



INFLATABLE BUILDING SYSTEMS

AERO-FRAME

R20+ ENGINEERING TARGET

FOR EFFECTIVE INSULATED BUILDING ENVELOPE

NECB 2025
COMPLIANT



MUNICIPAL RECREATION

INDUSTRIAL FACILITY

STORAGE

MULTI-PURPOSE FACILITY



Engineered by **Canadians** for **Canadians**

INFLATABLE BUILDING SYSTEM

WORKING PRINCIPLE

The AERO FRAME system uses high-pressure air within a network of structural air ribs to create a lightweight, highly rigid structural framework.

When inflated, the air ribs develop significant stiffness and work together to support the building envelope. The pressurized structural frame maintains the geometry and stability of the building while providing an efficient, lightweight alternative to conventional structural systems.



USEFUL AREA

100-1000 m² / 538-107639 ft²



INSTALLATION TIME

5-20 days



INFLATABLE CYLINDER WEIGHT

70-1550 kg / 154-3407 lbs



WIND RESISTANCE

UP TO 45 m/s / 162 km/h / 100 mph



SNOW LOADING

240-480 kg/m² / 50-100 lbs ft²



OPERATING TEMPERATURE

-40°C to +60°C / -40°F to 160°F



POWER OF INFLATING SYSTEM

5-20 kW



LIFESPAN OF HANGER

20-25 years



INNER WIDTH

10-60 m / 32-192 ft



INNER HEIGHT

7-30 m / 23- 96 ft



INFLATABLE CYLINDER DIAMETER

1.5-4 m / 5-13 ft



TOTAL WEIGHT OF THE STRUCTURE

1.8-100 t / 3953-220462 lb



AVAILABLE COLORS

According RAL



MATERIAL

Reinforced PVC Material



FIRE RESISTANCE

CAN/ULC S109



ADVANTAGES

OF AN INFLATABLE BUILDING SYSTEM



1) HIGH SPACE UTILIZATION

Column-free interior design creates a spacious, unobstructed, long-span continuous space.



3) LOW MAINTENANCE COST

Membrane material is easy to maintain and replace, effectively reducing daily operating and maintenance costs.



5) SHORT CONSTRUCTION PERIOD

Components are prefabricated in the factory and rapidly assembled on site, significantly shortening the construction schedule.



2) ECO-FRIENDLY & ENERGY-SAVING

Materials are recyclable and the whole life cycle complies with green building, energy-saving and environmental standards



4) HIGH MOBILITY

Modular design allows the whole structure to be relocated, flexibly meeting different site and storage needs.



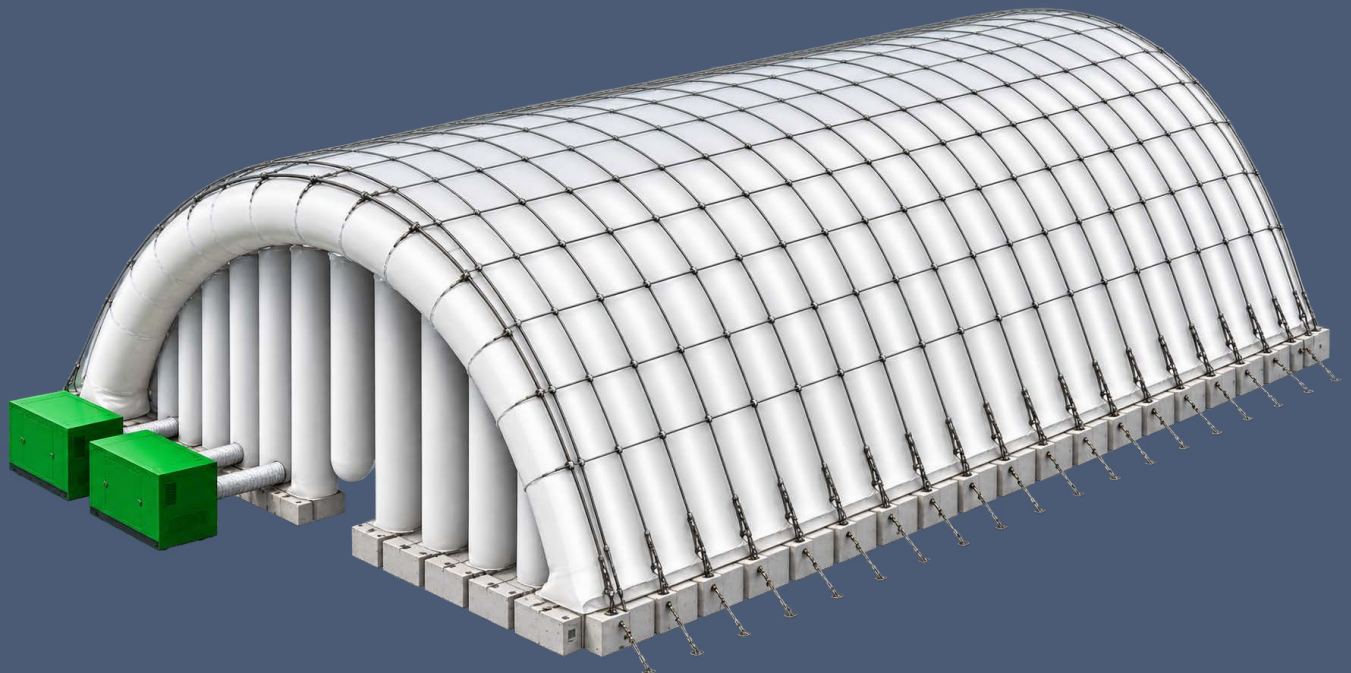
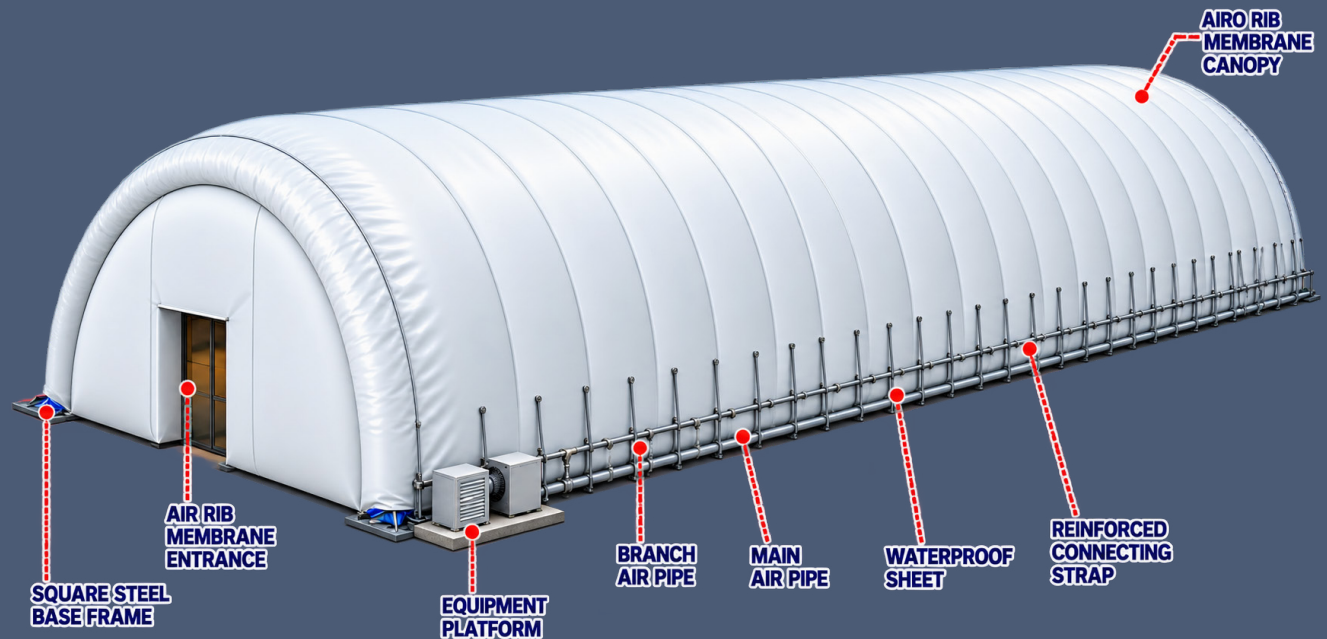
6) HIGH SAFETY

Flame-retardant membrane that self-extinguishes on contact with fire, protecting personal safety

	AIRO-FRAME BUILDING SYSTEM	AIR SUPPORTED BUILDING SYSTEM	CONVENTIONAL BUILDING
INDOOR AIR PRESSURE	Atmospheric; Free entry and exit	Continuous high pressure required; airlock needed	Atmospheric
CONSTRUCTION PERIOD	Extremely short (1 - 3 weeks)	Short (2 - 5 weeks)	Long (months to years)
OPERATING ENERGY USE	low (only air rib top-up)	Medium (indoor pressure must be maintained)	Medium to High (heat loss through windows)
MOBILITY	Excellent (can be dismantled at any time)	Removable installation	None

SCHEMATIC DESIGNS

MEMBRANE STRUCTRE



INFLATION SYSTEM

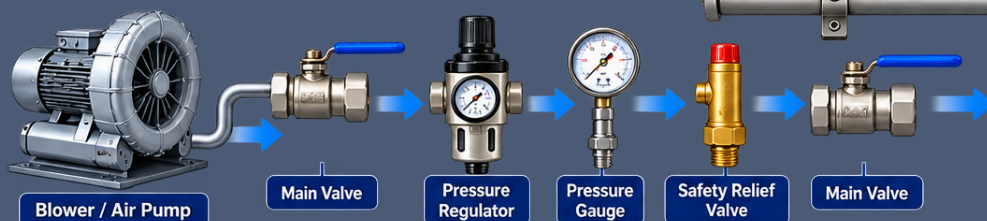
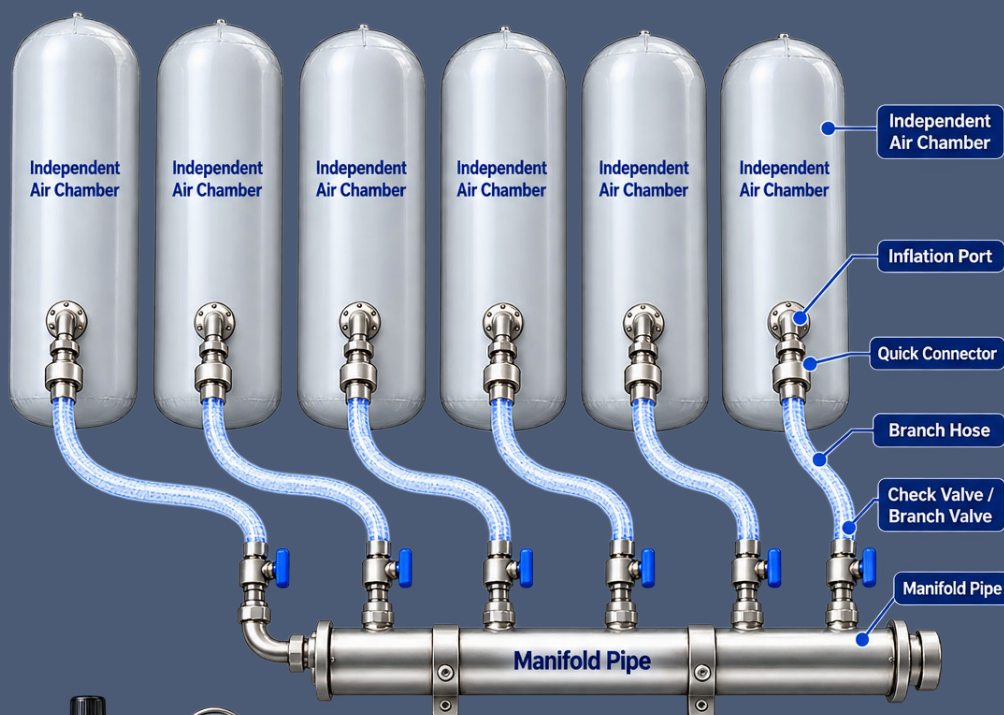
- 1 Blower Supplies Air to the Manifold System**


The blower compresses ambient air through filtration, regulation and safety valves, then delivers it to the manifold system.
- 2 Each Branch Supplies Air to an Independent Air Chamber**

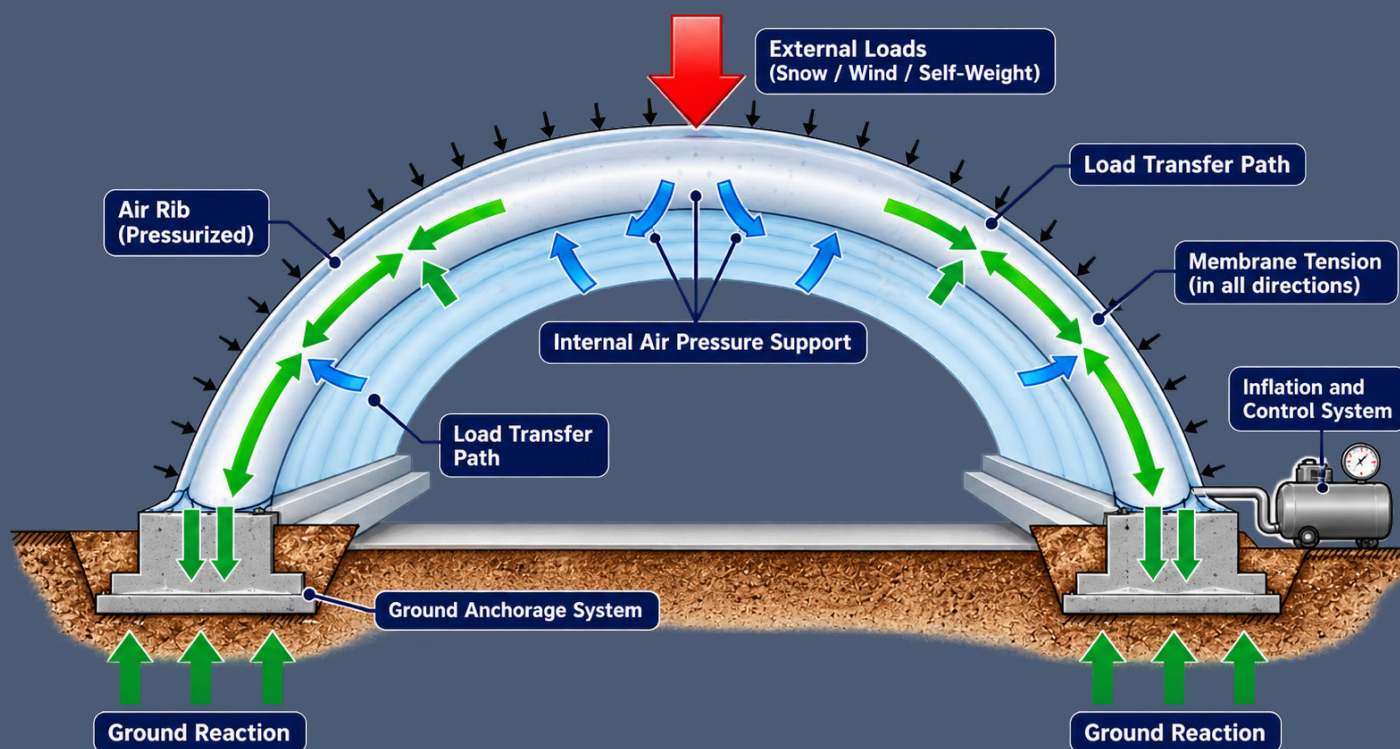

Air is distributed from the manifold to each branch via individual valves and quick connectors, allowing each air chamber to be inflated independently.
- 3 Each Chamber Can Be Isolated for Inspection and Repair**


The corresponding branch valve can be closed to isolate a single air chamber for maintenance without affecting the others.
- 4 Pressure Regulation and Safety Relief Ensure Stable Operation**


The regulator and relief valve maintain stable internal pressure and prevent overpressure, ensuring the safety and reliability of the air-supported structure.



AIRO-FRAME LOAD DISTRIBUTION



THERMO-LINER

INTERIOR INSULATION & LINER SYSTEM

ALDO Thermo-Liner™ is a modular, high-performance interior insulation and liner system designed for **ALDO AeroBeam™** and other air-beam structures. It provides exceptional thermal performance, a clean bright interior finish, and a durable, serviceable solution for industrial, commercial and other applications.

WARMER. QUIETER. CLEANER. SMARTER.



HIGH THERMAL
PERFORMANCE
(R20+ AVAILABLE)



SIMPLE
INSTALLATION



MODULAR &
REPLACEABLE



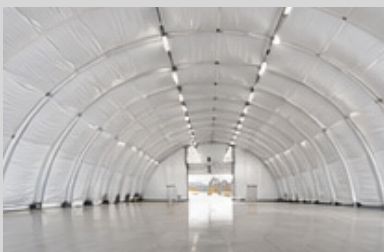
CLEAN, BRIGHT
INTERIOR FINISH



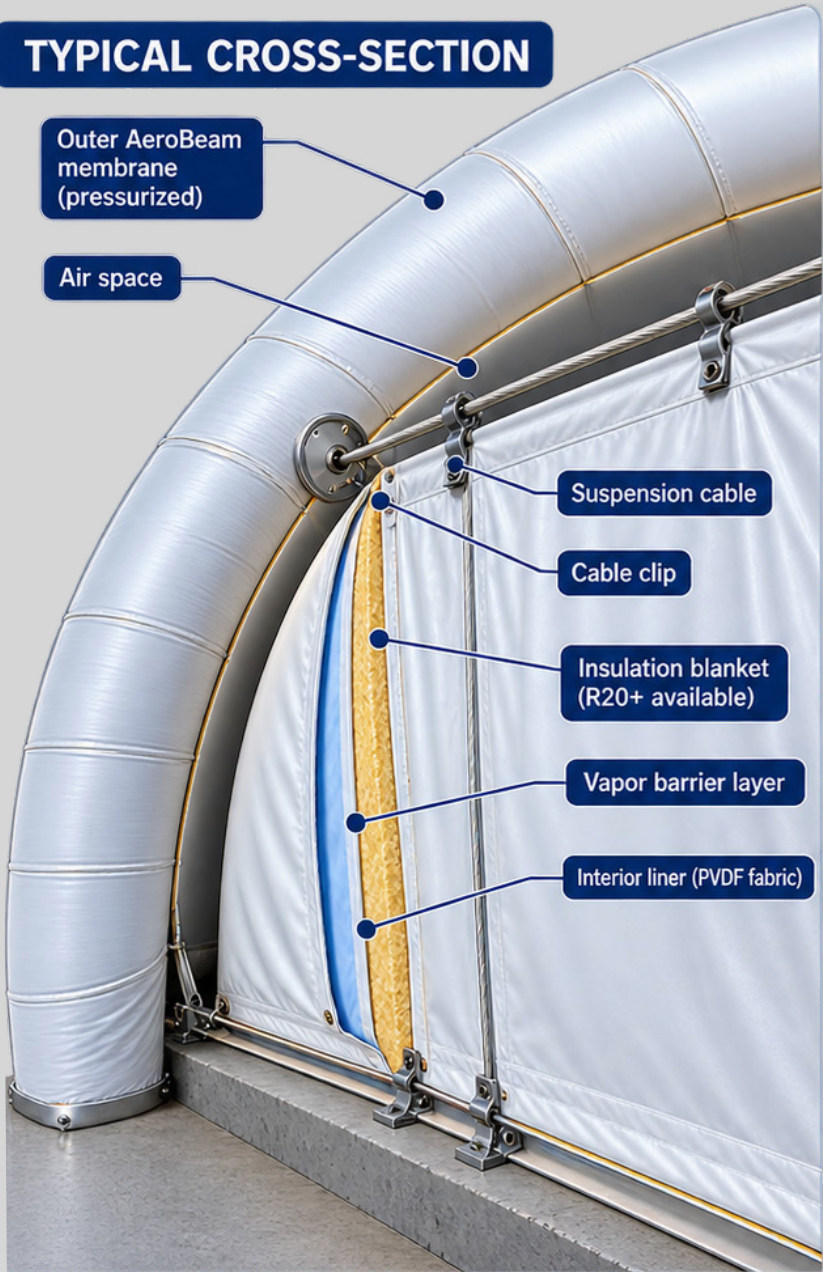
COST-EFFECTIVE



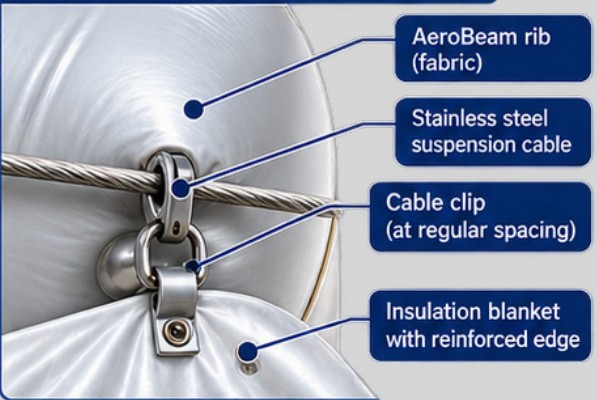
IDEAL FOR
INDUSTRIAL
NEEDS



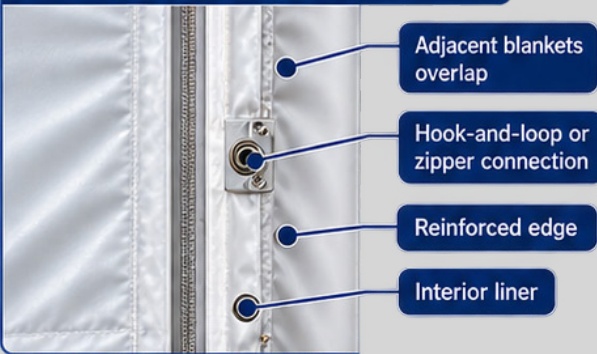
SYSTEM DETAILS



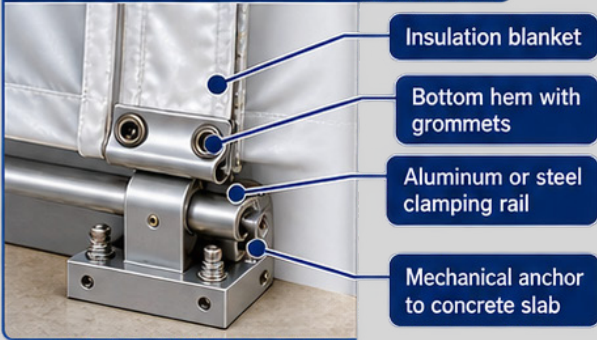
1. CEILING SUSPENSION DETAIL



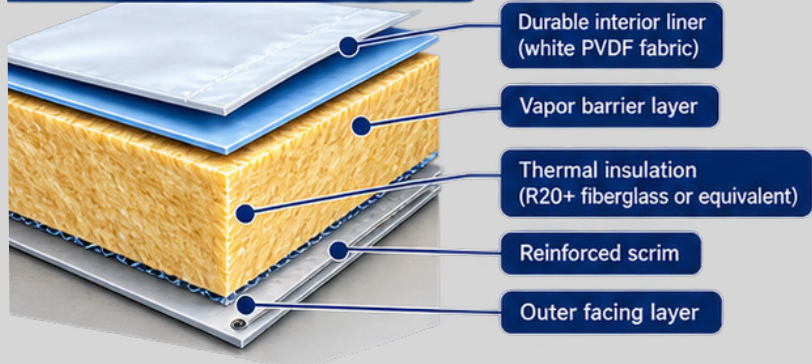
2. BLANKET CONNECTION DETAIL



3. BOTTOM ATTACHMENT DETAIL



INSULATION BLANKET LAYERS



SYSTEM SPECIFICATIONS (TYPICAL)

Insulation value	R20, R30, R40 (options)
Blanket width	1.2 m – 1.5 m (typical)
Attachment spacing	300 mm – 600 mm
Interior liner	PVDF, white, washable
Vapor barrier	Integrated
Fire rating	Meets applicable codes
Installation	Modular, removable
Service life	Long-term, low maintenance



Mobile Aero-Frame Building Systems

ALDO DOMES provides complete design-build services including: delivery, HVAC integration, automation, construction management and custom facility development.

KEY ADVANTAGES

100% CLEAR-SPAN SPACE

Column-free design allows every square meter to be usable.

FAST & PORTABLE

Assembles on-site in 1–2 weeks and relocates easily.

ENERGY-EFFICIENT

Standard indoor air pressure keeps energy and maintenance costs low.

DURABLE & WEATHER-PROOF

High-strength, flame-retardant membrane resists wind up to 45 m/s, heavy snow, and temperatures from -40°C to +60°C.

SMART OPERATIONS

Automated pressure monitoring ensures safe, eco-friendly performance.

CUSTOMIZATION OPTIONS

- Custom lighting systems
- Industry-specific configurations
- Custom colours & branded graphics

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REGION
Canada



Engineered by **Canadians** for **Canadians**