

E.S. Fox Limited

Architecturally Exposed Structural Steel (AESS)



Hunt Club Airport Parkway Pedestrian Bridge

COMPANY CONTACT

E.S. Fox Limited — Structural Steel and Bridge Division

www.esfox.com

905-354-3700 x1328

HEAD OFFICE

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TORONTO
THUNDER BAY
SUDBURY
KINGSTON
KINCARDINE
OSHAWA

E.S. Fox Limited Affiliations



Professional Engineers
Ontario



CSA W47.1
CSA W47.2



OEA ONTARIO
ERECTORS
ASSOCIATION INC

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E.S. Fox Limited

CORPORATE OVERVIEW

Since 1934, E.S. Fox Limited (ESFL) has set the standard for safety and quality in the fabrication and construction industry. ESFL is a privately owned, Canadian, multi-trade company, providing a single source for Industrial, Institutional, Commercial, and Power Generation projects. With over 3.0 million direct-hire man-hours last year, we self-perform Structural Steel Fabrication and Erection, Mechanical, Electrical, Sheet Metal, HVAC, Refrigeration, Millwright / Rigging, and Boiler Making.

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

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

CONSTRUCTION CAPABILITIES

As a fully integrated, multi-trade construction firm, E.S. Fox Limited provides clients with a single source solution for their detail engineering, fabrication, construction, and maintenance needs. We are a solutions based provider that delivers a superior level of service from "cradle-to-grave," as we offer multi-trade, service oriented solutions for all your ICI and Power Generation projects.

FABRICATION CAPABILITIES

E.S. Fox Limited is proud to operate three state-of-the-art fabrication facilities across Ontario. At our main fabrication facility in Port Robinson, we offer over 83,000 square feet of production space. We work to the highest standards to produce Pipe Spools, Modules, Cryogenic Cold Boxes, and Pressure Vessels. With over 800 weld procedures and 40 quality certifications including nuclear, E.S. Fox Limited continues to be a leader and a symbol of Canadian strength and tradition in the supply of Quality Fabrication Services for the Industrial, Commercial, Institutional, and Power Generation markets for over eight decades.



Founder - Edward (Ted) Fox

SERVICES

- ENGINEERING
- FABRICATION
- STRUCTURAL DESIGN
- STRUCTURAL STEEL ERECTION
- BRIDGE ERECTION
- MILLWRIGHTING | RIGGING
- BOILERMAKING
- MECHANICAL
- ELECTRICAL
- SHEET METAL
- REFRIGERATION
- HVAC

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Environmental Health and Safety

SAFETY CULTURE

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

One of our core values is to "Prevent the Event." 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 Program
- J.H.S.C.
- Strong Communication
- Accountable Supervision
- Safety Meetings



International
Organization for
Standardization

ISO 45001:2018

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Quality Assurance



ISO	CSA	ASME
<ul style="list-style-type: none"> • ISO 9001:2015 • ISO 14001 • ISO 18001 	<ul style="list-style-type: none"> • CSA N285.0 Nuclear Class 1,2,3, & 4 Parts, Components & Support (Shop & Field) • CSA N285.0 Nuclear Material Supply Ferrous and Non-Ferrous (3 Locations) • CSA N286-12 Nuclear • CSA N299.1 – 2016 • CSA B51 Boiler, Pressure Vessels & Pressure Piping & Repairs (Shop & Field) • CSA B51 Category A, B, C, E & H Type Welded Non-Welded Fittings (Shop & Field) • CSA B51 Hot Tap & Line Stopping (Shop & Field) • CSA Z7396. 1-17 Medical Gas Pipeline Systems Part 1 	<ul style="list-style-type: none"> • National Board Registration for ASME Section III, R, VIII (Shop & Field) • ASME Section III, Division 1: N, NPT, NA, NS • ASME Section VIII, Division 1 & 2 Pressure Vessels (Shop & Field) • ASME U, U2, S, & PP Stamps (Shop & Field) • ASME U, UM Stamps: Edmonton Division (Shop & Field) • ASME B31.1 Power Piping (Shop & Field) • ASME B31.3 Process Piping (Shop & Field) • ASME B31.5 Refrigeration Piping (Shop & Field) • CSA B52 Mechanical Refrigeration Code
CWB		
Structural Steel CWB W47.1 Div. 1 Structural Aluminum CWB W47.2 Div. 1		



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Locations & Facilities

Head Office: Niagara Falls, ON —240,000 square feet

Branch Location	Capabilities		Square Footage
Darlington, ON	Construction		
Hamilton, ON	Construction	Fabrication	3,000 sq. ft.
Kingston, ON	Construction	Fabrication	17,000 sq. ft.
Port Robinson, ON		Fabrication	83,000 sq. ft.
Sudbury, ON	Construction		
Thunder Bay, ON	Construction	Fabrication	5,000 sq. ft.
Tiverton (Kincardine), ON	Construction		
Vaughan (Toronto), ON	Construction		
Oshawa, ON	Construction		
Total Fabrication			108,000 sq. ft.



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Capabilities

CONSTRUCTION CAPABILITIES

As a fully integrated, multi-trade construction firm, E.S. Fox Limited provides clients with a single source solution for their detail engineering, fabrication, construction, and maintenance needs. We are a solutions based provider that delivers a superior level of service from “cradle-to-grave,” as we offer multi-trade, service oriented solutions for all your ICI and power sector projects.

We provide the following construction services:

- ◆ Piping
- ◆ Electrical
- ◆ Structural Steel
- ◆ Ironworkers
- ◆ Millwrights
- ◆ Boiler Making
- ◆ Sheet Metal
- ◆ HVAC
- ◆ Instrumentation & Controls
- ◆ Operating Engineering
- ◆ Insulation
- ◆ Carpenters
- ◆ Labourers
- ◆ Refrigeration



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FABRICATION CAPABILITIES

At our main fabrication facility in Port Robinson, Ontario, we offer over 83,000 square feet of production space. We work to the highest standards required to produce Cryogenic Cold Boxes, Pipe Spools, Modules, and Pressure Vessels. With more than 800 weld procedures, we fabricate:

Modules and Vessels

- ◆ Process Modules and Equipment Skids
- ◆ Cryogenic Air Distillation Columns for:
Oxygen, Nitrogen, and 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.
- ◆ Jacketed Pipe



Pressure Vessel



Cryogenic Cold Box

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PORT ROBINSON SHIPPING

We are unique in that we have access to the Welland Canal at our Port Robinson facility. This includes our own loading docks, where we can ship oversized modules from up to 800 tons to any water accessible location in the world.

Transportation Access & Dock Facilities

- ◆ 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



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STRUCTURAL STEEL DIVISION

The Structural Steel Division manages both the fabrication and field erection of structural steel systems. The division also specializes in “niche” structural systems such as existing building reinforcement, high rise building towers, pedestrian, rail, and transportation bridges, external elevator shafts, crane installations, waterparks, and other recreational projects outside of typical Industrial, Commercial, and Institutional scopes of work.

ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS)

This package highlights some of the experience the Structural Steel Division of E.S. Fox Limited has with AESS structures. These begin in the shop with special tools. AESS requires much more care in handling and pre-planning. Lifting points, lugs, or devices are all looked at ahead of time. Every step must be planned from the time deliveries arrive. E.S. Fox Limited is familiar with all the requirements of dealing with AESS and site operations.



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E.S. Fox Limited — AESS Project Profile



John Street Pedestrian Overpass

Client	Kenaidan Contracting Ltd.
Scope	This bridge was assembled and field welded on falsework parallel to live rail. Soft rubber was placed in saddles to avoid paint damage. The AESS structure had a 3 stage paint system requiring field touch-up after field welding.
Fabricator	Walters Group

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E.S. Fox Limited — AESSE Project Profile



Hunt Club Airport Parkway Pedestrian Bridge

Client	Louis W. Bray Construction
Scope	Orthotropic steel deck cable-stayed bridge built on E.S. Fox Limited falsework. Fully field welded deck joints partially built over live traffic. Contract also included miscellaneous railings. This AESSE project also required touch-up paint after install, and field welding.
Fabricator	Canam Bridges

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E.S. Fox Limited — AESS Project Profile



Main Street CPR Rail Bridge

Client	BOT Construction
Scope	Fully painted AESS structure required a more complex erection procedure to protect the paint system.
Fabricator	ADF Group Inc.

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E.S. Fox Limited — AESS Project Profile



City Place Pedestrian Bridge

Client	PCL Construction
Scope	Erection of a signature AESS pedestrian bridge complete with all art elements, cable railing, etc. over a busy train switching area. Touch up paint required after assembly prior to erection.
Fabricator	ADF Group Inc.

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E.S. Fox Limited — AESS Project Profile



Recreation Trail & Waterfront Link — Pedestrian Bridge

Client	Dufferin Construction Company
Scope	A new pedestrian (two spans over the QEW and one over the Red Hill Creek). Consists of parallel tub girder sections, complete with a single leaning arch span profile. AESS structure with touch-up being required in the field after assembly and welding.
Fabricator	Cherubini Metals

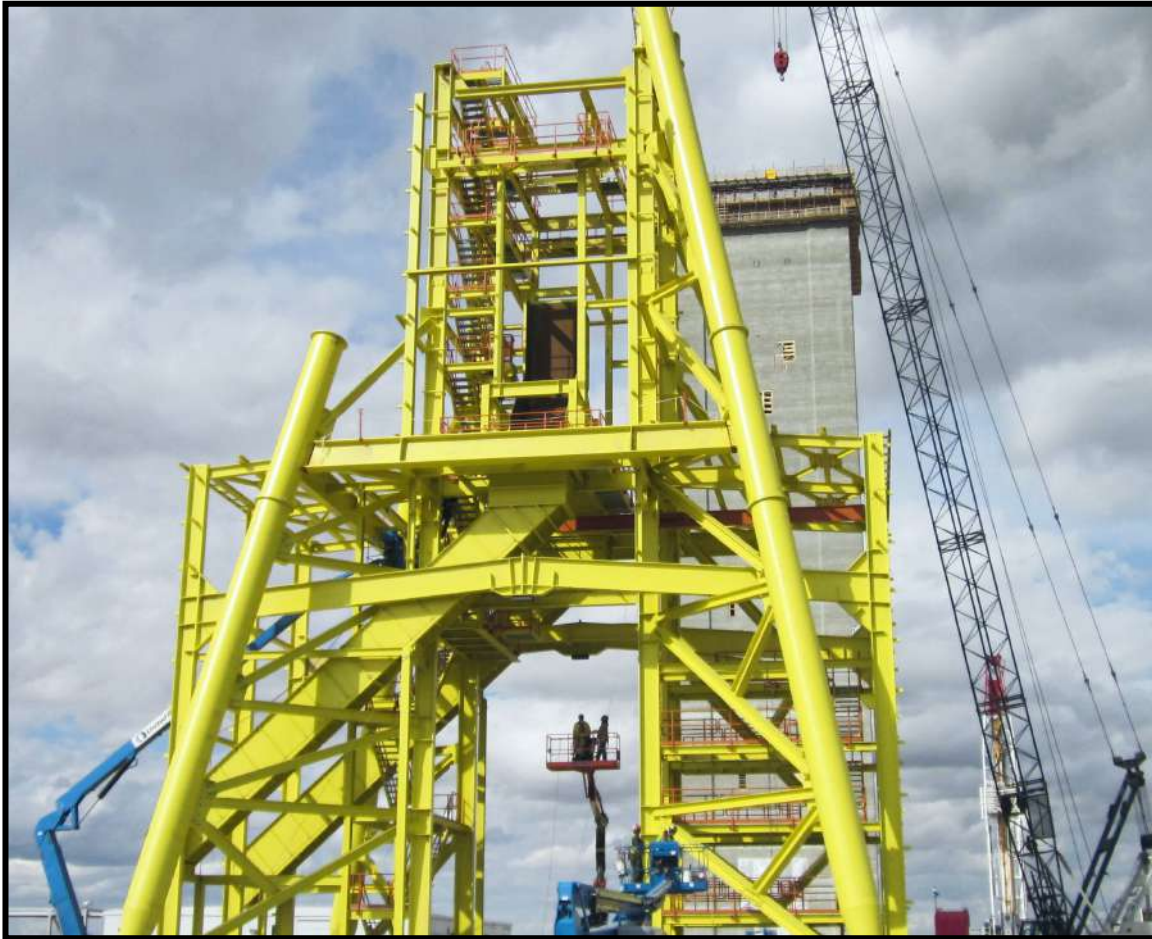
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E.S. Fox Limited — AESS Project Profile



Mosaic Potash K3 Mine Site Production Headframe

Client	AMC Mining
Scope	Supply and erection of structural steelwork for a 200' tall tower including overhead cranes, chutes and setting of equipment and sheaves. This is a fully exposed structure in a semi-corrosive potash environment. This structure was a AESS cat. Touchup required after the structure was erected.
Fabricator	Metal Perreault

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E.S. Fox Limited — AESS Project Profile



Canada's Wonderland Leviathan Roller Coaster

Client	Canada's Wonderland
Scope	Elements were shipped in containers for this project—the second highest roller coaster in North America. 305' tall, 145km/hour, 80 degree slope and 6,000 LF of track. This structure was galvanized with a stage 3 paint system over the galvanizing AESS 2. Project featured on the Discovery Channel.
Fabricator	Clermont Steel Fabricators

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E.S. Fox Limited — AESS Project Profile



Hilton Casino — Pedestrian Bridge

Client

OLG and Hilton

Scope

Our contract for this Architecturally Exposed Structural Steel pedestrian bridge included the fabrication, off-site assembly, transportation, and the final installation. The structure was clad in glass and all connections and joints were highly visible. Special attention was required when handling and erecting to protect the painted finish. AESS 3 was required. A body-type filler was used over all welded joints.

Fabricator

Beauce Atlas

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E.S. Fox Limited — AESS Project Profile



Fallsview Indoor Waterpark

Client	Canadian Niagara Hotels
Scope	A new waterpark over an existing 7 storey parking garage. This project had many AESS elements in various locations. The pedestrian bridges and internal exposed platforms were AESS. The rides and waterpark equipment was AESS Cat. 2.
Fabricator	E.S. Fox Limited

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