The Canadian MMC Reality

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STELUMAR
ADVANCED MANUFACTURING INC.

THE PROBLEM

Canada needs to build housing at industrial speed.

But construction has been moving in the opposite direction:

- Residential construction productivity **fell 37.3%** from 2001–2023 while the broader economy rose 12.5% (StatCan/CMHC)
- TD: Canadian construction sits at a **near 30-year productivity low**, accounting for most of Canada's post-pandemic decline

THE PROBLEM

- Globally, construction productivity grew just **0.4%/yr since 2000** vs. 3%/yr for manufacturing (McKinsey, 2024)
- Labour shortage: **245,000+ workers retiring by 2032** against a CMHC target of 430–480k starts/year

MMC changes the equation — but our codes are written for site construction, forcing MMC into case-by-case *Alternative Solutions*, one municipality at a time.

Three Flavours of MMC

1 of 3 — Componentization

Sub-assemblies shipped ready-to-install

Cabinetry, millwork, trusses, stairs, MEP racks.

Lowest disruption to conventional trades.

Code treatment: mostly uncontroversial; handled product-by-product.

The more you move off-site, the more the code starts to

Three Flavours of MMC

2 of 3 — Panelization

2D walls, floors, roofs — open or closed

Often includes cladding, insulation, and rough-ins.

Where the building enclosure wins repeatability.

Code question: inter-panel connections and composite system recognition.

The more you move off-site, the more the code starts to

Three Flavours of MMC

3 of 3 — Volumetric (Modular)

3D modules, 80–95% complete off-site

Highest factory content, fastest on-site erection.

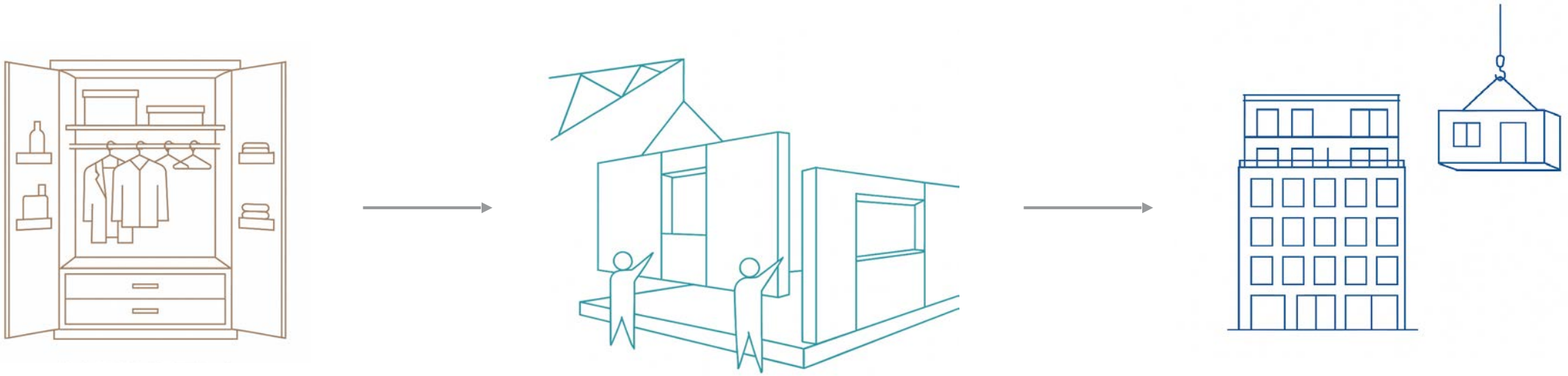
Hardest regulatory lift: inter-module compliance is where today's code runs out of runway.

Stelumar plays here.

The more you move off-site, the more the code starts to

Where Stelumar Plays in the Value Chain

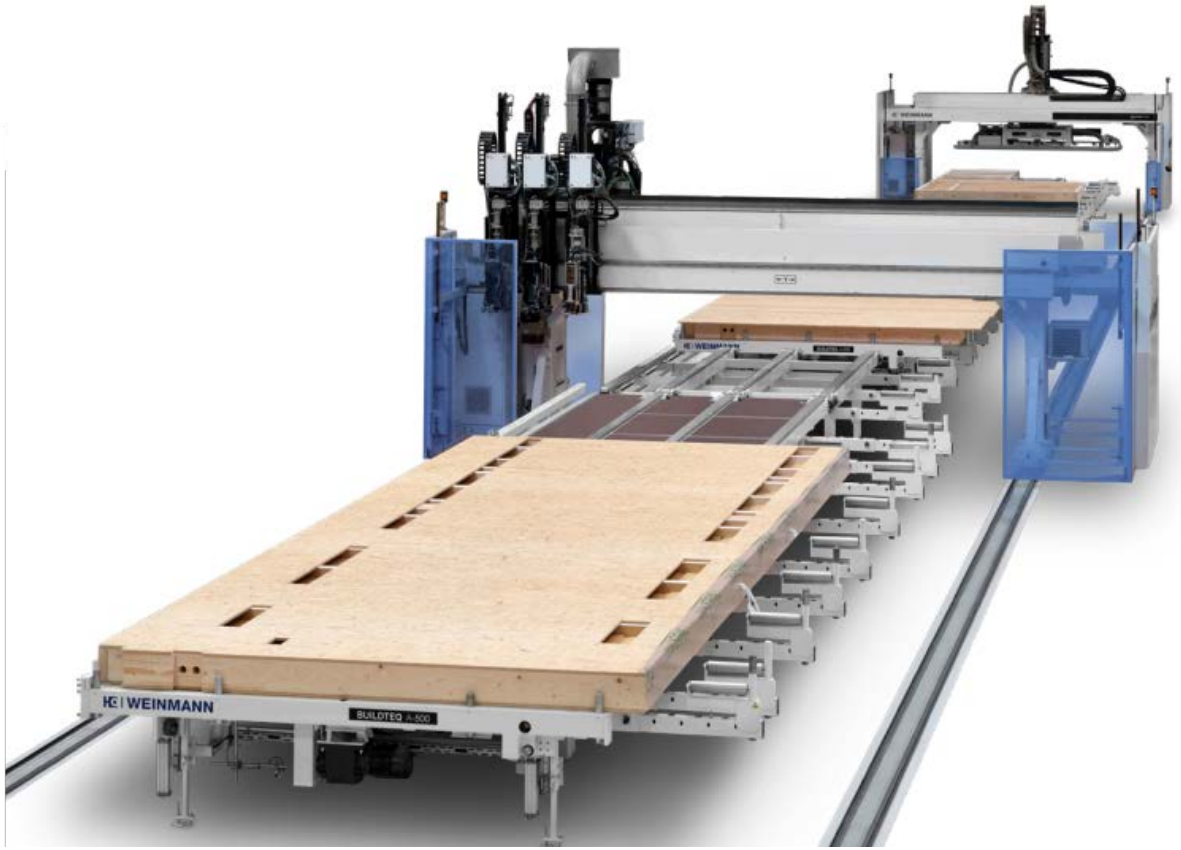
Cabinetry & Millwork **Structural Components** **Modular Assembly**



Components and panels feed modules — **fully vertical, fully traceable.**

North America’s Most Advanced Housing Manufacturing Facility

- 470,000 sq. ft. across two buildings in Mississauga
- Advanced robotics, automation and AI — among the most automated housing lines in North America
- Next facility already in design and siting



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Innovation

- Performance-based systems approach: Design product and manufacturing solutions based on real-world performance outcomes rather than prescriptive rules.
- Evidence-led innovation: Testing, prototyping, and data are used to de-risk new ideas and ensure solutions are scalable and production-ready.
- Continuous improvement: Learnings from R&D are systematically fed back into design, manufacturing, and operations to drive ongoing gains in performance, quality, and efficiency.

Performance-Based Engineering: The Bridge the Code Is Missing

1 of 2 — PRESCRIPTIVE

What today's Acceptable Solutions demand

- Specifies the means — exact materials, dimensions, assemblies
- Novel methods trigger Alternative Solutions — project by project
- Innovation is a burden, not a pathway

Performance-Based Engineering: The Bridge the Code Is Missing

2 of 2 — PERFORMANCE-BASED

What MMC and modern engineering actually deliver

- Defines the outcome — fire, structural, thermal, acoustic
- Factory production generates exactly this evidence at scale
- **Certify once, deploy everywhere**

The engineering is ready. The framework isn't.

Why MMC Doesn't Fit the Acceptable Solutions Framework

MMC doesn't fit the prescriptive Acceptable Solutions framework.

Performance is distributed across sub-assemblies and connections — composite systems lack prescriptive compliance pathways.

The Outcome: MMC systems treated as non-standard — project-by-project Alternative Solution submissions become the norm.

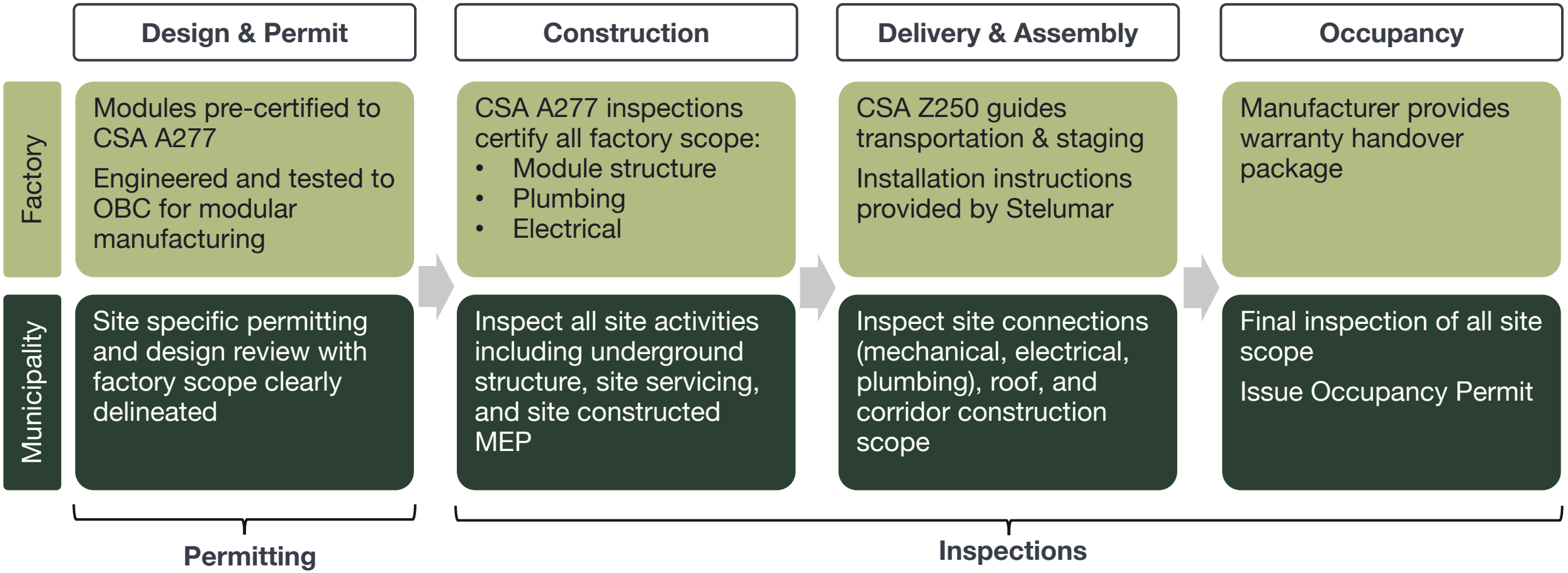
A277 Exists — But the NBC Treats It as Optional

The NBC assumes on-site construction. CSA A277 provides third-party factory certification — but is referenced only as a non-mandatory note, not a codified pathway.

Provinces apply A277 inconsistently. Some AHJs have rejected it outright.

The Outcome: Lost efficiency, certainty, and inconsistent treatment across jurisdictions.

How Factory & Municipality Work Together



13 Jurisdictions, 13 Interpretations

Perfect federal code language won't deliver if provinces adopt it inconsistently. Today, municipal practices vary wildly — MMC projects face a different approval process in every city.

The fix: provinces adopt the NBC's MMC sections as written, and AHJs reciprocate A277 approvals across municipalities.

What Needs to Change — and Who Needs to Act

FEDERAL — Create an MMC performance pathway in the NBC; codify A277 in Division C.

PROVINCIAL — Adopt the NBC's MMC sections as written.

MUNICIPAL — Reciprocate approvals across municipalities. Don't duplicate factory inspections.

THANK YOU