

# Ben Silver, EIT

MECHANICAL ENGINEER · HALIFAX, NOVA SCOTIA

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## PROFESSIONAL SUMMARY

Mechanical Engineer in Training based in Halifax, NS, with 3+ years of full-time design experience across hydrometallurgical processing, mechanical estimating, and structural design. Passed the **NPPE in March 2026** and progressing toward P.Eng. Known for translating fast-moving process inputs into traceable, buildable designs — most recently co-designing a 50,000 ft<sup>2</sup> Li-ion battery recycling refinery from a blank-sheet concept. Equally comfortable in SolidWorks, Excel, P&IDs, and code; consistently rated "excellent" by every supervisor on record and graduated Dalhousie Engineering with **Sexton Distinction (3.89 cumulative GPA, peak term 4.24 — a perfect 4.00 / 4.00 on the standard scale, summa cum laude band)**.

## CORE COMPETENCIES

|                                 |   |
|---------------------------------|---|
| <b>Mechanical Design</b>        | SolidWorks · AutoCAD · Inventor · Civil 3D · Sheet metal · 3D printing (FDM)  |
| <b>Process &amp; Plant</b>      | P&IDs · Process block diagrams · Equipment sizing · Pipe / tank specs · Thermal & utilities modelling · Hydrometallurgy |
| <b>Analysis &amp; Modelling</b> | Excel engineering models · Mass / energy balance integration · Stress analysis (headers, jacks)                         |
| <b>Estimating &amp; PM</b>      | Mechanical estimating · Change orders · Subcontractor coordination · Progress billing                                   |
| <b>Software</b>                 | C# · C++ · Unity · Blender · MiTek · SolidWorks PDM   |
| <b>Soft Skills</b>              | Technical writing · Cross-functional collaboration · Client-facing communication  |

## EXPERIENCE

### Mechanical Engineer (EIT)

Apr 2025 – Present

Syntra Refining Corp. (formerly Lab 4 Inc.) · Halifax, NS

- Co-designed a 50,000 ft<sup>2</sup> hydrometallurgical metal refinery from a blank-sheet concept — built around circular systems for Li-ion battery black-mass recycling, adaptable to alternate metal feedstocks.
- Defined plant-scale equipment and instrumentation: **327 tanks, 297 pumps, 114 agitators, 1,130 control valves, 3,793 hand valves, and 445 sensors / transmitters** (level, pressure, temperature, inline XRF, sampling).
- Built a suite of interconnected Excel engineering models (flow balance, pipe & tank specs, equipment counts) that **auto-update from the chemistry mass balance**, keeping mechanical design ahead of finalized process conditions and producing traceable, version-controlled deliverables.
- Drove the iterative design loop (process block diagrams > P&IDs > equipment specs), capturing review comments across departments and converging cross-functional teams on buildable designs.
- Developed thermal and utilities models (exo / endothermic reaction loads, heaters & chillers, energy summaries) used for boiler / chiller sizing and economizer justification.
- Coordinated with CBCL on building fit-up while owning mechanical / process integration with the facility design.

### Project Coordinator — Mechanical Estimating

Jan 2024 – Apr 2025

Ace Mechanical Inc. · Halifax, NS

- Coordinated plumbing and subcontracted HVAC, insulation, controls, fire-stopping, and refrigeration across **10 buildings totalling 1,597 units**.
- Estimated plumbing costs for **6 high-rise buildings**; ordered the majority of plumbing material and approved supplier invoices.
- Issued change orders capturing additional costs across all mechanical systems; tracked small jobs and produced reusable templates / procedures still in use by the team.
- Partnered with the staff accountant to progress-bill projects against completed work; ran weekly foremen meetings to align next-step planning.

### Structural Designer

May 2023 – Dec 2023

Atlas Structural Systems · Halifax, NS

- Designed roof and floor systems in MiTek for residential and commercial builds, working from technical drawings to finalized truss layouts.
- Performed stress analysis on headers and jacks for openings in building structures.
- Worked directly with clients to scope, quote, and finalize truss designs.

## Mechanical Engineering Co-op

Jan 2022 – Apr 2022

Lockheed Martin Canada · Dartmouth, NS

- Modelled and presented line-of-sight analyses for every piece of topside technology on the Canadian Surface Combatant (CSC) warship to ensure no critical sightline was obstructed.
- Built structured procurement / maintenance / technical-spec spreadsheets for CSC battle systems.
- Operated SolidWorks PDM to manage version control on classified 3D models.
- Earned "**excellent**" ratings across every category on the supervisor's final report.

## R&D Engineering Intern

Sep 2020 – Aug 2021

Protocase Inc. · Sydney, NS

- Independently scoped, designed, ordered, set up, and commissioned a **20-printer Raise3D Pro2 array** — including the workstation, shelving, and operating procedures — replacing a smaller Prusa array.
- Investigated print-failure modes, tuned printer settings, and built an environmental-control enclosure to improve yield.
- Designed a **PEM tool shelf in SolidWorks** holding 1,050 anvil tools (~5x the capacity of the wooden shelf it replaced); custom units fabricated in-house.
- Received "excellent" ratings on both supervisor evaluations, with all "areas for improvement" sections left blank. Supervisor remark: "Professionalism beyond his years."

## Land Survey Technician

Apr 2019 – Aug 2019

M. Berrigan Land Surveying Ltd. · Antigonish, NS

- Produced rural and urban survey plans in AutoCAD Civil 3D using total-station and GNSS RTK measurements.

## SELECTED PROJECTS

### "Your Cooking Corner" — Full-stack SaaS (personal, ongoing)

Self-built kitchen-companion web app: recipe storage, monthly meal planning, nutrition tracking against Canadian dietary standards, auto-generated grocery lists, AI-assisted recipe import, friend sharing, and a Stripe-powered freemium model. Demonstrates end-to-end product thinking, web development, AI integration, and payment systems beyond mechanical engineering.

### Automated Basil Harvesting Machine — Capstone (Sep 2022 – Apr 2023)

Designed the entire machine in SolidWorks (200+ hours) for Harvest, a local automated-agriculture company. **Delivered under budget**; the company owner reviewed the prototype and was very satisfied with the result. Team of 4; multiple technical reports and design documents.

### Solo VR Video Game (Apr 2022 – Oct 2022)

Designed and built a Fruit-Ninja-style VR game solo: C# in Unity, 3D models in Blender, sound in Audacity. Built end-to-end mechanics, lighting, animation, and graphic design before shelving the project as the consumer VR market contracted.

## EDUCATION

### Bachelor of Engineering, Mechanical

Sep 2020 – May 2023

Dalhousie University · Halifax, NS

Graduated Dalhousie Engineering with **Sexton Distinction**, a cumulative GPA of **3.89**, and a peak term GPA of **4.24** in my final semester while carrying the complex senior mechanical course load (Vibrations, Mechatronics, Materials Science for Metal AM, Systems II, Design Project II). A 4.24 GPA represents a **perfect 4.00 / 4.00 on the standard scale**, sitting in the summa cum laude band (typically the top 1–5 % of students). Also named **Sexton Scholar** in 4th year and on the **Dean's List** in 2021/22 Fall.

### Diploma of Engineering

Sep 2017 – May 2020

St. Francis Xavier University · Antigonish, NS

**Dean's List** at StFX with a cumulative 87 % average and a Year-1 class rank of **4 / 38**. Recipient of the **\$12,000 StFX Merit Scholarship** for a 96 %+ high-school graduating average, and repeat recipient of the **Howard Ripley Scholarship** for sustained academic excellence.

## CREDENTIALS & RECOGNITION

- **NPPE — Passed (Mar 2026)** · final exam before P.Eng with Engineers Nova Scotia (currently EIT).
- **Sexton Distinction** (graduation honour) — Dalhousie's top sustained-academic-excellence honour for Engineering graduates with cumulative GPA 3.85+. Final cumulative GPA: 3.89.
- **Sexton Scholar** (term honour) — earned in 2022/23 Fall (term GPA 4.05) and 2022/23 Winter (term GPA 4.24).
- **\$12,000 StFX Merit Scholarship** for a 96 %+ high-school graduating average; repeat recipient of the **Howard Ripley Scholarship** at StFX for sustained academic excellence.