



# Smart Pods, Smart Cities:

*Driving Efficiency, Innovation, and Sustainability*

Prepared by:

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*Prepared for:*

Chicago Build 2025

Festival of Construction, McCormick Place

October 29<sup>th</sup>, 2025 – Building Solutions & Materials (Wrksp 2)



# Smart Pods, Smart Cities *Driving Efficiency, Innovation, and Sustainability*

- ... **Overview:** This workshop explores how prefabricated bathrooms and kitchens are transforming the built environment. Resia's HybridFabrication approach, an automotive-inspired production system, delivers higher quality, faster timelines, and predictable costs for developers, general contractors, and architects.
- ... HybridFabrication combines advanced automation with proven production workflows, delivering complete bathroom and kitchen modules that are factory-built, code-compliant, and ready for installation. By shifting complex trades off-site into a controlled environment, projects gain faster schedules, reduced labor risk, and more predictable costs.
- ... **Abstract:** As cities expand and construction demand continues to grow, traditional building methods are increasingly strained by labor shortages, rising costs, and sustainability pressures. This session introduces a new way forward: modular prefabricated bathroom and kitchen pods designed and manufactured with automotive-style precision.
- ... **Learning Objectives:**
  - Understand how prefabricated bathrooms and kitchens accelerate project schedules while improving quality and cost certainty.
  - Modular solutions can reduce labor risk and simplify complex on-site trade coordination.
  - Explore sustainability benefits, including reduced construction waste, embodied carbon savings, and measurable ESG impact.

Practical integration insights into multifamily, hospitality, and extended-stay projects

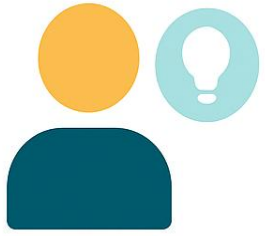
**Construction is Shifting From Reactive to Predictive — Digital + Modular is Now**

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# Quick Survey Before Exploring Stakeholder Benefits



GENERAL



DEVELOPERS



GENERAL  
CONTRACTORS



ARCHITECTS



INVESTORS

- |   |  |   |   |   |
|---|--|---|---|---|
| <ul style="list-style-type: none"><li>• Accelerated <b>speed to market</b></li><li>• Reduced on-site labor &amp; delays</li><li>• Enhanced quality control &amp; consistency</li><li>• Greater cost predictability &amp; ROI</li><li>• Seamless design-to-installation workflow</li></ul> | <ul style="list-style-type: none"><li>• <b>Maximize ROI</b> through streamlined timelines</li><li>• Predictable outcomes reduce financial risk</li><li>• Deliver consistent, market-ready finishes</li><li>• Integrated design &amp; manufacturing, eliminates delays &amp; rework</li></ul> | <ul style="list-style-type: none"><li>• <b>Simplified coordination</b> with fewer trades</li><li>• Off-site production reduces labor dependency &amp; site congestion</li><li>• Just-in-time delivery streamlines workflows</li></ul> | <ul style="list-style-type: none"><li>• <b>Design without Limits</b></li><li>• BIM-driven design collaboration ensures accuracy &amp; quality</li><li>• Factory-level control preserves design intent</li><li>• Seamless integration with modular systems</li></ul> | <ul style="list-style-type: none"><li>• <b>Vertically integrated</b> model reduces project risk</li><li>• <b>Scalable solution</b> supports portfolio growth</li><li>• High-quality, repeatable construction method</li></ul> |
|---|--|---|---|---|

# Resia Manufacturing

## *Prefabricated Bathroom & Kitchen Solutions*



- ... **Expertise:** Specializes in prefabricated **bathroom & kitchen components for all construction modalities**; streamlining timelines, improving quality, and reducing on-site labor with ready-to-install units
- ... **Facility & Capacity:** **252,000 sf** Fairburn, GA facility; vertically integrated for high-volume production with scalability from **10,000 to 16,000+** components annually
- ... **HybridFabrication:** Lean, automated process using **BIM, DFMA, & conveyor-based** assembly lines to deliver consistent, high-quality bathrooms and kitchens
- ... **Automation & Standards:** Driving prefabrication forward with **robotics, sub-assembly, & rigorous QA/QC** to enhance efficiency, compliance, and reliability
- ... **Commitment:** Focused on **quality, innovation, and community development** across the U.S., while reshaping multifamily, hospitality, and student housing construction

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# HybridFabrication *Process Revolution Delivering Fully Finished Units*



## ... Problem with Traditional Construction

Traditional methods are slow, fragmented, and dependent on intensive site labor and sequencing, resulting in cost overruns, delays, and inconsistent quality

## ... Resia Advantage

**HybridFabrication** brings automotive-style efficiency to modular and prefabricated construction, delivering standardized, scalable, and quality-controlled results

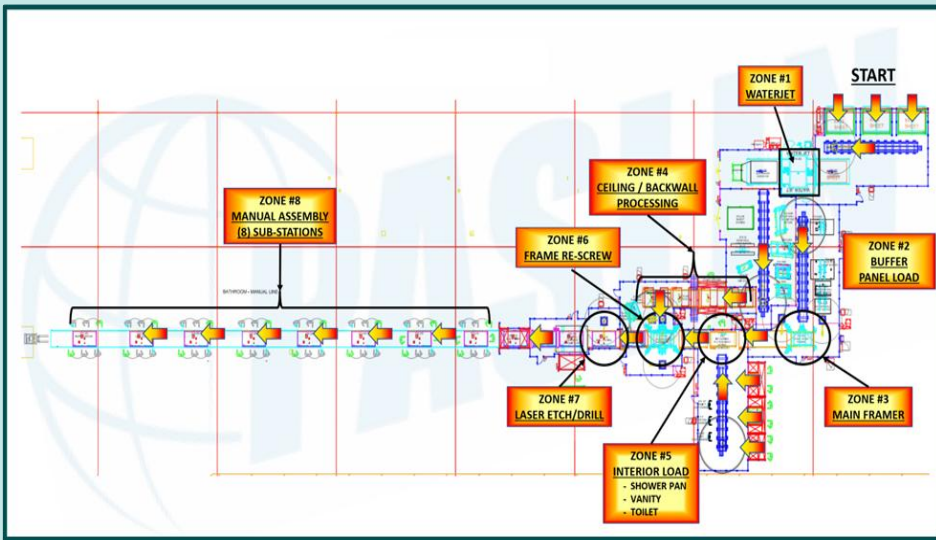
## ... Key Differentiators

**Faster Output** 2–3 pods per hour production vs. the traditional 0.5 – 1, achieving up to 6x greater efficiency

**Integrated Systems** Plumbing, electrical, and finishes combined in one unified flow, minimizing rework and delays

**Repeatable Quality** Centralized QA/QC ensures accuracy, precision, and compliance for every unit

**Cost Control** Pre-staged logistics and trade-specific work zones reduce labor demand and costs



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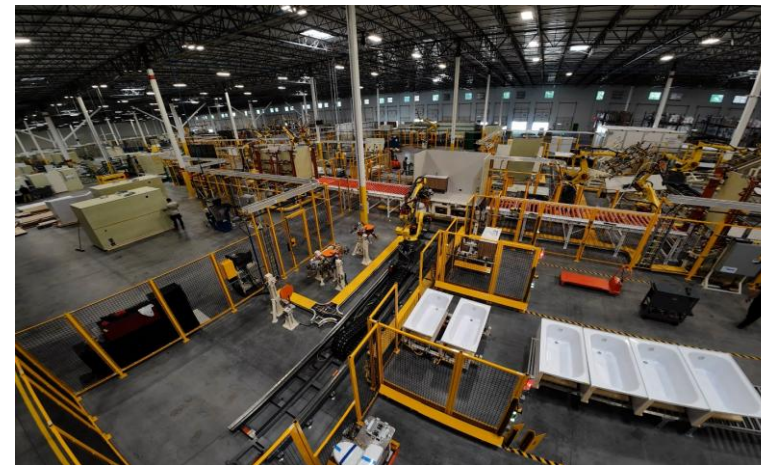
# Urban Pressures & Industry Challenges

... Cities are Growing Rapidly; Traditional Methods Can't Keep Up

... Labor Shortages, Rising Material Costs, and ESG Expectations are Driving Change

... These Pressures are Driving Innovation and Accelerating the Shift Toward Modular

... *“By 2030, the construction industry will face a 1.6 million labor shortfall (ABC)”*



Demand is Outpacing the Industry's Ability to Deliver using Traditional Methods

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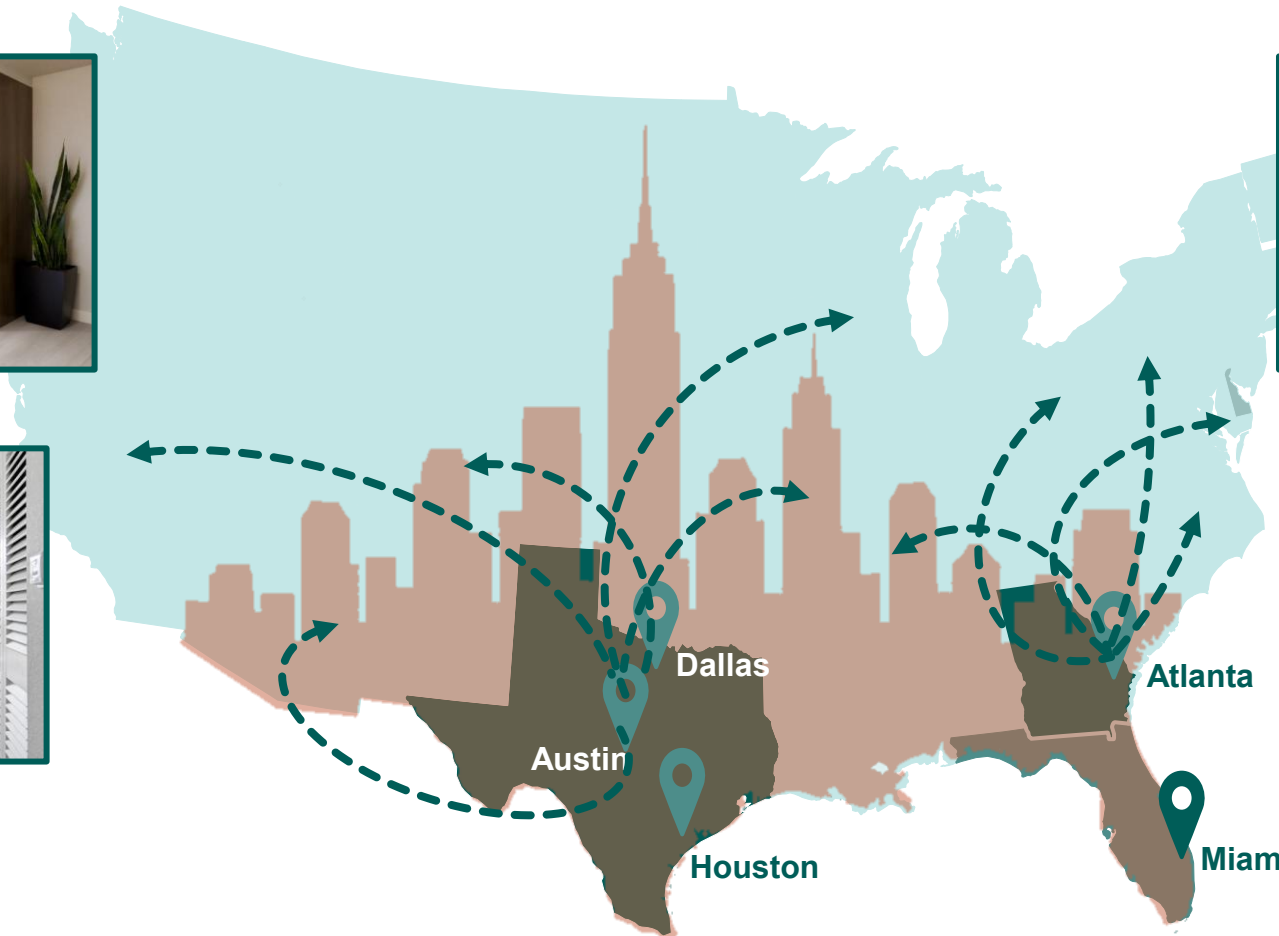
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# Urban Growth & Resilience

...Prefab supports density, speed, and flexibility  
...Enables affordable housing and adaptive reuse

...Building blocks for sustainable urban growth  
...Prefabrication enables rapid delivery of dignified, sustainable housing nationwide



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# Opportunity for Change *Why Modular & Prefabrication, Why Now*

- ... Modular isn't New, but Its Strategic Value Has Never Been Higher
- ... Developers and GCs are Looking for Ways to Reduce Risk and Gain Predictability
- ... Demand for Faster, More Predictable Projects
- ... Early Adopters are Outpacing Competitors



Prefabrication is Becoming the Mainstream Solution

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# Off-Site Construction

## Traditional vs Off-Site Workflow

...Off-site construction enables early coordination, parallel workflows, and controlled environments for faster, higher-quality outcomes.



## Off-Site Construction Delivers Greater Speed, Control, and Quality

# HybridFabrication *Merging Prefab Precision with Conventional Adaptability*

- ...Automot
- ...Accurac
- ...Repeata
- ...Showcas



Automotive Principles Applied to Construction = Higher Output + Quality

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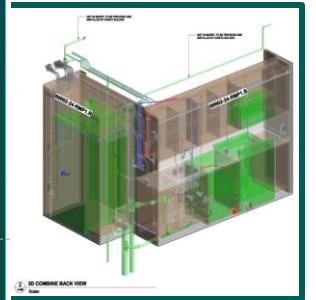
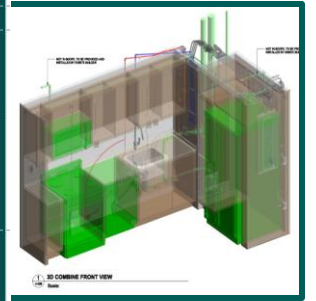
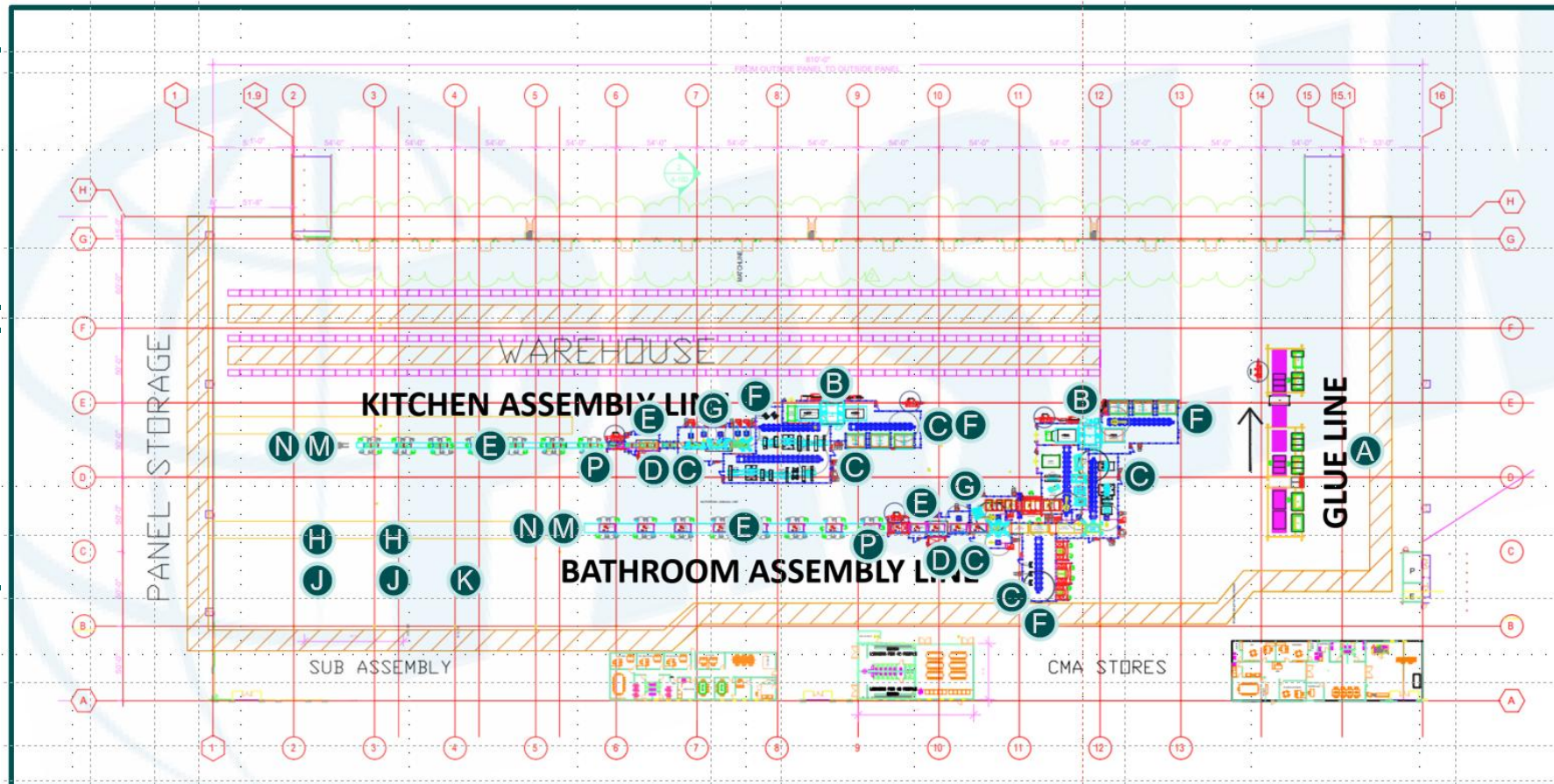
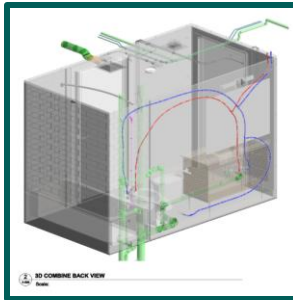
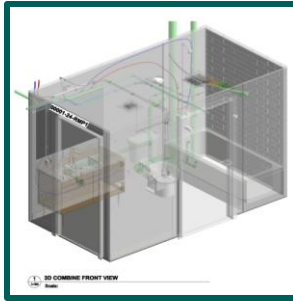


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# HybridFabrication *Technology Integration*

...BIM-Driven Coordination + Clash Detection  
...DFMA engineered for transport and installation

...Fanuc Robotics Deliver Precision Assembly and Consistency  
...Conveyor-Based Production with Integrated QA Checkpoints



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# HybridFabrication *Material Innovations*

... Structural Core – Avient Hammerhead™ FR Panels Replace Traditional Wallboard Over Studs

... Fire Resistance – MgO Board for Noncombustible, Durable Surfaces

... Plumbing – PEX and PVC, lightweight, Durable, and Corrosion-Resistant

... Electrical – Domestically Manufactured MC Cabling

Quick Contrast	Typical Pods Steel/Drywall	Resia Bathroom & Kitchen Components	Conventional Site-Built
Primary Build-up	CFS Studs + Gypsum	Composite Panels + MgO	Mixed Wood/Steel + Gypsum
Metals Exposure	High (Steel + Copper)	Low-moderate (Domestic MC Only)	Moderate-high (Mix Of Trades)
Fire/IAQ	Rated Gypsum Assemblies	Noncombustible MgO + Cleanable Composites	Varies By Spec
Site Disruption	Medium	Low (Plug-and-play)	High (Sequential Trades)



Material Innovation is the Foundation of Speed, Quality, and Sustainability

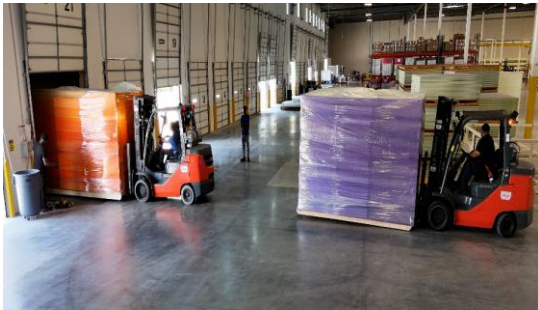
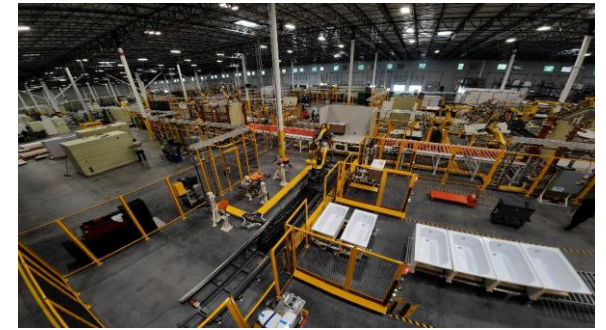
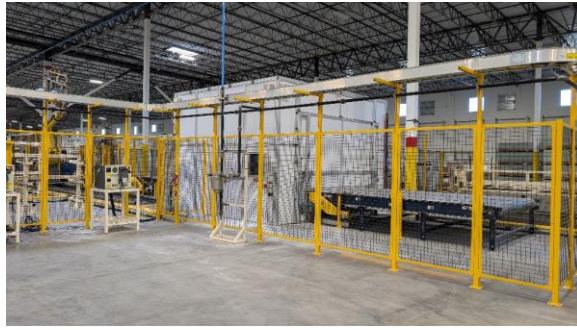
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# Sustainability & ESG

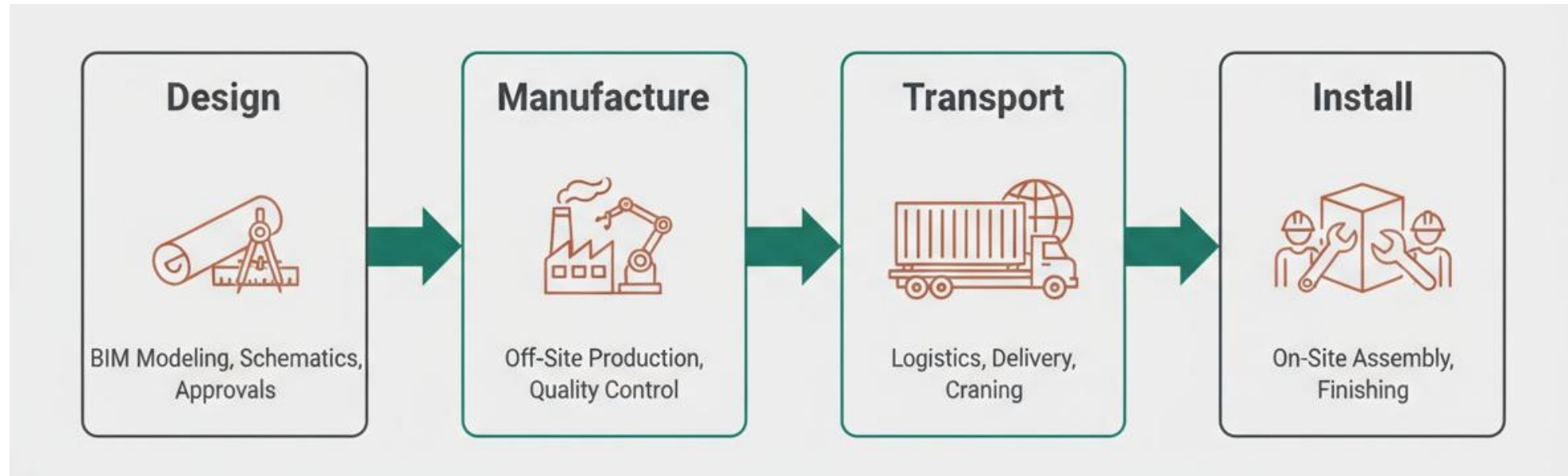
... Factory-Controlled Production Reduces Waste and Embodied Carbon, while Supporting Municipal ESG Goals Through Quality Assurance, Traceability, and Compliance



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# Component Lifecycle *How It Works*

- ... Walk Through the Process: Design, Manufacturing, Logistics, Install
- ... Controlled Environment and QA/QC Checkpoints
- ... Just-in-Time Delivery and Rapid Site Install
- ... Collaboration Points With Project Teams



Fully Controlled Process Delivers Consistency and Speed.



# Inside the Build *What's Included in Factory Built Components*

- ... Components: Framing, Mechanical, Electrical, Plumbing, Finishes, QA/QC Sign-Off
- ... All Trades Coordinated and Completed Before Delivery
- ... Factory-Tested, Code-Compliant, and Ready to Connect



Complete, Code-Compliant, Plug-and-Play Solutions, Ready to Install.

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# On-Site Installation & Efficiency

- ... On-Site Installation Takes Hours, Not Days — Simplifying Coordination, Logistics, and Crane Operations Through Early Planning
- ... One-Day Install— A three-person crew can crane, set, and connect a 2-bed / 1-bath unit in < 4 hrs.



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Components Streamline Field Operation, Install in Hours, Not Days.

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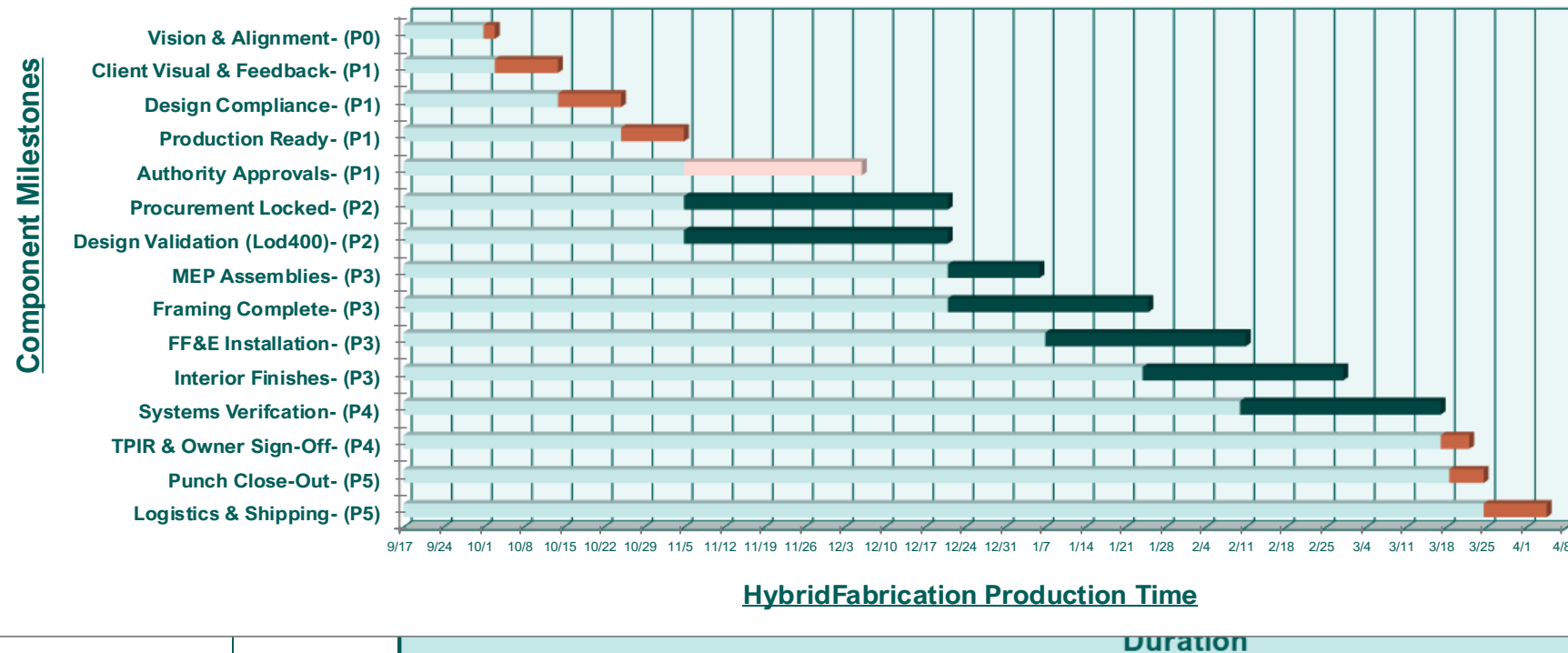
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# Smarter Construction *Schedule/Cost Impact & Compression*

- ...Prefabrication + Digital Tools = Next-Gen Delivery
- ...BIM and Automation Provide Speed, Cost Certainty, and Sustainability
- ...Designed to Meet the Needs of Investors, Developers, General Contractors, and Architects

## Vision to Keys: Component Construction Schedule



### Design Scenario

- ... 5 Floors, 56 B+K per Floor, 268 Total Units
- ... 10 Unit Daily Prod, 34 Production Days, 7 Float Days
- ... 30 Day Design Development & Approval Milestone
- ... 45 Day Design Validation & Procurement Lock
- ... 67 Trucks, 10 Day Shipping Schedule

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20–30% Faster Schedules Translate to Earlier Occupancy and Revenue.

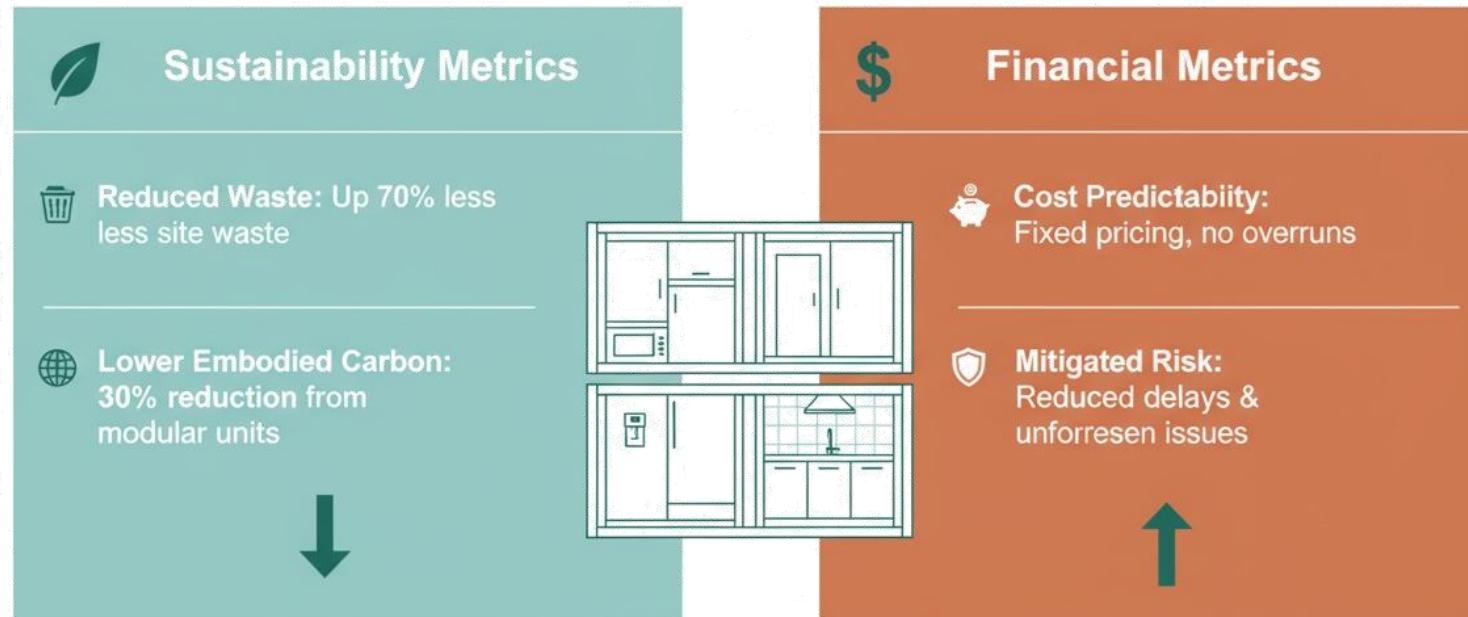
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# Sustainability & Cost Predictability

- ... Up to 70% Less Site Waste
- ... Reduced Transport, Less Carbon Impact
- ... Improved ESG Performance Helps Secure Financing

## Quantifiable ESG + Financial Certainty



Predictable Costs Reduce Risk and Improve Performance Metrics

# Case Study Highlights *Multifamily*

...*Golden Glades, 5-story midrise pilot → 1500+ units delivered in 27 weeks, Average set rate of 41.5 units/week, 46-minute bathroom & kitchen installation per apartment.*

...*Key Outcomes → Faster Delivery, Reduced Rework, and ESG Alignment*



... *Schedule Reduction*  
... *Labor Coordination Simplified*  
... *Quality Outcomes Exceeded On-Site Benchmarks*  
... *Repeatable Design Made Pods Ideal*

... *Predictable Delivery Improved Project Certainty*  
... *Faster Occupancy Improved Financial Returns*  
... *Developers Could Scale Portfolios Faster*

**Prefab Boosts ESG Performance and Helps to Standout in Competitive Markets**

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# Case Study Highlights *Prefabrication vs Traditional Construction*

## ...Side by Side Construction Results

### Bathroom Prefabrication vs Traditional

Feature	HybridFabrication	Traditional Construction
Total Installed Material	\$14,500 <sup>1</sup> (average)	\$18,750 <sup>2</sup> (midrange)
Materials	Included	\$5,000
Labor	\$335	\$11,000
Installation Time	< 4 hours	≈ 15 days
Installation Scope	Plug-and-Play Single Crew	HVAC, Electrical, Plumbing, & Finish Trades
Risk Exposure	Low-Moderate (Factory Controlled)	High (Schedule/Quality /Cost)
Scalability	High	Low-Moderate

### Kitchen Prefabrication vs Traditional

Feature	HybridFabrication	Traditional Construction
Total Installed Material	\$13,500 <sup>1</sup> (average)	\$24,000 <sup>2</sup> (midrange)
Materials	Included	\$9,250
Labor	\$605	\$11,821
Installation Time	< 7 Hour	≈ 17 days
Installation Scope	Plug-and-Play, Single Crew	HVAC, Electrical, Plumbing, & Finish Trades
Risk Exposure	Low-Moderate (Factory Controlled)	High (Schedule/Quality /Cost)
Scalability	High	Low-Moderate

### Power Infrastructure Low Voltage vs Line Voltage

Feature	Low Voltage	Line Voltage
Wire Type	18/2 – 18/5 (Low voltage)	12 /2 (Romex/metal clad)
Fixture Longevity	20+ years	6 years
Installation Time	Fast (No hot work)	Slow (licensed electric)
Energy use	48%, centralized AC to DC	Less efficient (Fix level conv)
Safety	Class 2 (< 60V DC)	Class 1 (120V AC)
Cost Savings / Apt	≈ \$1,500 (50%-70% savings)	Baseline
Code Compliant	NEC chap 7, Art 411	NEC chap 2/3 (More complex)
Smart Integration	Native compatibility	Additional controls required

<sup>1</sup>HybridFabrication (all labor, inspection, and setting/installation included)

<sup>2</sup>Traditional (materials + GC markups + shop/field coordination + Inspections)



# Application: Factory Built Electrical Panel

**Pre-Assembled, Tested, and NEC-Compliant Panels With Balanced Circuits & Labeled Harnesses; Built, Tested, and Certified in a Controlled Factory Environment**

- ... **Streamlined Installation:** Modular Wiring Reduces Setup From ~10 Hours to ~1 Hour, Pre-Labeled Circuits & Snap-In Connectors Eliminate Wire Pulling and Field Terminations
- ... **Labor & Cost Efficiency:** up to 78% Labor Savings and 25–35% Total Installed Cost Reduction Versus Traditional Cable Wiring
- ... **Reduced Risk:** Factory QA/QC ensures breaker torque accuracy, wiring integrity, and NEC load calculation compliance
- ... **Smart Integration Ready:** Expandable Architecture supports low-voltage LED lighting, sensors, and IoT-control integration



### Smarter Power, Factory-Installed

#### Factory-Installed Electrical Panel Load Centers

Traditional site-installed panels require over 10 labor hours per-unit — and jobsite factory-installed panels are pre-wired with plug-and-play connectors.

Resia's factory-installed panels — factory-assembled, factory-tested, and pre-wired with plug-and-play electrical installation.





**Time Savings**  
Panels delivered pre-assembled and pre-tested



**Cost Savings**  
Labor hours cut by up to 50%



**Compliance**  
Consistent QA in-factory assembly



**Plug-and-Play**  
Ready-to-use connections

#### Key Advantages

- Installation streamlined to setting panel and connecting load equipment
- High labor efficiency, reduces specialized labor — minimizing quality gap
- Consistent quality: In-factory QA conformity
- Smart integration: provides connectivity with IoT controls
- Lower costs: reduces onsite work

#### Applications

- Multifamily Developments
- Hospitality and Extended Stay
- Student and Workforce Housing



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**Factory-Built Deliver Precision, Speed, and Safety, in One Plug-and-Play Package.**

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# Application: Low Voltage Power Solution

**Class 2 DC Low Voltage** Backbone Creates a Safer, More Energy-Efficient Platform for Lighting, Fans, USB Devices, and Smart Automation

## Key Differentiators:

- ... **Safety:** NEC Class 2 Eliminates Shock Risk, Arc Hazards, & Conduit
- ... **Efficiency:** up to 48% Energy Savings by Centralizing AC-to-DC Conversion
- ... **Cost Reduction:** Smaller 18/5 LV Cable Cuts Copper Use by 50–70%.
- ... **Reliability:** Centralized Drivers Extend System Lifespan and Simplify Maintenance
- ... **Installation Speed:** 97% Fewer Skilled Labor Hours; 2–3x Faster Commissioning, Simplified Inspections With No Fixture-Level Drivers

## Applications:

- ... Bathrooms: LV Recessed Cans & Humidity-Sensing Fans
- ... Kitchens: Tunable Under-Cabinet Strips + USB Charging
- ... Apartments: Smart-Ready Cans, Sconces, Mirrors
- ... Accessories: LV Fans, Exhaust, Backlit Mirrors

### Key Advantages



**Integrated & Intelligent**

Seamless integration of lighting, PoE devices, sensors, window shades, more



**Scalable & Simple to Use**

Minimal wiring means easier installation and flexibility for modular construction



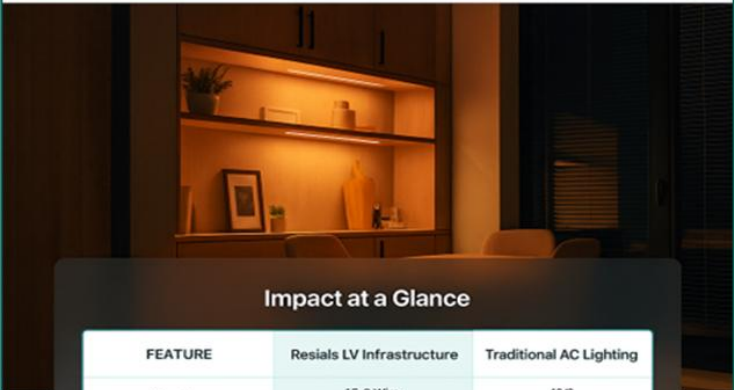
**High Efficiency**

Reduce energy consumption and maximize solar offset savings



**Extended Lifespan**

Longer-lasting, field-replaceable components for greater reliability



FEATURE	Resia's LV Infrastructure	Traditional AC Lighting
Wire Type	15-2 Wire (5V Data, AEV Power)	12/2 (Line Voltage: 120 VAC)
Fixture Longevity	20+ Years	6 Years
Installation Time	Faster Electrician-Dependent	Slower, Electrician-Dependent
Energy Use (Lighting)	Up to 60% Lower Energy Footprint	High Energy Consumption
Per Fixture Cost (installed)	+ 60% Cost Savings	Increased
Applications	Direct Fest. I FAV (PL, 125)	Increased Costs



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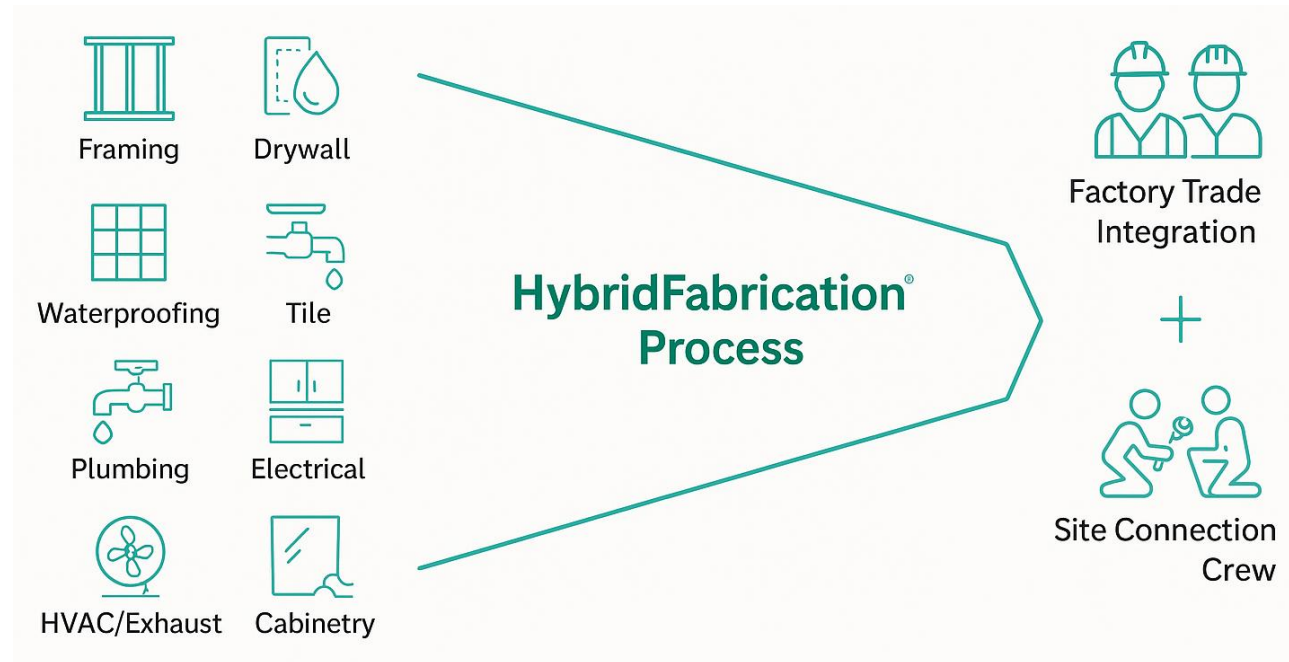
Lower CAPEX • Faster Schedules • Higher Reliability • Smarter Buildings

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# Trade Coordination Simplified

- ... Trade Consolidation: 12+ trades → 2 coordinated touchpoints
- ... Labor Efficiency: 80–90% fewer on-site skilled labor hours
- ... Risk Reduction: Fewer dependencies, fewer delays
- ... Quality Assurance: Factory-inspected before shipment
- ... Predictability: Repeatable scope and labor certainty for GCs



Reduces Coordination From 12+ Trades to 1 or 2 Touchpoints



# Integrated Design, Planning, & Logistics

## Early Collaboration Drives Predictable, Efficient Delivery

- ...Engage Modular Partners Early for Structural and MEP Alignment
- ...Design for Manufacturing to Reduce Rework
- ...Plan Logistics Early—staging, Trucking, Crane Ops
- ...Use Digital Tools to Streamline Coordination and QA/QC
- ...Apply Just-in-Time Delivery to Keep Sites Efficient

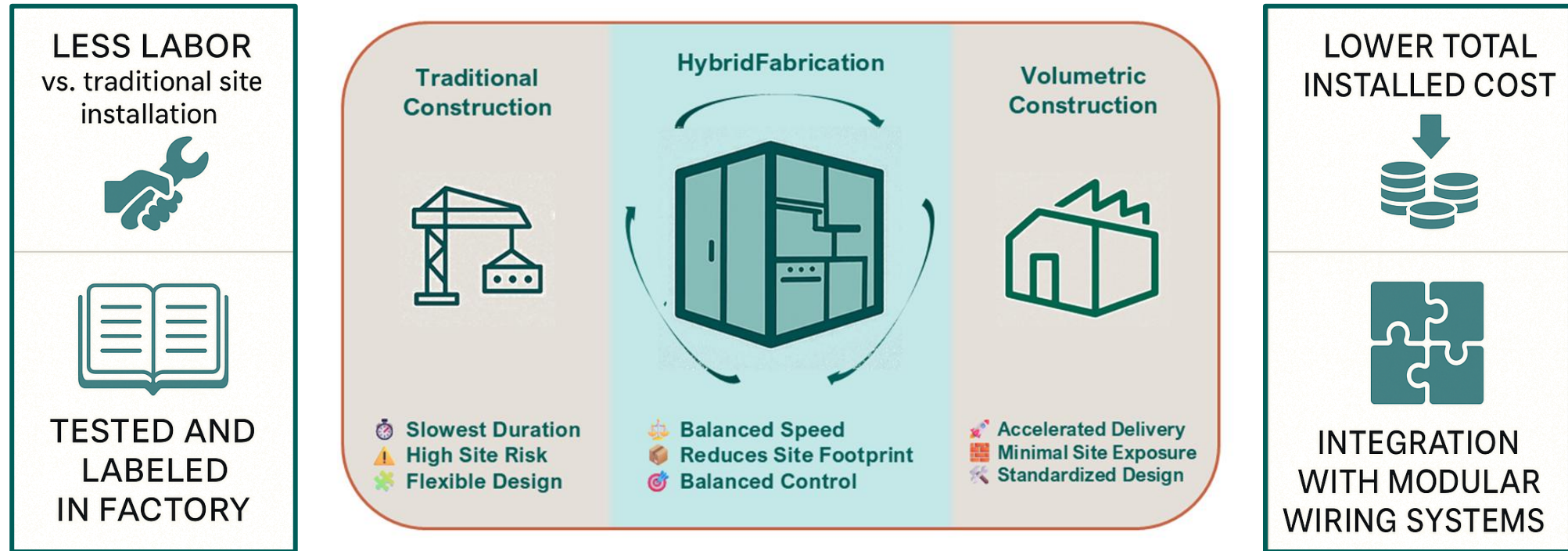


*Progressive Coordination & Continuous Improvement (Insight for Future Optimization)*

Early Integration of Design and Logistics Ensures Smoother Builds and Faster Installs

# ROI – Developer & Investor

- ...Faster Occupancy → Early Revenue Recognition
- ...Reduced Risk and Improved Margins
- ...Stronger Financial Models and Faster Payback
- ... Labor savings → **97% fewer skilled site hours**
- ... Schedule reduction → **4–6 months**
- ... IRR improvement → **+180 basis points** for developers
- ... Aligns with built-for-rent demand: privacy, speed, high ROI
- ... Prefabrication accelerates the build and occupancy



Prefab Directly Improves Project Financial Performance

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# Future Proofing

- ... Modular is the Backbone of Smart, Connected Buildings
- ... Robotics, AI, and Digital Twins are Next
- ... As Cities Evolve, Prefabrication Remains at the Core of Scalable Development
- ... Scalability Across Multifamily, Hospitality, Student Housing, and Adaptive Reuse
- ... Balances Standardization With Design Flexibility
- ... Embeds leadership values and community resilience, building more than structures



Modular is Not a Trend — It's the Backbone of Future Urban Growth

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# Call to Action Roadmap *Engage • Visit • Explore*

## Let's Build Smarter Together

- ... **Start Small:** Pilot modular components on one project
- ... **Scale:** Standardize design and procurement
- ... **Standardize:** Create repeatable delivery models
- ... **General Contact & Factory Tour**  
Contact Us To Learn How Resia Can Support Your Next Multifamily, Hospitality, Or Institutional Project With High-Efficiency Modular Solutions
- ... **Request a Quote or Start Your 30-Day Design Development Today**  
Whether you're interested in visiting our state-of-the-art facility, evaluating modular bathroom/kitchen components for your project, or requesting concept design and preliminary pricing, our team is ready to engage



**Experience Resia**



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**Experience Resia — Where Speed, Precision, and Sustainability Converge**

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## Future Proofing Construction

The future isn't a concept, it's an active decision

### Contacts

For Additional Information Contact the Following:

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