

CANAL

MARINE SERVICES & SOLUTIONS



MARKET SEGMENTS



For half a century Canal has provided electrical design, engineering and service around the clock to the merchant marine, naval and coastguard fleets in Canada, primarily in the Great Lakes Basin. From the heaviest Ice Breaker, the largest Bulker, Warships, Tugs and Research Vessels, Fish Boats, Cruise Vessels and Ferries and from the oldest to the newest, we have been there and kept them moving.

Merchant Vessels

Tankers, bulk carriers, self-unloaders, multi-purpose ships, and a multitude of other vessels. Shipowners and crews can trust Canal solutions and technicians.

Ferries, Cruise, & Tour

Canal has extensive experience providing service and developing solutions for passenger transportation vessels. From bridge systems to full zero emission propulsion systems.

Work Boats

Harbour & ocean going tugs, articulated tug & barge, dredges & support vessels, offshore vessels and platforms. Canal's team has years of experience serving this market, including fit for purpose hybrid power and propulsion systems.

Government Fleets

Coast Guard fisheries & ocean science vessels, icebreakers, SAR vessels, Naval supply and defense vessels. Canal is there for everything from on-call support to full re-powers.

ENGINEERING SERVICES



VESSEL ELECTRICAL DESIGN & SYSTEMS INTEGRATION

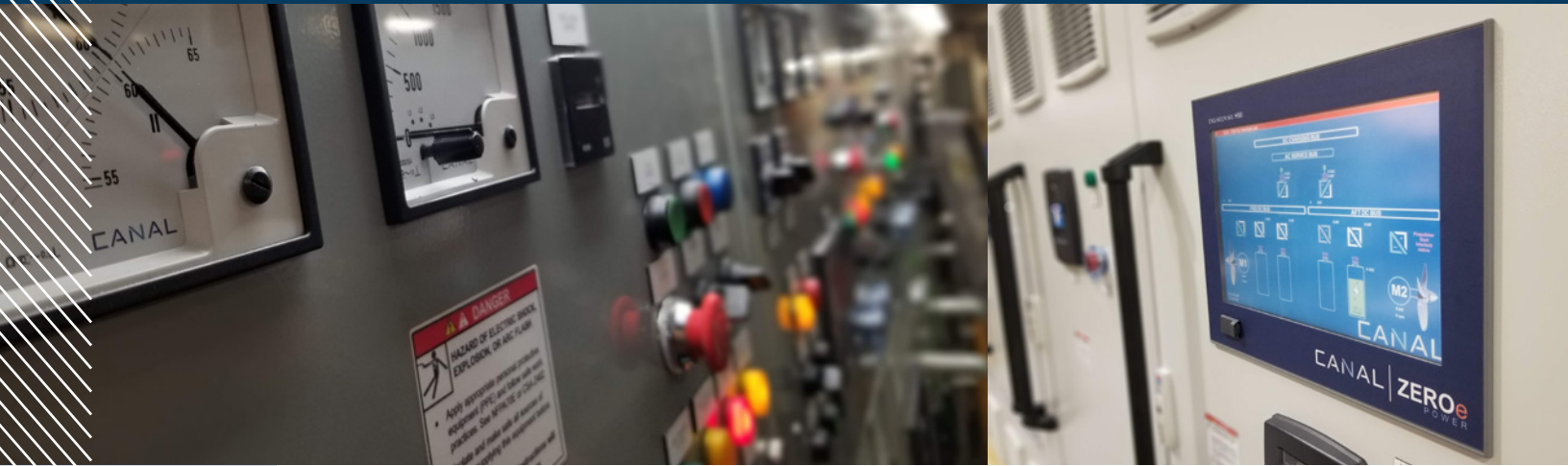
- Conceptual Design, & Specification Development
- Functional, Detailed and Production Design
 - Adaptable to customer work breakdown structure (WBS, SWBS & SFI)
 - Data Centric approach
- Systems Integration of Propulsion, Distribution, Machinery, Navigation and all systems in between
 - Stepping beyond our remit to ensure interdisciplinary gaps are filled
 - Process and quality control support through data validation and management
 - Constant communication of requirements and constraints
- Scalable approach to Cable Management
 - Fit for purpose approach to streamline retrofit and new construction workflows
- Holistic System Testing & Trials Procedure Development

“ We have been working closely with Canal on PortsToronto’s innovative, leading edge project to convert the Marilyn Bell I ferry at Billy Bishop Toronto City Airport to 100 per cent electric power – the first of its kind in Canada.

Canal’s knowledgeable team brings demonstrated industry expertise and skilled problem solving to the table in supporting PortsToronto as we overcome challenges and bring our ideas to fruition. ”

Jelena Ognjanovic, Project Manager, PortsToronto

ENGINEERED SOLUTIONS



ELECTRIC POWER & PROPULSION EXPERTISE

- Power & Propulsion Analysis & Studies
- Canal **HYBRIDe** & **ZEROe** Propulsion Systems
- Variable Speed Shaft Generators
- Functional Description & Specification Development
- Complete Integration

BESPOKE MARINE ELECTRICAL SOLUTIONS

- Switchboard New Builds and Retrofits
- Pump/Motor Back Up Power Solutions
- Machinery Drive & Control Switchboards & Systems
 - Self Unloader Power & Control Systems
 - Motor and Drive Upgrades
 - Winch Power & Control Systems
- Automation
 - Propulsion Control
 - Alarm & Monitoring Systems
 - Vessel Power Management Systems
- Automatic Fast Shore Charging Systems
- System FMEA and Risk Analysis
- Regulatory Authority Management & Approvals
- Factory Acceptance Testing
- Onsite Installation Oversight to Complete Conversion Project Management
- Through Life Support, Service & Spare Parts
- Remote Monitoring

COMMUNICATION & NAVIGATION



CANAL IS FACTORY TRAINED SERVICE REPRESENTATIVE FOR:
Furuno Marine • Sea Tel • Radio Holland



Canal is a Recognized
External Specialist in Radio
Communication Equipment
Inspections and Testing



REPRESENTATIVE AND/OR SUPPLIER FOR THE FOLLOWING MANUFACTURERS

SUPPLIED PRODUCT	MANUFACTURER
Radar	Furuno, JRC, Simrad
VHF Radio Communications	Sailor, Standard, Motorola, Furuno
V-Sat Communications	SeaTel, Intellian
Satellite TV	SeaTel, Intellian
Walkie Talkie Services	Motorola, Kenwood, Standard, David Clark
Echo Sounder	Furuno, Skipper, Simrad
EPIRBs	McMurdo, Joltron, GME
Cellular Phones Systems	Telular
Cellular Data	Sierra Wireless, Air Link
GPS Systems	Furuno, JRC, SAAB, Simrad
ECDIS	Furuno
Anemometer	R.M. Young, Furuno (solid state)
Gyro Repeater	Scandinavian, Furuno
Camera Systems	Sonitrol, Pelco
AIS	Furuno, JRC, SAAB
GMDSS	Sailor, Furuno
Satellite Phones	Iridium, Sailor
Man Down Systems	Custom Design to Customer requirements
Tunnel Communication Systems	Custom Design to Customer requirements
Passive Antenna Systems	Custom Design to Customer requirements
Engine Control Room Radio	Custom Design to Customer requirements

ELECTRICAL SERVICES



INSTALLATION SERVICES

- Primary Switchgear and Transformer Installation
- Secondary Distribution and Machinery Control Centers including thrusters, ballast and loading systems
- Cable routing, rack, tray & conduit installation
- Emergency and back up power
- Grounding & Lightning protection
- Plant power & lighting cabling
- Radar, Terrestrial and Satellite Communications
- Sub floor ducts and top entry solutions
- Variable Frequency Drives

MAINTENANCE SERVICES

- Cleaning services for generators, motors switchboards & breakers, including rewinds & commutator replacement.
- Instrumentation calibration for: local and remote sensors and local and remote gauging
- Megger testing
- Navigation Equipment Annual Maintenance
- PLC re-programming
- Primary & secondary injection circuit breaker testing to class & code. Calibrated test equipment to 22,000 amps
- Thermal Scanning for hot spots – Full or restricted report Termination re-torqueing

ELECTRICAL SERVICES

RETROFIT SERVICES

- Across the line starters to soft start or VFD
- Cable rack, tray & conduit removal re-routing & replacement
- Low power consumption lighting refits
- Primary switchgear and transformer removal & replacement
- Radar & Navigation Equipment Renewal
- Radio Alignment & Re-certification to Lloyd's, ABS, BV and RINA for Transport Canada Marine Safety
- Secondary distribution and machinery control centers
- Sub floor ducts to top entry solutions
- Telephone & Camera Systems
- Upgraded grounding & lightning protection
- VHF, Satellite and Cellular Communications
- Winch Control Systems

PARTS AND SUPPORT

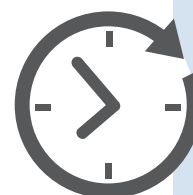
- Our procurement staff are expert at finding rare or scarce components, new and old.

SURVEYS

- Arc Flash
- Load Analysis
- Breaker Coordination Studies
- Breaker Health
- Electrical Energy Audits
- Equipment Condition & Upgrade Surveys
- Harmonic Surveys & Coordination
- Radar, Terrestrial and Satellite Communications
- Thermographic Reports & Analysis

TROUBLESHOOTING - ROUND THE CLOCK
24 hours a day, 7 days a week & 365 days a year.

With a combined knowledge base of over 100 years of experience, our highly trained, inter-provincially certified, electricians are available for large and small scale response.



The logo for CANAL, with the word in a white, sans-serif font. The letter 'A' is a light blue color, while the other letters are white. The background of the top half of the page is a dark blue space filled with a trail of bright blue and white particles, resembling a comet or a starburst, moving from the top left towards the bottom right. On the far left, there is a vertical strip of white diagonal lines.

CANAL

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For over 20 years, Heddle has been working with Canal and this past summer we were fortunate to subcontract Canal on the CCGS Martha L. Black dry docking and CCGS Griffon dry docking. As always, Canal delivered. We are confident that when Canal is on our projects, systems will be well-integrated into each vessel. ”

Shaun Padulo, President, Heddle Shipyards

Canal provides services to government, industrial, commercial and marine clients in Canada from our headquarters in St. Catharines, Ontario and our location in North Vancouver, British Columbia. **Visit www.canal.ca to learn more.**

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