



To	Industrial Technology Advisor, NRC IRAP	Date	October 30, 2026
From	Jochem Moerman, Form Architects	Status	For discussion
Re	One Stair: the pitch		

memo

THE SHORT VERSION

One Stair is a software product built around the single egress stair. It capitalizes on two things that hit British Columbia at the same time:

1. **A worsening housing and construction market.** Pre-sales dead, rates high, construction costs still high, prices down.
2. **Housing reform.** TOA zoning, multiplexes, new OCPs required from every city, and a code allowing a single exit stair up to six storeys.

Together those changes make a new building possible: the point access block, a small apartment building on one ordinary house lot. Our Fraser Valley Lot Study found 17,367 lots where the new plans expect apartments and a house still stands. Almost nobody can see which of them work. One Stair shows them, lot by lot.

THE PRODUCT

One Stair is a web application in four parts that work in sequence.

1. **Data.** One structured record of plans, zoning, code and parcels for every lot.
2. **Form.** A library of six predesigned point access blocks, drawn and code-checked by Form Architects.
3. **Site.** An interactive map: pick a lot, see whether one stair works, and see the best form placed on it.
4. **Build.** The three joined into a buildable scheme for one lot: plans, unit mix, area, density and the code checklist. The paid step.

Phase 1 builds recognition and brings Form Architects new projects. In phase 2 One Stair becomes a platform in its own right, with developer subscriptions and municipal licences.

HOW IT WORKS

At the centre is a rules engine joined to a parametric fitting method. The rules engine holds each bylaw, plan and code clause as structured data, tied to its source and version, and turns them into hard limits for a lot: setbacks, height, density and the single-stair conditions.

The parametric model describes each form as a set of variables, such as width, depth, storeys and core position, each with a tested range. Fitting searches those ranges for the version that best fills the lot, and the rules engine checks the result again before anything is shown. If a form fails, the engine tries the next one. The output is a verdict with its evidence and a confidence level, the best form on the lot, and the Build.

TECHNICAL UNKNOWNNS

Five technical unknowns are the research we would ask IRAP to share.

1. **Normalising the data.** Can eight municipalities' data, each in its own format with its own gaps, become one model without guessing? Cities often have contradicting documents; how do we handle that?

2. **Rules into code.** Can bylaws and the building code run on every lot while an architect can still read and check each rule? AI often makes mistakes when pulling data from municipalities and the BCBC; can we truly trust what we get?
3. **Parametric model limitations.** Can standard forms flex to angled, corner and irregular lots, and find the fewest neighbours that make a lot work?
4. **Vague conditions.** Can fire service capability and servicing capacity be stated as an honest confidence level rather than a false yes or no?
5. **Drawing output.** Can the model produce a drawing package that looks as though Form drew it, with little correction?

BENEFITS AND RISKS

Benefits to the industry

- **Housing affordability.** More family-sized homes near transit, on land and services already in place, in a building one owner or a local builder can finance without assembling a block.
- **Infill that was unbuildable.** Thousands of wide house lots, too small for an apartment building and too valuable for a house, become buildable sites.
- **Education.** Open forms, a free map and a verdict with its evidence show architects, builders, lenders and policymakers what a single-stair building is and where it works, so the knowledge spreads well beyond one firm.
- **Better policy.** Municipalities see what their plans actually allow and, in phase 2, can test a change before adopting it.

Benefits to Form Architects

- **Growth.** A new capability and service line in feasibility and site screening, with new jobs.
- **Brand.** One Stair, alongside our book *The Future Fraser*, makes Form the recognized name for single-stair housing in the valley.
- **Projects.** Every Build is a lead. The free tools bring builders and landowners to Form, and paid schemes turn into design commissions.

Risks

- **Technical risks.** The five unknowns above. They are what we ask IRAP to fund.
- **Market risks.** Whether these buildings sell with low parking, whether builders trust a verdict, and whether the rules shift. We manage these ourselves, and every verdict shows its evidence and is guidance, not an approval.
- **Protection risk.** The open data and the map can be copied; the architect-designed forms, local knowledge, tested compliance and municipal relationships cannot. This is where we would welcome your advice, including on IP Assist.

PHASE 1 ROADMAP

Phase 1 is a proof of concept of up to four months, from 1 December 2026 to 31 March 2027, across eight Fraser Valley municipalities, from Surrey, Pitt Meadows and Maple Ridge east to Chilliwack. The data is imported once, all four parts are built, and the results are checked in a validation round against independent architect review. The work is done in house by Form Architects, with Lawrence Schobs, PhD, Lead Machine Learning Engineer at ViewsML Technologies, advising on the software.

Phase 2 then takes One Stair across BC and beyond, with live bylaw updates, financial feasibility, near-permit drawings and tools for municipalities.

This is our first time working with IRAP. We'd like to understand the process, what a first project of this kind typically looks like, and how you would shape it.

Jochem Moerman

Principal, Form Architects