E.S. Fox Limited
Power Generation

COMPANY CONTACT
E.S. Fox Limited — Power Generation
sales@esfox.com
905 - 354 - 3700 x 1210

HEAD OFFICE
P.O. Box 1010
9127 Montrose Road
Niagara Falls, Ontario L2E 7J9
TELEPHONE: 905-354-3700
WEBSITE: www.esfox.com

PORT ROBINSON
HAMILTON
TORONTO
THUNDER BAY
SUDbury
KINGSTON
KINCARDINE
WHITBY
E.S. Fox Limited

CORPORATE OVERVIEW

Established in 1934, E.S. Fox Limited (ESFL) is a privately owned Canadian multi-trade company providing a single source for Industrial, Institutional, Commercial and Power Generation construction and fabrication projects.

With over 3.0 million direct-hire man-hours last year, we self-perform Structural, Mechanical, Electrical, Sheet Metal, HVAC, Refrigeration, Millwright / Rigging, Boiler Making.

The strength of our company stems from the vast experience of its people, the integration of a variety of skilled trades, and its dedication to total control of construction through computerized planning and monitoring techniques.

ESFL has established a reputation for high quality workmanship, operational flexibility and efficiency and timely project completion.

POWER GENERATION CAPABILITIES

As a multi-trade Industrial, Commercial, Institutional and Power Generation contractor, ESFL serves as a single-source for construction, maintenance, and service requirements.

Our capabilities on construction projects include:

- Piping
- Electrical
- Structural Steel
- Ironworking
- Millwrighting | Rigging
- Boilermaking
- Sheet Metal
- HVAC
- Instrumentation / Controls
- Refrigeration

QUALITY ASSURANCE

Our Quality Management System is registered to ISO 9001:2015 by SAI Global. Over the decades, ESFL has held numerous ISO, ASME and Nuclear Certifications. Work is regularly carried out under codes such as: ISO 9001:2015, CWB W47.1, CWB W47.2 (with 3-4 welding engineers on staff), CSA N286-12 (Nuclear) CSA N299.1 – 2016, ISO 14001:2015 (Environmental) and OHSAS 18001:2007 (Health & Safety). We are also a member of the Canadian Institute of Steel Construction (CISC). [Continued on Page 4]
SAFETY CULTURE

At ESFL employee safety, protection of the environment and work quality are the main focus.

Both Management and Employees work together in an effort to further advance knowledge of safety and incident prevention.

Together we work to ensure a safe work environment for all. Our employees believe in the fundamental principle that safety is everyone’s responsibility.

Incident prevention is the integral part of every job with the safety and well-being of each individual the number one priority.

SAFETY PROGRAM KEY ELEMENTS

- Corporate Safety Manual
- Site Specific Safety Plans
- Orientation and Training
- Incident Investigation
- Lessons Learned Bulletins
- Job Safety Analysis
- Workplace Inspections
- Senior Management Review
- Safety First Attitude
- Trending and Analysis
- Setting Objectives and Targets
- Safety Workshops
- Mentoring Programs
- J.H.S.C
- Strong Communication
- Accountable Supervision
- Safety Meetings

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# E.S. Fox Limited
## Quality Assurance

<table>
<thead>
<tr>
<th>ISO</th>
<th>CSA</th>
<th>ASME</th>
</tr>
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<tbody>
<tr>
<td>☑ ISO 9001:2015</td>
<td>☑ CSA N285.0 Nuclear Class 1, 2, 3, &amp; 4 Parts, Components &amp; Support (Shop &amp; Field)</td>
<td>☑ National Board Registration for ASME U, U2, R, S &amp; PP (Shop &amp; Field)</td>
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<tr>
<td>☑ ISO 14001</td>
<td>☑ CSA N285.0 Nuclear Material Supply Ferrous &amp; Non-Ferrous (3 Locations)</td>
<td>☑ ASME Section III, Division 1: N, NPT, NA, NS</td>
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<td>☑ ISO 18001</td>
<td>☑ CSA N286-12 Nuclear</td>
<td>☑ ASME Section VIII, Division 1 &amp; 2 Pressure Vessels (Shop &amp; Field)</td>
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<td>☑ CSA N299.1 - 2016</td>
<td>☑ ASME U, U2, R, S &amp; PP Stamps (Shop &amp; Field)</td>
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<td>☑ CSA B51 Boiler, Pressure Vessels &amp; Pressure Piping &amp; Repairs (Shop &amp; Field)</td>
<td>☑ ASME U, UM Stamps: Edmonton Division (Shop &amp; Field)</td>
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<td>☑ CSA B51 Category A, B, C, E, &amp; H Type Welded Non-Welded Fittings (Shop &amp; Field)</td>
<td>☑ ASME B31.1 Power Piping (Shop &amp; Field)</td>
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<td>☑ CSA B51 Hot Tap &amp; Line Stopping (Shop &amp; Field)</td>
<td>☑ ASME B31.3 Process Piping (Shop &amp; Field)</td>
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<td>CSA Z7396.1-17 Medical Gas Pipeline Systems Part 1</td>
<td>☑ ASME B31.5 Refrigeration Piping (Shop &amp; Field)</td>
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<td>☑ CSA B52 Mechanical Refrigeration Code</td>
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<tbody>
<tr>
<td>Structural Steel CWB W47.1 Div.1</td>
<td>National Board Registration for ASME U, U2, R, S &amp; PP (Shop &amp; Field)</td>
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<tr>
<td>Structural Aluminum CWB W47.2 Div.1</td>
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**PORT ROBINSON**  
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SUDBURY  
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## Oxy Vinyls — New Cogen Plant

<table>
<thead>
<tr>
<th>Customer</th>
<th>SNC Lavalin</th>
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<tbody>
<tr>
<td>Scope</td>
<td></td>
</tr>
<tr>
<td></td>
<td>♦ One gas turbine generator unit of 5.7 MW nominal output, complete with excitation systems &amp; other ancillary systems &amp; equipment. The GTG package was supplied in an enclosure with various shipped loose components, all to be installed by ES Fox.</td>
</tr>
<tr>
<td></td>
<td>♦ One heat recovery steam generator, requiring assembly &amp; installation of various shipped loose components.</td>
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<tr>
<td></td>
<td>♦ One condensing economizer requiring assembly &amp; installation of various loose components.</td>
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<tr>
<td></td>
<td>♦ 4160V generator switchgear in electrical room</td>
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<td>♦ 115kV PTs to be installed in the HV2 outdoor substation</td>
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</table>
**Portlands Power Generation Centre – 550 MW Combined Cycle Facility**

<table>
<thead>
<tr>
<th>Customer</th>
<th>SNC Lavalin</th>
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<tbody>
<tr>
<td><strong>Scope</strong></td>
<td>E.S. Fox performed the all-trades installation of two [2] GE Frame 7FA Gas Turbines rated at 180 MW each, [2] DLN Combustion Turbines, all associated equipment, electrical and piping as well as the offsite assembly, transportation and erection of two 20’ diameter by-pass stacks. The scope of work included:</td>
</tr>
<tr>
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<td>♦ Transporting and setting of GE 7FA Gas Turbine Generators</td>
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<td>♦ Exhaust Diffusers</td>
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<td>♦ Exhaust Ducts c/w Air Inlet Filter Houses</td>
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<td>♦ Filter House Structural Steel</td>
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<td>♦ Ducting</td>
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<td>♦ Accessory Modules</td>
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<td>♦ LEC Modules</td>
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<td>♦ LCI Modules</td>
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<td>♦ Turbine Enclosures</td>
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<td>♦ Piping, piping supports, tubing, tubing supports, valves and specialty equipment associated with the piping systems</td>
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<td></td>
<td>♦ Supply and install all cable tray, conduit, supports and accessories, necessary for the installation of all interconnect wiring</td>
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## E.S. Fox Limited — Project Profile

**Halton Hills 640 MW Cogeneration Plant**

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<tr>
<th>Customer</th>
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**Scope**

E.S. Fox fabricated approximately 1500 tons of structural steel for (10) piping/electrical modules which were erected at our dock facility in Port Robinson. These modules were completed with all supports, piping and electrical cable tray, then shipped to the Halton Hills jobsite where Fox performed the installation.

E.S. Fox also executed the complete field assembly of two Alstom manufactured heat recovery steam generators.

- Leveling of column base plates
- Assembly & installation of boiler pressure casing, SCR casing, duct burner casing including insulation & casing liner plates & baffles
- Assembly & installation of outlet duct to HRSG stack
- Hauling, hoisting, & final assembly of LP, IP, & HP boiler tube bundles (modules) including inlet, outlet, & interconnecting piping
- Assembly & installation of duct burner equipment & piping
- Assembly & installation of HRSG support, platforms, & access steel work
- Installation of LP, IP, & HP steam drums & installation of interconnecting piping
- Assembly & installation of boiler outlet stack, silencer, damper, and access steel
- Assembly & installation of vent silencer support steel, vent silencers, & outlet piping
- Assembly & installation of small bore piping, tubing, vent drains, & instruments
- Installation of piping & equipment insulation
- Assembly & installation of inlet ducting from CTG turbine exhaust
- Hydro testing of piping & components
- Turning over to owner for start-up & commissioning
E.S. Fox scope of work encompassed the all-trades installation of one (1) Siemens Steam Turbine rated at 300 MW and all associated equipment, electrical and piping. The scope of work included:

- Establishing datum and elevation lines
- Foundation preparation
- Setting of generator and alignment, and coordination with heavy hauling subcontractor
- Installation of turning gear and enclosure
- Setting of turbine and all associated components, such as pedestals and bearings, rotor, hot box and crossover ducting
- Installation and connection to condenser
- Assembly and installation of 4 main steam valves
- Installation of on-board turbine piping
- Installation of seal, steam, gland condenser, hogger ejector skids and accessory equipment
- Installation of piping, supports, valves, and specially equipment associated with the STG
- Installation of instrumentation
- Installation of cable, trays, generator termination, and neutral grounding supports and accessories necessary for the installation of all interconnecting wiring
- Pre-commissioning activities
Woodward WWTP Biogas Enhancement & Digester Upgrade

Customer
CH2M Hill/City of Hamilton

Scope
- E.S. Fox was awarded the Prime Contract by CH2M Hill for execution of all construction for the project.
- The Woodward Avenue Sewage Treatment Plant (WWTP) is a conventional activated sludge facility with a rated average daily flow capacity of 409 MLD, and a peak capacity of 614 MLD.
- This project was undertaken by the City of Hamilton to enhance the ability of the Digesters to generate Biogas, which is converted to electricity (via cogeneration).
Customer

McMaster University

Scope

E.S. Fox was the General Contractor for the Cogen System Installation. This scope included retrofitting of the existing boiler plant, with existing foundations of the boiler room to be upgraded. Installation of a new gas turbine generator, heat recovery steam generator, high voltage electrical upgrades, installation of a gas compressor, absorption chiller, centrifugal chiller as well as the modifications of the building envelope.
Customer: Magnolia Generation

Scope:
- Design/Build project within existing operational High Rise Residence
- Installation of four 65 KW Micro-Turbines exhausting into two heat recovery boilers
- Acted as the Prime to the owner in a CCDC2 Contract 4,000 hour job
- Installation of four new 65kW Natural Gas MicroTurbines and all associated instrumentation systems dependent for these engines.
- Pumps, heat exchangers, piping etc, along with process instrumentation for the new heat recovery portion of the job.
- Installation of necessary switchgear, panels, transformers, wiring etc., for the project.
Markham District Power Generation — Birchmount & Bur Oak Electrical

Customer
Markham District Energy

Scope
- Installation of two new 5kV Natural Gas Generators (3 MW and 4MW) and all associated Instrumentation & Control systems for the engines.
- Installation of process instrumentation for new Heat Recovery system.
- Modifications to existing equipment and installation of owner supplied 5KV equipment.
- Supply and install new 600V and 208V Distribution equipment.
- Installation of three new 5KV Switch Gear Cells at Birchmount and four new cells a Bur Oak
- New 600V and 208V systems at both Sites
**Customer**

<table>
<thead>
<tr>
<th>Scope</th>
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<tr>
<td>Queen’s University</td>
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</table>

- The project consisted of the installation of a 15 MW cogeneration facility within an existing operational Central Heating Plant. This was a design/build project with E.S. Fox responsible for all aspects of the plant construction.
- This project was based on the installation of two 7 MW Solar Taurus 70 combustion gas turbines exhausting into two heat recovery boilers each rated at 75,000 PPH with supplemental duct burners.
- The boilers included economizers and isolation dampers with seal air fan. These units feed into the existing steam distribution system. In total, 30 tie-ins were made to existing plant systems.
As a fully integrated multi-trade construction firm, E.S. Fox Limited provides our clients a single source solution for their detail engineering, fabrication, construction, and maintenance needs. We provide the following construction services:

- Piping
- Electrical
- Structural Steel
- Ironworkers
- Millwrights
- Boilermaking
- Sheetmetal
- HVAC
- Instrumentation & Controls
- Operating Engineering
- Insulation
- Carpenters
- Labourers
- Refrigeration
At our main fabrication facility in Port Robinson, Ontario, we have 83,000 sqft of production space working to the highest standards required for complex sheet metal, pipe, module and pressure vessel fabrication. With 800 weld procedures, we fabricate:

### Modules and Vessels
- Process Modules and Equipment Skids
- Cryogenic Air Distillation Columns for: Oxygen, Nitrogen & Argon
- Air Liquefaction / Separation
- Hydrogen Purification
- Catalyst Reclamation
- Oil/water Purification

### Pipe Fabrication
- Stand alone contracts & support of field projects and other fabrication projects
- Area of expertise is high alloy materials: Stainless steel, aluminum, titanium, chrome-moly.
- Carbon Steel up to 84” Diameter
  - Victaulic – Roll Grooved Piping up to 48” Dia.

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Shipping Capabilities

Port Robinson Shipping

Transportation Access & Dock Facilities

With access to the Welland Canal at our Port Robinson Facility, which includes our own loading dock, we can ship oversized modules up to 800 tons to any water accessible location in the world.

- 1/2 mile from Highway 406 extension providing direct access to Queen Elizabeth Highway.
- 1/4 mile from Canadian National Railroad line.
- Heavy barge Roll On / Roll Off loading dock extending into the Welland Ship Canal turning basin providing 10' draught and 400 ton capacity.
- Heavy lift dock of 800 ton capacity, dock face 475 ft. draught 25 ft. The dock can accommodate maximum Seaway length vessels.
- The site incorporates 5 acres of level, well compacted, crushed stone assembly area.

COMPANY CONTACT
E.S. Fox Limited — Fabrication
fabrication@esfox.com
(905) 354-3700 x1360
## Locations & Facilities

**Head Office: Niagara Falls, ON — 240,000 sqft**

<table>
<thead>
<tr>
<th>Branch Location</th>
<th>Capabilities</th>
<th>Square Footage</th>
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<tr>
<td>Darlington, ON</td>
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<td>Kingston, ON</td>
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<tr>
<td>Port Robinson, ON</td>
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<td>Sudbury, ON</td>
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<td>Tiverton (Kincardine)</td>
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<td>Vaughan (Toronto), ON</td>
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<tr>
<td>Whitby, ON</td>
<td>Construction</td>
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### Total Fabrication: 108,000 sq. ft.