements
- NFPA standards
- Dust Hazard Analysis (DHA)
- Environmental emissions and dispersion studies
- Acoustic assessments
- Electrical Safety Authority (ESA) requirements
- City environmental and wastewater regulations

Installation Support and Commissioning

DSC supported the installation of equipment and coordinated with vendors, subcontractors, and consultants throughout the commissioning process.

PROJECT TIMELINE

Phase	Activity
Phase 1	- Initial facility concept and feasibility
Phase 2	- Facility layout and process system design
Phase 3	- Regulatory analysis and safety studies
Phase 4	- Equipment sourcing and vendor coordination
Phase 5	- Construction and system installation
Phase 6	- Commissioning and production startup

BEFORE/ AFTER METRICS

Operational Metric	Before	After
Facility Size	- 15,000 sq ft	- 60,000 sq ft
Production Layout	- Multi-building rural operation	- Integrated multi-level facility
Process Technology	- Antiquated systems	- State-of-the-art manufacturing
Product Development	- Limited	- Dedicated R&D laboratory
Material Handling	- Inefficient	- Optimized process flow

WHY DSC WAS SELECTED

Client selected Design Systems Canada because of DSC's ability to provide comprehensive manufacturing engineering support across the entire project lifecycle.

Key differentiators included:

End-to-End Engineering Capability

DSC provided services ranging from early concept development through commissioning support.

Manufacturing Process Expertise

The project required specialized knowledge of industrial process design, material handling, and chemical manufacturing systems.

Integrated Multidisciplinary Engineering

Mechanical, industrial, electrical, and safety engineering services were coordinated through a unified project approach.

Flexibility and Long-Term Support

The project extended over four years, requiring DSC to maintain project continuity while adapting to evolving customer requirements and external challenges.

CLIENT VALUE DELIVERED

Dramatically Increased Production Capacity

The new facility increased available manufacturing space from 15,000 sq ft to 60,000 sq ft.

Improved Product Quality

Modern manufacturing processes and improved equipment significantly enhanced production consistency and quality.

Expanded Research & Development Capability

The facility now includes a dedicated R&D laboratory to support new product development.

Operational Efficiency Improvements

Process redesign reduced:

- Cleaning time
- Packaging time
- Material double-handling
- Ergonomic risks

Environmental Sustainability

The facility incorporated grey water collection and reuse, reducing water consumption.

Safety Improvements

The project significantly improved worker safety through modern safety engineering practices and compliance with industrial standards.

BOTTOM-LINE RESULTS

The completed facility transformed the customer's operation into a modern, scalable production environment.

Key outcomes included:

- Four-fold increase in manufacturing space
- State-of-the-art manufacturing processes
- Expanded R&D capability
- Improved product quality and operational efficiency
- Full compliance with industrial safety and environmental regulations
- Increased flexibility for future product line expansion

Perhaps most importantly, the project created a safe and sustainable production environment for employees, a key priority for the client.

About Design Systems Canada Ltd.

Design Systems Canada Ltd. provides manufacturing engineering and design services for industrial facilities across North America.

Core capabilities include:

- Industrial Engineering
- Mechanical Engineering
- Electrical Engineering
- Facility Layout Optimization
- Process System Design
- Manufacturing Facility Upgrades
- Operational Assessments

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