Industrial

J.L.Richards

ENGINEERS · ARCHITECTS · PLANNERS

Our **Corporate** Numbers

Founded in
1955

100%
Employee Owned

Projects Completed in Over
75
Countries

80%
Business from Repeat Clients

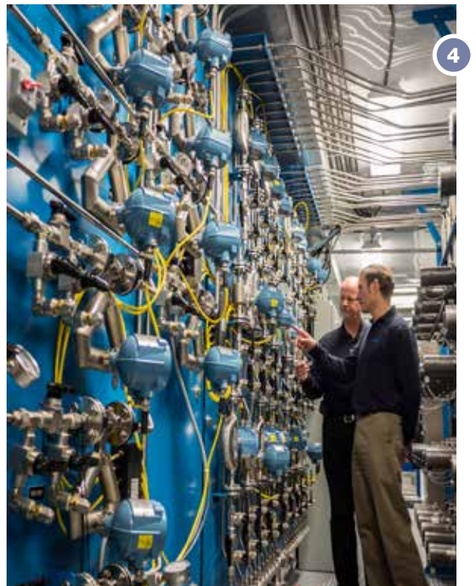
100%
Canadian Owned

Who We Are

As a Platinum Club member of Canada's Best Managed Companies, J.L. Richards provides high-quality integrated engineering, architecture, planning, and project management services to enterprises in the private and public sectors. With seven offices across Ontario, J.L. Richards' professional services support a wide variety of projects across seven key markets, placing them at the cutting edge of both value and service delivery.

In March 2020, LCI Engineering Inc. was acquired by J.L. Richards and has been a wholly owned subsidiary of the firm since then. Now known as the Industrial Market, the team possesses specialized expertise in mechanical, electrical, automation and controls, process, and software engineering.

The Industrial Market provides high-quality services in the plant and heavy industrial sectors and the forestry, pulp, and papery industry.



What We Do

We execute highly detailed multidisciplinary engineering design and deliver projects to both local and international clients in the manufacturing, forestry, pulp and paper, chemical, and power generation sectors.

Why Choose J.L. Richards for Industrial Projects

Our team is comprised of true experts in their field. Industrial engineering projects demand distinct skillsets and experience compared to the ones needed for commercial-type engineering design, and we possess those skills and expertise. From new process design, equipment specification, to complex retrofits, we have the experience to deliver.

The team is comprised of process, electrical and controls, and mechanical experts who deliver everything from initial conceptualization to all stages of front-end loading (FEL) development, detailed design and construction packages, hazard analysis, control system design, and process optimization of both plant-system upgrades and complete new plants.

Why J.L. Richards Industrial Is Better

We leverage leading-edge technologies such as 3D point-cloud scanning and in-depth accurate 3D models to provide better, more complete design packages. Use of this design process provides the added benefit of preconstruction, reducing risk and delivering fully coordinated designs. Our team prides itself on highly detailed, complete design packages vetted by the client, leaving little discretion to the contractor. These packages result in more accurate and consistent contractor bids and no surprises with the constructed end product. We are often faced with nonstandard, challenging client issues that require an understanding and application of fundamental engineering first principals.

Our team of engineers prides itself on being top level complex problem solvers and having complete confidence in our designs.

Advantages of Working with Us

Our clients have a single point of contact whereby a relationship is developed. Your service team will get to know you and your facilities' special needs and nuances. We will not cycle through project managers on your projects.

1. Aylmer Ethanol Plant - Aylmer, ON
2. Andritz Crane and Woodyard - Whitecourt, AB
3. MDS Nordion Radiopharmaceutical Manufacturing Facility - Kanata, ON
4. GLACIER Facility - Thompson, MB

General Industrial

J.L. Richards' Industrial Market performs system modifications, retrofits, upgrades, and new installations for all types of manufacturing and industrial facilities. The Process Engineering team can support you from initial conceptualization through to start up, including:

- Design calculations, technical documents, and engineering drawings
- Mass and energy balance
- Chemical equilibrium and kinetics
- Process control design
- Specialty analytical specification
- Multiphase process design
- Heat and mass transfer
- Equipment selection for a wide range of unit operation
- Data analysis to inform design and troubleshooting

Our Mechanical Discipline collects as-built information using 3D laser-scanning technology and accurate 3D CAD models of engineered systems and processes to deliver highly detailed design packages.

- 3D laser point-cloud scanning
- 3D modelling and drafting
- Plant layouts and arrangements
- HVAC, plumbing, mechanical design
- Machine design
- Power plants (ASME I) including pressure part design
- Piping systems (ASME B31.1, B31.3, BPE)
- Pressure vessel code calculations (ASME VIII Div1 & Div2)
- Air and gas ducting
- Computational fluids dynamics
- General engineering studies and reports

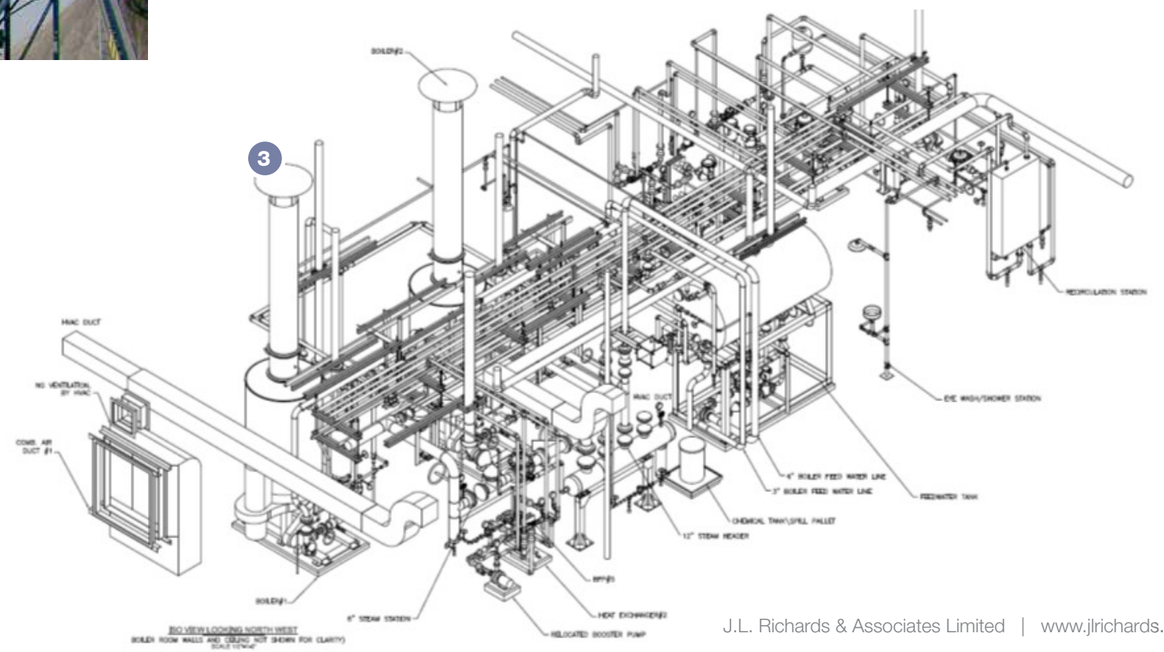
Our Electrical, Controls & Instrumentation team including software delivers complete control and automation systems including all programming, instrumentation, and human machine interfaces (HMI).

Electrical:
- Electrical power distribution
- Motor control
- Control interconnection
- Wiring schematics
- Loop drawings
- Cable routing and schedules
- Electrical cabinets

Controls & Automation:
- Control system specifications
- Functional and control narratives
- Instrumentation specifications
- Logic diagrams
- Programmable logic controller (PLC) and distributed control system (DCS) programming
- HMI configuration
- Network planning
- Virtualization solutions
- Installation and commissioning, training, studies

Software Development:
- Production scheduling, work-in-progress tracking and lot traceability solutions
- Key performance indicators for automation equipment
- Process dashboarding
- Data acquisition and archiving
- Relational databases
- Communication drivers
- Numerical data analysis
- Control algorithms
- Reporting and user interfaces
- Studies

We develop efficiencies through well-maintained, longterm relationships with clients. We dedicate client contacts, so you always know who to call, building a knowledge of your facility, systems, and preferences to better serve you and your project team.



1. Dufferin Aggregates Plant Expansion, Flamboro Quarry - Dundas, ON
2. Raizen Costa Pinto Cellulosic Ethanol Plant - Piracicaba, Brazil
3. Heidelburg Foods Boiler Systems Replacement - St. Jacobs, ON

Manufacturing & Processing Plants

Processing Plants

From design of new processing facilities to design of process upgrades and retrofits to existing facilities, J.L. Richards works closely with our clients to provide a final product that meets their core objectives. J.L. Richards' designs take into consideration equipment wear, operator safety, and provide maintenance-friendly solutions to ensure the owner receives the most cost-effective design solutions.

On an ongoing basis, we work in mineral processing plants (mills, smelters, and refineries), pulp and paper processing plants, ethanol processing plants, and food processing plants.

1

Industrial Infrastructure

Surface Facilities

Because J.L. Richards completes such a high volume of industrial work, we are intimately familiar with facilities that have complex and multi-faceted functional needs. Our full multidisciplinary in-house design team can provide all necessary services—from planning and detailed design—to contract administration and commissioning. Some of the many surface facilities we can provide services for include:

- Equipment foundations
- Warehouses
- Dust collection systems
- Electrical substations
- Truck scales
- Mine dry facilities
- Administration buildings
- Security buildings
- Compressor houses
- Shops
- Core logging buildings

2

Power Systems

We routinely works with a wide range of power systems, and we are highly familiar with how these systems operate. We specialize in:

- Power system modelling and design
- Grounding modelling design and testing
- Power system protection and control
- Layout and design of medium voltage substations
- Protective device evaluations
- Coordination studies
- Power flow studies
- Arc flash studies
- Fault investigations

Process Controls

The Instrumentation team works closely with both designing and implementing control and instrumentation systems. We are involved in all phases of process control development—from conceptual design to detailed design through to instrumentation selection and commissioning. We routinely provide services involving:

- Panel detailing
- Loop diagrams
- Piping and instrumentation diagrams
- Input-output tables
- Network communications
- DCS hardware
- Instrumentation
- Process control narratives
- Selection and specification of instrumentation
- Configuring and management DCS system libraries
- Start-up and commissioning assistance
- PLC/DCS/HMI programming

Process Engineering

Process Engineering focuses on the understanding and application of fundamental chemical engineering principals to convert raw materials into products. J.L Richards' Process Engineering team can support projects from initial conceptualization, all stages of FEL development, detailed design and construction packages, hazard analysis, control system design, and process optimization of both plant system upgrades and complete plants.

3

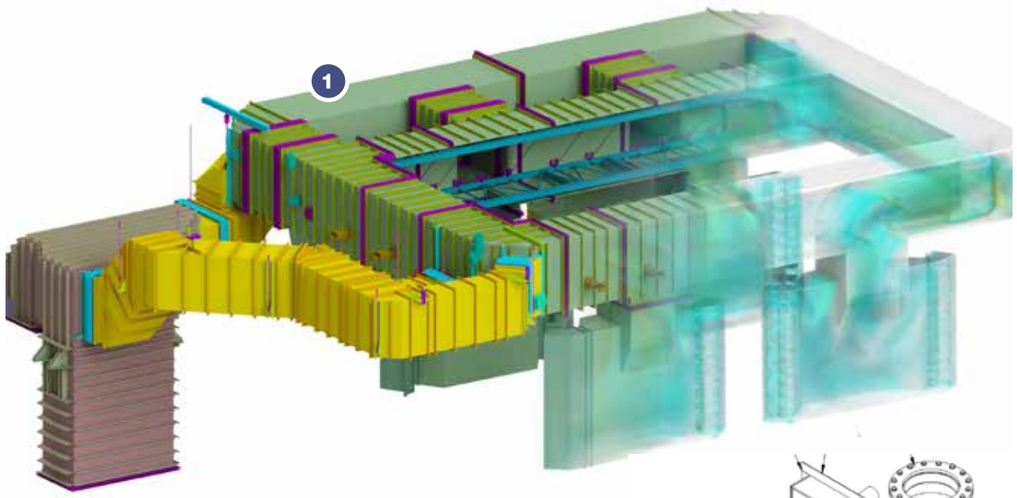
1. HRSG Economizer Bundle & Heavy Lift System Design - Virginia, USA
2. Dufferin Aggregates Plant Expansion, Flamboro Quarry - Dundas, ON
3. Global Aerospace Centre for Icing and Environmental Research (GLACIER) Turbine Testing Facility - Thompson, MB

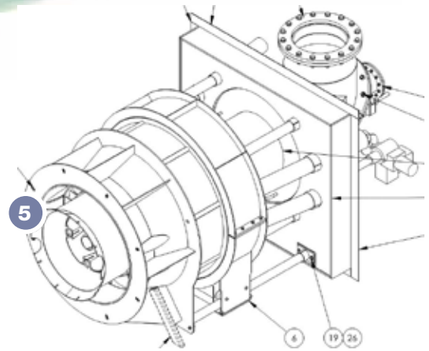
Power Generation

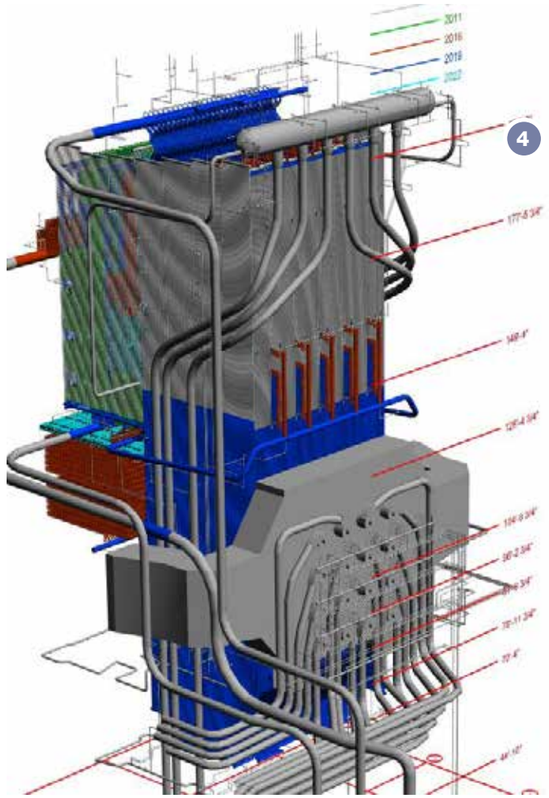
The Industrial Market has specialized expertise in designing and implementing retrofits and modifications for clients in the power generation, industrial, and manufacturing industries.

The team has developed a wide range of diverse process operations ranging from pollution control systems to burner design, combustion optimization, heat recovery steam generators, coal-fired power plants, and balance of plant piping systems. We have specialist boiler engineers and designers, with more than 200 boiler installs, retrofits, conversions, and repairs completed.

Many of the projects involve steam and condensate piping, balance of plant engineering for package boiler systems. We simply are steam and boiler experts.







1. Computational Fluid Dynamics for Coal-fired Power Boiler Air Systems Modifications
2. Tangential Coal-fired Power Boiler Burner
3. Andritz Millar Western Forest Products Woodyard Crane - Whitecourt, AB
4. Boiler General Arrangement 3D Model - Calaca, Philippines
5. Wall Fired Boiler Burner 3D Fabrication Model

Forestry, Pulp & Paper

J.L. Richards has completed a wide range of projects for the forestry sector and pulp and paper operations across North America with a concentration in Ontario. Our focus is on ensuring our clients needs are not only met, but exceeded resulting in ongoing business and longterm service. Every project we complete improves plant operation, safety, or efficiency leading to facility continuous improvement. Among our expertise, J.L. Richards has completed designs for:

- Chip unloading systems
- Truck approach ramps
- Woodyard crane service life and inventory systems
- Chute systems
- Control systems for automatic material transfer
- Upgrades to boiler plants
- Feed water optimization
- Hazardous chemical pumping systems
- Gas detection systems

Our experienced multidisciplinary team has developed designs and executed projects for countless clients in this sector, and we know how to work with you to understand operations and solve the specific problems you have on your plate.

Whether you're looking to improve the efficiency of your processes, upgrade existing systems, reduce energy usage, or expand operations, we can deliver holistic designs that are functional, cost conscious, and customized to your needs, budget, and timeline.

Our team is experienced in enhancing automation, identifying opportunities for increased efficiency, and enabling improvements in productivity. We provide a host of value-added services to support your operations from point of harvest to milling and distribution.

Civil Infrastructure

J.L. Richards' Civil team provides full civil site services required to support the development of a new industrial site or the expansion of existing facilities. Our approach to the infrastructure components of a multidisciplinary mining or heavy industrial site involves taking advantage of early opportunities for coordination to mitigate conflicts at later stages of the project. Integrating civil and infrastructural components in the early phases of the design process is one of the many practices we employ to ensure that our projects are delivered on time and on budget.

We have specialized expertise in:

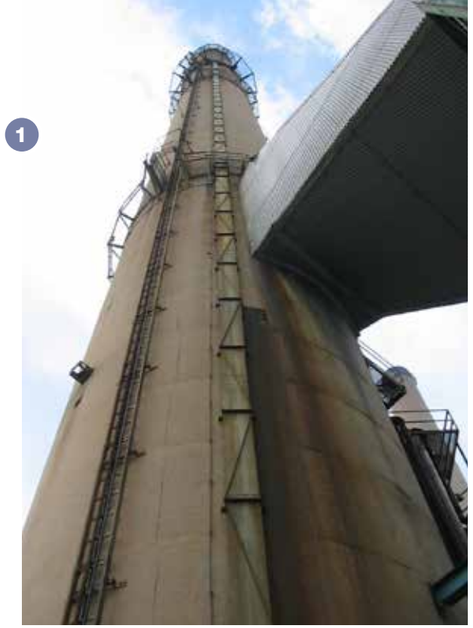
- Water and wastewater treatment systems
- Raw water and treated effluent dewatering
- Assessment of packaged potable or domestic water systems
- Haul road design
- Consultation with government agencies and preparing documentation for permit

Maintenance Engineering

Maintenance engineering is a large part of what we do at J.L. Richards. These small- and medium-scale projects aim to maintain or improve the day-to-day function of industrial facilities. We take a multidisciplinary approach to projects that require it, and we ensure that these disciplines are properly coordinated through our project management strategies.

Because we understand that equipment is often used by different people in different capacities, we consider the needs of both operational and maintenance staff to be paramount, and we consult with these staff regarding what is necessary to do their jobs safely and efficiently. We take pride in the fact that our designs are straightforward and simple. We strive to create designs that are user friendly, cost effective, and easy to access and maintain.

1



2

3

We leverage leading-edge technologies such as 3D point cloud scanning and in-depth accurate 3D models to provide better, more complete design packages.

Talk To Us Today

Neil Farr P.Eng.
Executive Director;
Industrial Market Chief
343-803-3914
nfarr@jlrichards.ca

Brian Davies P.Eng.
Associate; Manager, Ottawa
Industrial Mechanical Department
343-804-9538
bdavies@jlrichards.ca

Seth Maguire
Associate; Manager, Ottawa Industrial
Electrical & Software Department
343-803-3841
smaguire@jlrichards.ca

1. Boiler Stack, Mirant Dickerson, Montgomery County, Maryland
2. 160KIP Economizer Lift, Gordonsville Energy, Gordonsville, Virginia
3. Deely Power Plant, San Antonio, Texas

BEST MANAGED COMPANIES
Platinum member

www.jlrichards.ca

Architecture
Civil Engineering
Electrical Engineering
Energy Systems Engineering
Environmental Engineering
Mechanical Engineering
Planning
Project Management
Structural Engineering

Connect with us:

LinkedIn

Facebook

YouTube

Instagram