Innovation Building Group Best Practices for Modern Methods of Construction

9. Why Simpler Buildings Often Perform Better

A common assumption within the building industry is that higher performance requires increasing technological complexity. This often results in:

- larger mechanical systems,
- additional controls,
- more automation, and
- increasingly complicated operational infrastructure.

However, long-term building operation frequently demonstrates the opposite. Every additional system introduces:

- additional coordination,
- commissioning requirements,
- servicing exposure,
- installation complexity, and
- potential failure points.

As projects become more technologically layered, they often become harder to coordinate during construction, harder to maintain operationally, and more difficult for occupants to fully understand.

Over multiple projects, we increasingly found that many of the strongest operational outcomes came from simplifying buildings through better integration rather than adding additional systems.
For example:

- improved envelopes reduced HVAC demand,
- simplified HVAC systems reduced coordination conflicts,
- repeatable assemblies improved constructability, and
- disciplined detailing reduced durability risk.

In many respects, simplicity became a performance strategy. This was consistently reinforced through post-occupancy review and operational monitoring.
Simpler systems generally proved:

- easier to maintain,
- easier to commission,
- quieter,
- more operationally stable, and
- more durable over time.

Importantly, simplification also affects lifecycle economics. Simpler buildings frequently reduce:

- capital costs,
- coordination costs,
- installation costs,
- maintenance exposure, and
- long-term replacement requirements.

They also reduce operational risk.

Every penetration, transition, equipment interface, or unnecessary layer of complexity creates another potential long-term failure point. This became particularly relevant in mountain environments where buildings are exposed to:

- heavy snow loads,
- freeze-thaw cycles,
- moisture exposure,
- wildfire smoke events, and
- increasing climate volatility.

Under these conditions, resilient buildings generally require durability, maintainability, and operational stability rather than technological excess.

One of the clearest lessons from our work has been that high-performance housing is often less about adding more systems and more about removing unnecessary complexity from the delivery and operational process.