



Optimizing your **operational** layouts and flow

WAREHOUSE, LOGISTICS & DISTRIBUTION CENTER DESIGN



Polo Ralph Lauren Warehouse Expansion
High Point, North Carolina

Cover: Frito Lay New Distribution Center
Surrey, British Columbia



Enhancing our client's mission

Stantec helps warehouse, distribution, and logistics organizations around the world improve their operations and achieve long-term success through process improvements and our facility designs. Our approach involves using space more effectively, reducing costs, and optimizing production flows. We create value for our clients through our unique differentiators:

- Speed to market
- Integrated project delivery
- Efficiency by design
- Global expertise, local delivery

Speed to market

Not just fast, but right. Fast track has evolved into schedule stacking, which pulls both design tasks and construction activities out of their normal sequence. This allows projects to complete faster but requires additional coordination to minimize the risks. Our integrated team approach ensures ongoing coordination and open communication with all stakeholders, while enabling our team to focus on the project's critical path tasks. Our experience with ultra-fast track projects, and our ability to quickly engage additional team members enables Stantec to meet our client's schedule needs on major projects and multi-site rollouts.



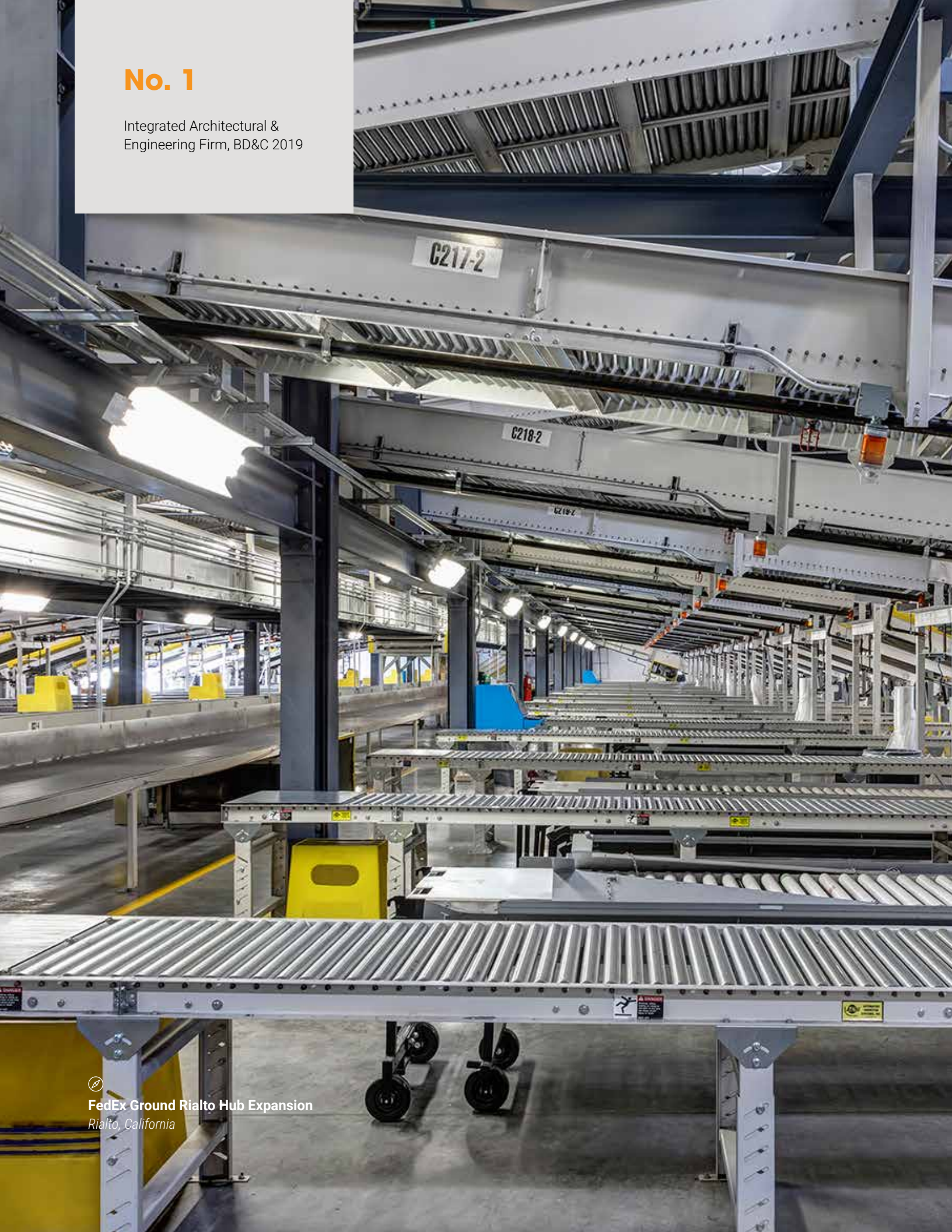
Frito Lay New Distribution Center
Surrey, British Columbia





No. 1

Integrated Architectural &
Engineering Firm, BD&C 2019



FedEx Ground Rialto Hub Expansion
Rialto, California



Integrated design delivery

We assemble truly integrated design teams that actively involve all disciplines concurrently during design, versus a traditional approach to design sequencing. This helps us quickly and efficiently develop coordinate design solutions that meet the project's requirements. This integrated approach can reduce design time and cost, and produces better project outcomes for our client's. Our integrated project delivery services include:

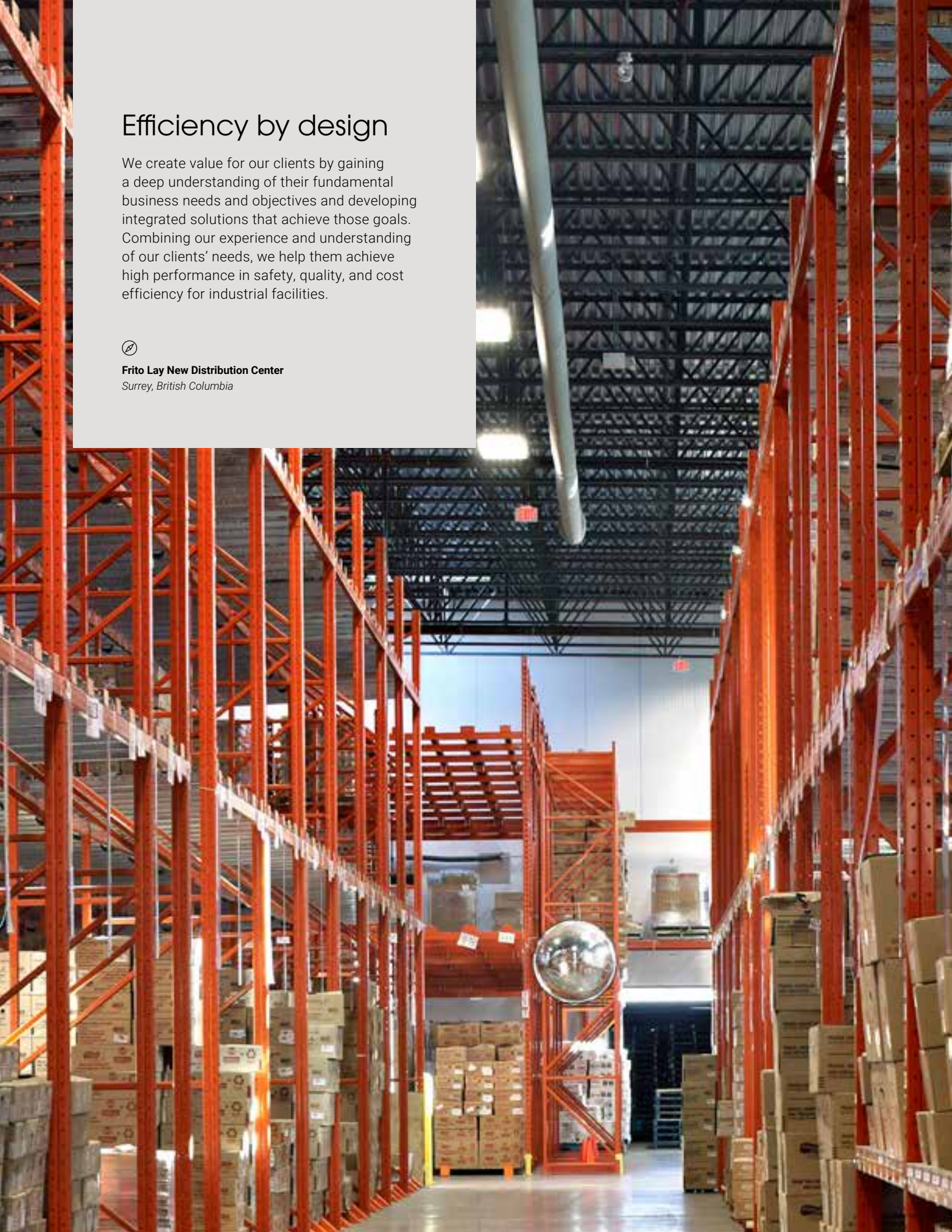
- Architecture
- Civil Engineering
- Control Systems Integration
- Data Analytics/Operations Research/Optimization
- Discrete Event Simulation & Static Modelling
- Electrical Engineering
- Energy Analysis
- Energy Reduction & Sustainable Design
- Environmental Approvals, Planning, & Compliance Services
- Facility Design & Engineering
- Functional Programming & Planning
- Industrial Process Engineering & Equipment Layouts
- Industrial Safety System Design & Regulatory Compliance Certification
- Lean/Six Sigma/Continuous Improvement/Process Improvement/Operational Excellence
- Machine Design & Automation
- Machine Safety Risk Assessment
- Materials Management/Supply Chain/Logistics
- Mechanical Engineering
- Project & Program Management
- Site Selection & Feasibility Studies
- Structural Engineering
- Time & Motion Study/Predetermined Motion-Time Systems/Engineered Labour Standards
- Work Productivity and Optimization
- Water Treatment
- Work Methods/Human Factors Engineering/Ergonomics

Efficiency by design

We create value for our clients by gaining a deep understanding of their fundamental business needs and objectives and developing integrated solutions that achieve those goals. Combining our experience and understanding of our clients' needs, we help them achieve high performance in safety, quality, and cost efficiency for industrial facilities.



Frito Lay New Distribution Center
Surrey, British Columbia





Global expertise, local delivery

Whether selecting our integrated approach or complementing your current team with one of our specialized disciplines, we can provide integrated industrial architecture, engineering and management services throughout the entire project cycle – regardless of location. From upfront analysis and evaluations, to detailed design documents and start-up to commissioning, our team will combine our world class expertise with our local knowledge to help your project succeed.

22,000

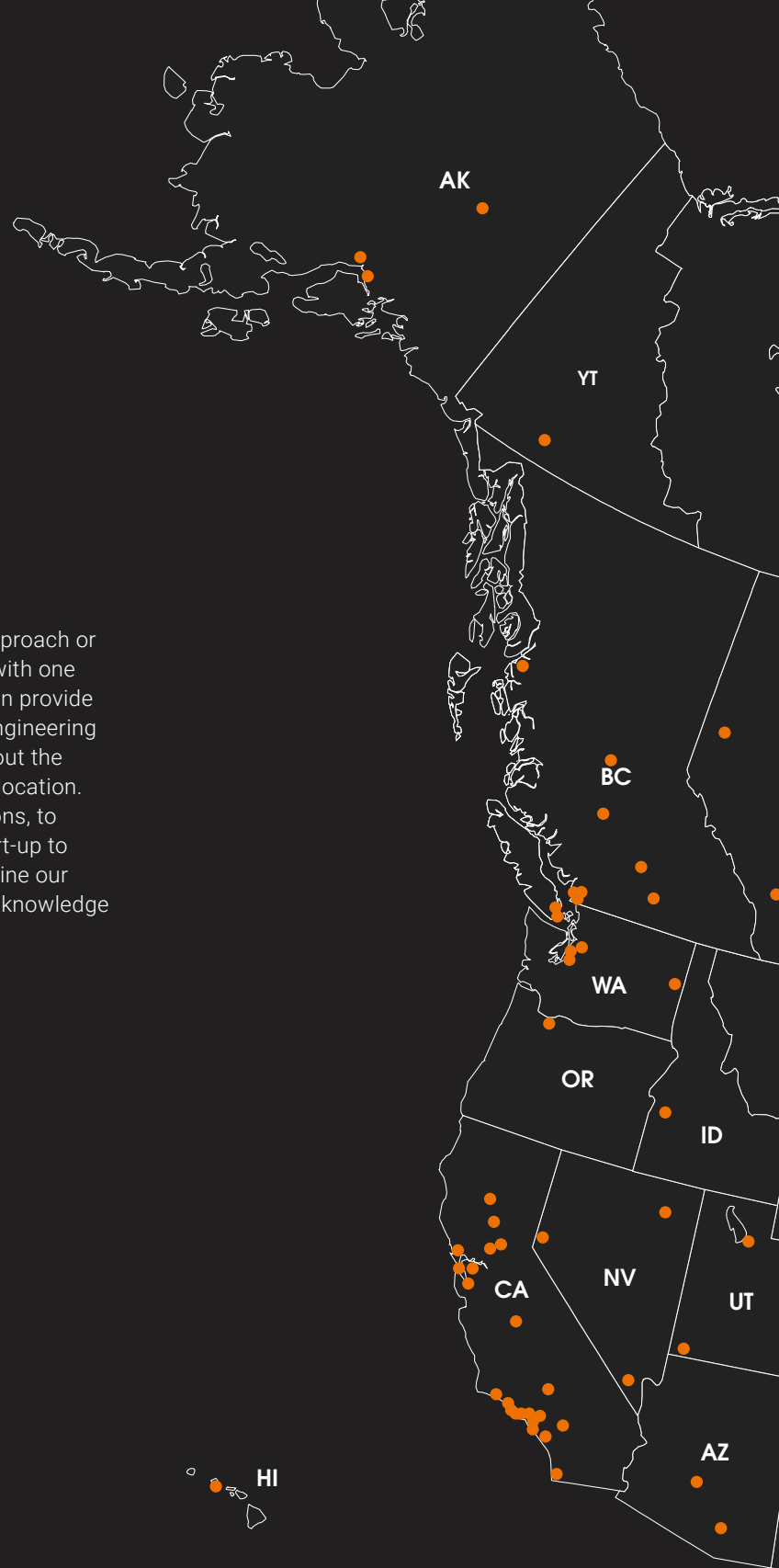
staff globally

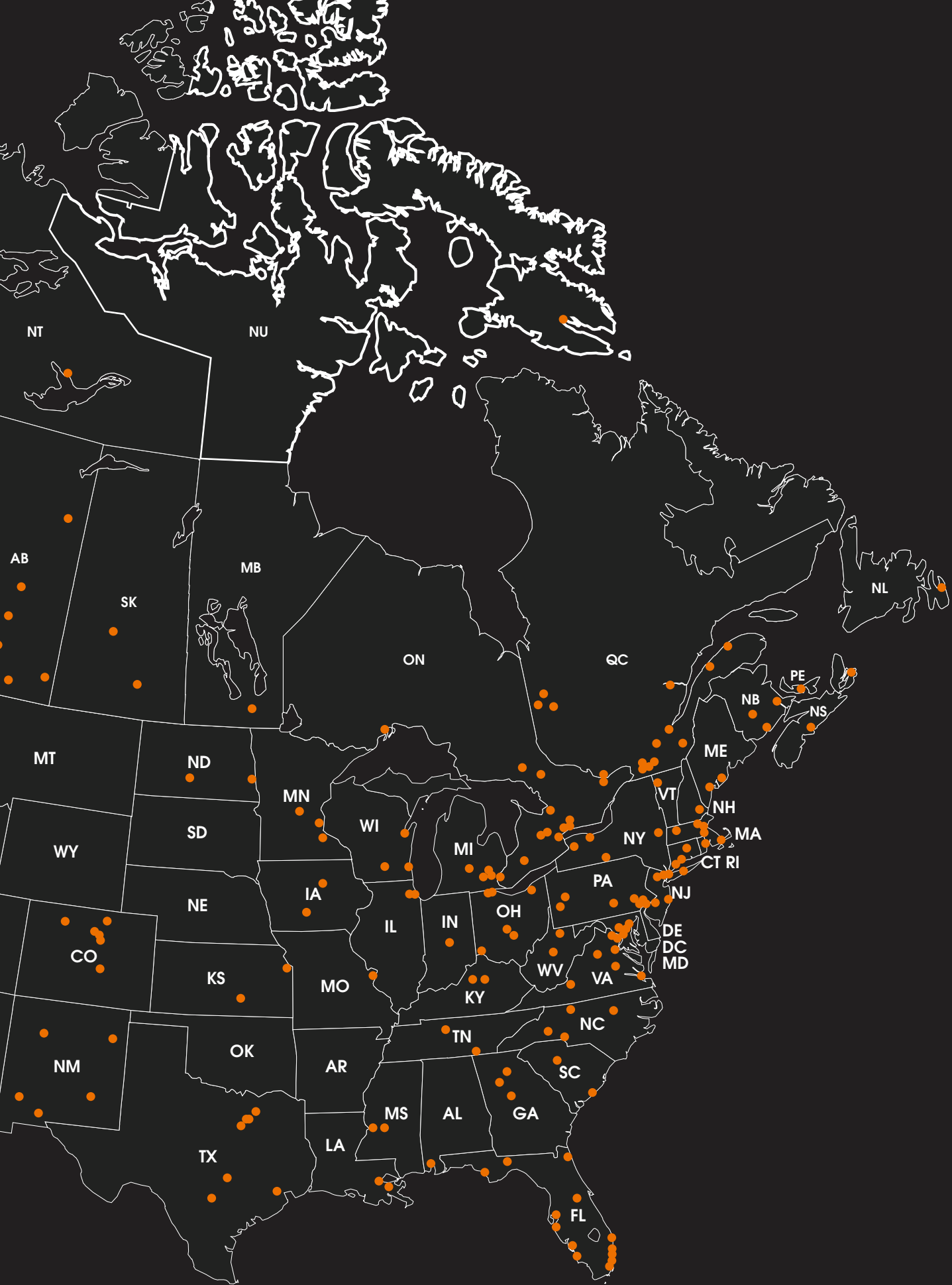
240+

office locations across
North America

400

office locations globally







Focused on what matters

Our core values guide us in all that we do. The way we protect our people, our clients, and our communities reflects who we are, what we believe in, and how we do our work. At Stantec, we do what is right, which means our health, safety, and environmental programs are the foundations of our business.

Health and Safety

ISO 45001:2018 Certified

Quality Assurance and Control

ISO 9001:2015 Certified

Environmental Services

ISO 14001: 2018 Certified



Gregg Distributors - GDL Logistix Centre
Edmonton, Alberta





Sustainability

We believe sustainable design can defy expectations and propel our communities into the future.

We're helping clients realize the full potential of their projects in terms of life cycle cost, energy efficiency, carbon reduction, and human health and wellness. Designs consider optimization of Building Automation System controls to allow connections to Smart Buildings.

Informed by data and grounded in the market, we design to support human resilience, health, and wellness while delivering value through life cycle cost analysis and reduction of energy and carbon use. Our integrated approach considers the following:

- **LEED®:** With over 850 LEED Accredited Professionals, we've worked with clients and communities to complete over 625 LEED® certified projects.
- **WELL Building Standard™:** Our WELL Accredited Professionals have been trained on the WELL rating system and can guide project teams through the process of achieving certification.
- **Passive House:** With a growing number of Certified Passive House Consultants, Stantec is committed to the international Passive House standard and supports clients pursuing passive building certification.
- **Fitwel:** Stantec is a Fitwel Affiliate Member and our commitment goes beyond our Champion status; we have Fitwel Ambassadors, the mark of professional excellence that allows our teams to lead projects through the Fitwel process.
- **Envision®:** Stantec has over 90 Envision Sustainability Professionals on our team across North America continues to increase, reflecting our ongoing commitment to sustainable infrastructure systems.



Stantec is committed to the art and science of sustainable building design. We've helped make over 30 net zero projects a reality.



No. 1

Completed North America's
first ENVISION Certified
Project—Certified Platinum
and Canada's first Zero
Carbon Building - Design



Expert Spotlight

SERVICES FOR SUCCESS

At Stantec, we believe that the successful realization of projects for industrial buildings requires a multi-disciplinary approach. We bring global expertise from across North America to provide you with technically feasible and cost-effective industrial solutions. Because our client's success is our success, we always do what is right for their projects and their company.



Dave Calder
P.Eng.

Vice President, Sector Lead - Industrial

Dave's 25 years of extensive leadership and engineering experience is varied, and includes planning of manufacturing facilities, design of mechanical systems, project management, as well as manufacturing engineering for a major product launch, during current production, and for special capital project execution. This unique combination enables Dave to effectively represent the owner's perspective to the design team, and develop solutions that meet the client's business needs.



George Halkias
AIA, LEED AP

Senior Principal

With 28 years of professional experience, George draws from his knowledge of planning and designing industrial facilities to help his clients chart courses for continued growth. Combining design expertise with analysis, he has particular experience in helping clients to maximize limited space in the context of high performance facilities and develop an optimal solution. George leads Stantec's Warehouse & Distribution Sub-Sector across North America.



Alan Schnerch
P.Eng.

Senior Associate, Industrial Engineer

Using Industrial Engineering, Six Sigma, and LEAN methodologies, Alan helps organizations increase productivity, eliminate waste, and promote efficient and effective use of their resources. With 18 years of experience on numerous projects including industrial buildings, he works closely with clients throughout the lifecycle of facilities planning and operational improvement projects to ensure that key objectives are defined, and suitable technical work is effectively carried out.



25+ million SF

Design of flexible warehouse, distribution and e-commerce facilities in the past 5 years.





Warehouse, Distribution & Logistics

We design networks, facilities, processes, and systems that meet the increasing pace and complexity of distribution. Our simulations and designs help you to use space more efficiently and effectively, reduce costs, improve output, and increase productivity, service levels, shareholder value, and revenue.

We look at how to balance the operating requirements of a warehouse and distribution center with site development constraints, environmental issues, municipal approvals, neighborhood impacts, and regulatory requirements.

Project types include:

- Warehouses
- Distribution Centers
- E-Commerce Fulfillment Centers
- Logistics Facilities
- Multi-Modal Facilities
- Expansions & Renovations
- Support Facilities

60

Years helping
clients achieve
their goals.



**Real Canadian Superstore &
Distribution Center**
Vancouver, BC



REAL CANADIAN SUPERSTORE & DISTRIBUTION CENTER

Vancouver, British Columbia

Stantec provided architectural services to this mixed-use facility, which is a major warehouse, distribution center, and Superstore for Westfair Foods. Stantec created a new corporate identity for Westfair Foods that served as a design prototype for all its other stores.

Challenged by a limited site and restrictive zoning regulations, Stantec used site opportunities to their maximum. Stantec tucked the warehouse into the hillside, then placed the superstore and 850-space parking structure on its roof. While warehouse and retail functions share the site, the uses remain completely separate.

The warehouse is composed of temperature-controlled facilities, and goods are shipped and received through 48 truck and seven rail car loading docks.



SOBEY'S DISTRIBUTION CENTER

Edmonton, Alberta

To facilitate the demands of this growing western Canadian food chain, Sobeys expanded their Edmonton operations.

Stantec provided architectural, interior design, structural, mechanical, electrical, and civil engineering services to design an addition and renovation to Sobeys' existing food storage and distribution center.

The project included the master planning of a 200,000 square-foot freezer/cooler addition; renovation of 300,000 square-foot of warehouse space; and the design of new staff, parking, truck loading, and storage areas.

Construction was completed on time and on budget while maintaining operation of the existing facility.



CONFIDENTIAL FULFILLMENT CENTER

Southwestern USA

Stantec was instrumental in bringing this fast-tracked 1.1 million square-foot fulfillment center to the Tampa Bay community, which is nestled between two major airports with easy access to I-75 and rail terminals. The center employs over 2,000 staff and is equipped with hundreds of robots, including self-driving cars that transport merchandise from one end of the warehouse to another.

Our scope of services included site layout, utility and drainage design, and obtaining permits from the County, the local Water Management District, Florida Department of Health, and the County Environmental Protection Commission. The knowledge and experience of Stantec's engineers, landscape architects, and environmental staff were key to delivering the design and permitting schedule for this project within 3.5 months. Meeting this tight schedule was also a critical factor in the selection of this site for the tenant. The center is located on an 80-acre site that can accommodate over 2,500 parking spaces, 90 truck bays, and approximately 140 trailer parking stalls.



Stantec is experienced at integrating LEAN, warehouse management systems, automation, AutoTurn, and high-bay racking.



CONFIDENTIAL FULFILLMENT CENTER

Arkansas

Stantec is providing multi-disciplinary architectural, structural, mechanical, electrical, and plumbing engineering to design a 5.5 level fulfillment center in Arkansas for a leading e-commerce company. The new 3.7 million-square-foot center will include warehouse space, a main office, maintenance shop, shipping/receiving area, and large break and washroom facilities for staff. The facility will also accommodate automated robotic sorting capability to provide storage, retrieval and relocation of goods automatically to help reduce strenuous or monotonous tasks.

During the design phase, Stantec has remained flexible and is working collaboratively with the Owner's Tenant to accommodate multiple changes to the structure's prototype. For example, once archaeological artifacts were discovered at the initial project site, Stantec completely redesigned the facility to accommodate new specifications while maintaining the original project schedule. Stantec is currently preparing complete contract document for tendering, including all specifications and project manuals, and will analyze quotes and bids and provide responses to RFIs with the Owner. While under construction, Stantec will conduct monthly site visits to inform the Owner that the work is being performed as indicated and will work with the Contractor to deliver the project on time and on budget.



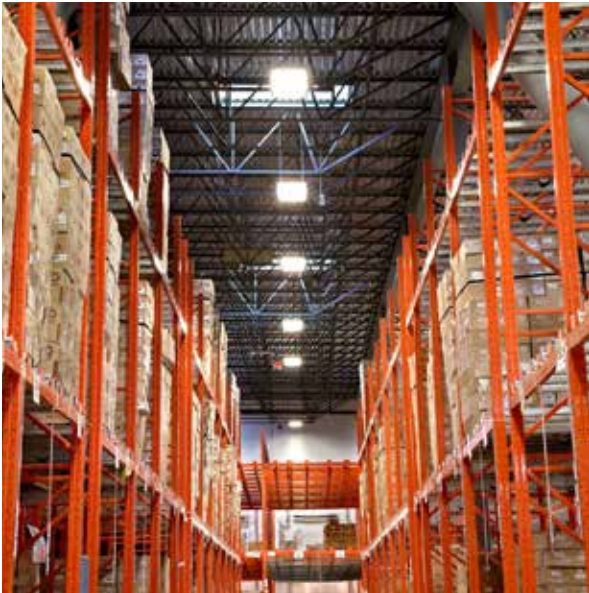
Gregg Distributors
GDL Logistix Centre
Edmonton, AB

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Integrated
Architecture
Engineering Firms,
BD&C 2019



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CONFIDENTIAL FULFILLMENT CENTER CAMPUS

Greater Detroit Area, Michigan

Located a short drive outside of downtown Detroit, a leading e-commerce retailer will occupy a distribution campus that will be home to nearly 4 million-square-foot of warehouse/logistics facilities and house at least 1,500 full- and part-time workers. This location will be the first site nationally to accommodate both a fulfillment center and a last-mile delivery station and will be the only second distribution facility of its type in Michigan to use robotics technology.

Stantec is providing integrated architectural, structural, mechanical, electrical, and plumbing engineering services to design both facilities beginning with the Owner's concept template. This 5.5 level, roughly 3.7 million square-foot fulfillment center will include product storage and retrieval space, sortation process space, a main office, maintenance shop, shipping/receiving area, and remote break and washroom facilities. It will house state of the art warehousing and sortation equipment and will operate 24/7/365. The +200,000 square-foot delivery station will house office spaces and a warehouse to support material handling equipment associated with the last mile delivery of e-commerce packages.

While under construction, Stantec will provide construction administration services, including design clarifications, submittal reviews, attendance at weekly construction meetings, and conducting monthly site visits to verify for the Owner that the work is being performed as indicated. As the Owner refines its requirements and standards on an ongoing basis, Stantec will make the appropriate changes to the design, and will work with the contractor to incorporate them into the project to remain on schedule.



CONFIDENTIAL DELIVERY STATION PROGRAM

Northeastern USA

Stantec is currently providing jurisdictional research, existing conditions surveys, as-built and topographic surveys, architectural and engineering design, permitting and construction administration services for 19 new and existing light industrial facilities for a leading global e-commerce retailer.

Facilities range in size from 25,000 square-foot to 500,000 square-foot and are being developed in three phases:

- Phase I, which includes due diligence, building programming, and developing a site plan based on the Owner's initial concept and design proforma with the goal of fitting their requirements into the existing buildings and site (14 to 21-day schedule).
- Phase II, which involves permitting (including value engineering), and developing bid and construction documentation (28-day schedule).
- Phase III, which includes contract administration and final project close-out.

The challenging schedule to deliver these stations requires completion of the first two phases within 5 to 6 weeks. Since Stantec's multi-disciplinary team encompasses the majority of services required for these projects in-house, staff have become flexible in accommodating drawing revisions to the contractor as quickly and efficiently as possible. Additionally, our team is proactive in finding innovative ways to reduce schedule timelines to allow the Owner to meet its Phase III deadlines.



CONFIDENTIAL FULFILLMENT CENTERS & PROTOTYPE

Southern USA

Stantec is currently developing a build-to-suit prototype for a new type of fulfillment center for a major e-commerce company. Each four storey building will employ almost 2,500 staff during non-peak seasons and will hold over 30 million items within each 1 million square-foot footprint.

While designing the prototype for these new fulfillment centers, Stantec is also fast-tracking the design of fit outs to create fulfillment centers at four separate existing facilities located across the United States. These warehouses include automated robotic sort mezzanines; four storey pick modules; material handling areas including stamping machinery, delivery conveyors, and truck bays; and 50,000 square-foot office blocks with break room mezzanines.

To accommodate the fast-track nature of these warehouses, Stantec is providing the Owner with building material and machinery estimates to ensure that all components are readily available to meet each project's aggressive timelines.





No. 2

Industrial
Architectural Firm,
BD&C 2019



Frito Lay New Distribution Center
Surrey, British Columbia





FRITO LAY NEW DISTRIBUTION CENTER

Surrey, British Columbia

Stantec provided full engineering and architectural design services, LEED consulting services, and energy and daylight modeling services during construction for this new, award-winning distribution center. Leveraging many emerging best practices for sustainable buildings, the Distribution Center was awarded LEED® Silver certification.

The warehouse/distribution center features a high bay (9144mm clear) mono-slope roof with tilt-up concrete wall panels. The distribution center accommodates delivery van as well as tractor trailer vehicles with dock heights of 860mm and 1200mm respectively. Warehouse racking is a mixture of individual 'pick' type racking as well as pallet racking. The office area accommodates administrative and sales functions and includes meeting, training, and seminar spaces.

The site planning and design incorporated solutions to maximize circulation, access, and building configuration to accommodate present needs, while also finding ways to accommodate future expansion needs. The location, in combination with an electric vehicle delivery fleet, will significantly reduce Frito Lay's contribution to GHG emissions.



FRITO LAY DISTRIBUTION CENTER

Rochester, New York

Stantec provided architecture and engineering services in association with William McDonough & Partners for the design of a 40,900 square-foot LEED 2.1 Gold certified food distribution warehouse and office facility.

The facility incorporates various sustainable strategies to achieve material, resource, and energy conservation. The design process also addressed the client's existing facility standards with assessment of cost/benefit and system paybacks.

The center is Frito-Lay's first exclusively green environmentally friendly building and serves as a model of resource conservation through innovations in renewable energy, alternate lighting, energy efficiency standards, and environmentally intelligent choices.



Our team members have an understanding of local USA and Canadian construction practices, laws, building codes, permitting, and business practices, etc.



PERRIS DISTRIBUTION CENTER

Perris, California

Stantec provided site design, civil engineering, storm water quality control, survey, construction staking, and offsite road improvements for this 1.7 million square feet, state-of-the-art warehouse and distribution center.

The Perris Distribution Center is located in western Riverside County near the air cargo facility, March Global Port. Stantec was responsible for the site improvement plans and prepared construction documents that resulted in a balanced grading plan in an area that is subject to flooding from the San Jacinto River.

Our site design avoided costly and time consuming import of dirt while lifting the building pad out of the flood plain. Street improvement plans prepared by Stantec include 1.6 miles of the adjoining major arterial, 3 signalized intersections, offsite streets, and intersection reconstruction plans for an arterial highway crossing. Stantec prepared an offsite storm drain improvement plan for 0.8 miles of master planned flood control facilities, onsite drainage and water quality control facilities that minimized loss of net usable project area.

We also prepared onsite water, sewer, and fire protection improvement plans for the 85-acre site. We provided construction staking for offsite roadway improvements, three signalized intersections, and widening of the existing arterial roadway.



POLO RALPH LAUREN WAREHOUSE EXPANSION

High Point, North Carolina

When Polo Ralph Lauren decided to expand their High Point facility, they contacted Stantec to provide mechanical, electrical, fire protection, structural, civil engineering and surveying; as well as architecture and interior design services.

Our designers were faced with a nearly impossible task: provide the infrastructure and environment to support a massive 350,000 square-foot, three-story materials handling and storage system for the Garment on Hanger facility, which encompasses an area equivalent to almost six football fields, and have the entire project operational in six months.

Due to a unique opportunity in licensing agreements, Polo Ralph Lauren needed to create space to sort, bar-code tag, move, store and retrieve over 1,750,000 designer garments on hangers in a very short timeframe. Outside-the-box strategies were incorporated in a non-conventional project planning and delivery method, utilizing unique partnering strategies between the owner, design team, and permitting officials.



Stantec has over 50 safe work practices in place as part of our core Project Management Framework at Stantec.



06

21-30

11-20

1-10





FedEx Ground Rialto
Hub Expansion
Rialto, California

No. 8

Top 500 Global
Firms, ENR 2020



FEDEX GROUND RIALTO HUB EXPANSION

Rialto, California

To meet growing consumer demand, FedEx Ground decided to expand its Rialto facility as part of a nationwide network expansion to increase daily package capacity and enhance the speed and service capabilities across the FedEx Ground network. This \$27 million facility was designed to handle in-bound and out-bound critical, time-sensitive packages that are transported to and from the sort facility via over-the-road trailer trucks.

Stantec provided design services for this 100,000-square-foot loading and unloading addition to an existing 400,000-square-foot distribution facility as well as a three-story office addition. The scope also included a maintenance garage expansion; a new stand-alone security/office building; upgraded structural, electrical, low voltage, and mechanical systems for the existing building; and existing drop off and pick up as well as additional parking areas and site circulation paths.

Humidity controls were an important aspect of the design necessary for maintaining proper operation of the offices and control rooms. Stantec coordinated directly with the power company to provide new electrical feeds for the additional loads required by the new construction and integrated their design with the existing fuel cell system and roof mounted solar system.

Throughout construction, Stantec reviewed and approved all submittals and RFIs, performed regular site visits, and worked closely with the contractor to deliver the project on time and on budget.



FEDEX DISTRIBUTION CENTER

Davenport, Florida

This new \$60 million, 300,000-square-foot facility is part of a nationwide network expansion to boost daily package volume capacity and further enhance the speed and service capabilities of the FedEx Ground network. Located west of U.S. 27 between Interstate 4 and Waverly Barn Road, this 45-acre site was chosen because of its ease of access to major highways, proximity to customers' distribution centers, and a strong local community workforce for recruiting employees.

Stantec provided its multi-disciplinary planning, surveying, civil/site engineering, and environmental permitting for this distribution center. Planning services included preparing and processing a Comprehensive Plan Amendment since the site is in the Green Swamp Area of Critical Concern and included threatened/endangered species (sand skinks and gopher tortoises) and required wetland impact permitting by the USACE. Project scope included accommodating 96 truck bays, 286 trailer storage parking (33 foot – 53 foot), maintenance/fueling facility, ancillary security building, and a 575 space employee parking area. Other site work elements included substantial cut/fill and grading (up to 15 foot cuts), stormwater management system and off site potable water, reclaimed water, and sewer extensions.

Stantec also performed fast-track design and permitting for a 5,000 linear foot segment of the North Ridge Trail; a new transportation corridor, designed and built to the County's standards. The road includes a two-lane undivided cross section with intersection modifications, an 18 inch water main, and associated stormwater management facilities.



FEDEX GROUND NORTHERN KENTUCKY HUB EXPANSION

Independence, Kentucky

FedEx's ground services division required an expanded Northern Kentucky hub as a result of a projected increase in package volume and to provide relief to a nearby hub that was reaching its capacity.

To accommodate this need, FedEx retained Stantec to design a \$150 million, 270,000-square-foot expansion over two phases that included the design of two existing load wings; a new load wing and associated transition wing; the expansion of the unload and local city areas of the Hub; expanded administrative support spaces; vehicle maintenance garage addition; a new security/entry building; a new human resources building; support areas such as guard houses, salt barns, etc.; and 16 acres of new parking. Additional site/civil design work included relocating existing utilities, providing new stormwater management features, lighting, and grading design.

Stantec also performed a due diligence investigation for the new parking area which included a wetland/stream delineation study, sound study, traffic study, archeological study, geotechnical investigation, and preliminary site drawing preparation. The team coordinated with a local surveyor to perform an American Land Title Association survey and worked with USACE 401, Kentucky Department of Water 401, and Sanitation District No. 1 to obtain a Land Disturbance Permit as part of the project.



FEDEX EXPRESS MULTI-MODAL FACILITY

Windsor, Ontario

This facility, in conjunction with the adjoining Institute for Border Logistics and Security facility, represents a major undertaking to create an integrated cross-border logistics and security cluster located in the Windsor Airport Regional Employment Center.

Stantec's multi-discipline team provided the design, construction documents and construction support for the new \$12.6 million, 35,000 square-foot FedEx Express facility which included FedEx Express Retail, regional offices, maintenance and cargo distribution hub. Working with Autodesk's AutoCAD and REVIT platforms to support FedEx's process layout Stantec's staff developed the design and renderings to incorporate the FedEx design requirements and presence, while working with the City of Windsor to maintain costs and maintainability.



Stantec is one of a few vendors pre-qualified by FedEx Ground to provide design services for on-going work across North America.



“We are a committed, total solutions partner that will always do what is right for your projects, and your company. We care about your business – we succeed when you succeed.”

—Dave Calder, Sector Lead - Industrial

The Three C's

COMMUNITY

When we say community, we don't just mean the neighborhoods people call home. We mean everyone and everything with a stake in the work that we do, from our Stantec and industry colleagues, to the clients we collaborate with, and the people and places we impact.

Whether creating, sustaining, or revitalizing a community, we help people of diverse cultures and perspectives work together toward a shared success. Although our work helps to create physical communities, our ultimate goal is to create something far more meaningful—a sense of community.

CREATIVITY

For us, creativity is driven by purpose. Knowing that transformation is truly possible inspires us to approach every situation with a fresh perspective. Our innovative and collaborative approach to problem solving helps bring big ideas to life through creative solutions.

Whether our contribution is a design that strikes the perfect balance between function and aesthetics, a feat of engineering that redefines what's possible, or a project management approach that delivers results, we strive for outcomes that transcend the challenges they solve and shape the communities we serve for the better.

CLIENT RELATIONSHIPS

We're better together. This belief shapes how we collaborate with our clients, our partners, and our communities.

We listen so we can deeply understand our clients' needs, communicate with purpose so we maintain alignment, and remain open and flexible so we never miss an opportunity to strengthen a project and positively transform a community.

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of place and of belonging. That's why at Stantec, we always design with community in mind.

We care about the communities we serve—because they're our communities too. We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe. Stantec trades on the TSX and the NYSE under the symbol STN. Visit us at stantec.com or find us on social media.

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Design with community in mind