Acumatica
The Cloud ERP

Turn Modular Products into Construction Projects with Acumatica

A Cross-Industry Solution Brief for Modular and Prefab Construction

A MODULAR CONSTRUCTION OVERVIEW

Modular construction is well-positioned for rapid growth. As the spotlight continues to shine on environmentally friendly options, prefabricated buildings offer a green alternative to traditional construction projects. Contractors looking to expand into modular construction may encounter unique challenges but gain a competitive advantage by overcoming them.

The growing adoption of modular and prefabricated construction methods translates to significant growth in the coming years. However, contractors and manufacturers lacking the ability to meld the two industries are missing crucial opportunities for growth and profit. Modular construction requires visibility into manufacturing specs and methods, at the very least. Many contractors produce modular components, presenting a new set of manufacturing-related needs. There is also a service element to consider, as customers may expect contractors to offer maintenance and repairs.

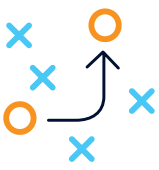
Construction firms without cross-industry capabilities will struggle to forecast demand accurately, estimate production costs, manage material and resource plans, and maintain the project budget. Difficulty collaborating disrupts product design decisions, inventory availability, and production planning. Legacy ERP systems force modular construction firms to rely on multiple disconnected and manual systems for projects and production respectively. This creates data silos that delay decision-making, prolong projects, and inevitably erode customer satisfaction.

Acumatica is a collaborative platform connecting customers, partners, and vendors to improve efficiency in all business areas. It natively crosses industry lines to empower contractors with tools to manufacture, construct, and service modular and prefabricated building components. Configurable workflows and personalization ensure each person has the information they need to manage their area of expertise. **Use this Solution Brief as a guide to discover more about the modular industry types, challenges, and the advantages the right technology provides.**

MODULAR CONSTRUCTION MODES AND METHODS



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INDUSTRY DESCRIPTION

The Future of Modular Buildings

Modular and prefab buildings have revolutionized the construction industry by offering efficiency, cost savings, and sustainability. Blending elements of the manufacturing and service sectors presents a unique opportunity for new and established businesses. To be successful, stakeholders must familiarize themselves with current trends and growth projections.

MODULAR MARKET TRENDS

The global modular construction market is projected to grow at a Compound Annual Growth Rate (CAGR) of 6.2% by 2029[1]. Asia Pacific dominates the worldwide market because modular construction is a cost-effective method with faster project completion times. With rapid urbanization and steep population growth, APAC countries have been able to respond to demand using modular construction.

North America is also experiencing a significant shift towards modular construction, with permanent modular construction (PMC) valued at $12 billion in 2022. This accounted for 6.03%[2] of all new construction, steadily increasing yearly, along with the number of companies that perform modular construction.

MODULAR CONSTRUCTION STRATEGIES

Permanent Modular Construction (PMC)

Permanent Modular Construction involves creating modules that remain in a fixed location. Multi-family housing is the largest established market for PMC strategies, but it is also used for schools, healthcare facilities, and office buildings. Each module meets or exceeds the same building standards as traditional structures and are often indistinguishable from site-built construction.

Volumetric Modular Construction

Also known as 3D modular, volumetric modular construction entails the off-site manufacturing of entire rooms or units, including electric and plumbing. Like PMC, this method is ideal for schools and hospitals due to the minimized labor needs and reduced costs.

Relocatable Buildings (RB)

Temporary modular buildings are designed for short-term use but can be repurposed multiple times. Often used for classrooms, construction site offices, and emergency shelters, relocatable buildings offer a cost-effective solution for space.

Panelized Modular Construction

Many residential modular projects use panelized methods. These involve fabricating wall, floor, and roof panels off-site and then assembling them on-site. Panelized modules allow for easy customization.

Flat Pack Modular

Another efficient approach is flat-pack modular construction, which involves manufacturing kits to be transported and assembled on-site. This method's standout advantage is the significant time and cost savings in logistics and transportation, making it an attractive option for temporary shelters and remote locations.

Hybrid Modular

As the name suggests, hybrid modular construction combines parts of the previously mentioned methods with traditional on-site construction. Speed and customization are the key advantages of the hybrid approach, making it a growing choice for blending different techniques.

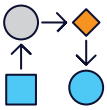
1. Source: Markets and Markets
2. Source: Modular Building Institute

CHALLENGES

Industry-Specific Obstacles

While modular and prefab construction methods offer many benefits, such as speed of project completion and cost-savings, they also present several unique challenges. These challenges can affect adoption and implementation across construction and manufacturing industries. Implementing a centralized and collaborative cross-industry solution empowers firms looking to explore modular business opportunities. Here are the primary obstacles that modular construction firms should consider.

MODULAR PERCEPTIONS OR STIGMAS



The perception that modular construction methods are lower quality and less durable is refutable, and much historical data supports this. Business leaders must present this proof to stakeholders to get buy-in from all teams.

FINANCIAL FACTORS



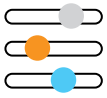
A significant up-front investment is necessary for factory setup, which is a barrier for smaller firms. This makes securing financing for modular projects more difficult, along with the stigma attached to them.

COMPLIANCE



The manufacturing and construction of modular components require a different approach to inspections and approvals. Since building codes are often location-dependent, ensuring compliance is time-consuming and demands an understanding of regulations early in the project's inception.

DESIGN CONSTRAINTS



One of modular construction's key advantages is the speed with which modules can be standardized and produced. But this also limits customer choices for customization.

LOGISTICS



Size and weight restrictions make transporting modules to job sites especially challenging. In-transit damage also presents another set of hurdles.

TRADITIONAL INTEGRATION



Modular construction still relies on traditional site preparation, which can affect the overall timeline. When traditional and modular construction are integrated together, design and engineering challenges must be considered.

WORKFORCE DEMANDS



The ever-present skilled labor shortage and a need for specialized training in manufacturing facilities and on job sites make planned growth more difficult.

SUPPLY CHAIN NEEDS



Effective coordination between factory production and on-site assembly is mandatory for project success. Supply chains for materials and components also impact the timeline.

SUSTAINABILITY CONCERNS



Modular buildings must strive to meet energy efficiency standards. The reduction of on-site waste is an advantage of modular construction methods, but managing the waste from a factory perspective requires diligence and procedures.



SIX CRITICAL ADVANTAGES

Leverage Technology for Growth

Modular and prefab construction methods are a compelling choice for residential and commercial structures. However, the obstacles are magnified without a modern ERP solution to support growth. Companies that embrace platforms with cross-industry functionality have a significant advantage by staying agile even as they grow. Below are six ways technology enables companies to leverage a modern solution for growth opportunities.



ADVANTAGE #1: ENHANCED COLLABORATION

A modern ERP solution facilitates better communication from modular design to production to construction. Access the complete system from any device and search for any project detail with the global search box. Use Acumatica CRM to view real-time data on customer activities, including quotes, orders, invoices, payments, support cases, and service calls. Give clients access to the self-service portal to submit requests and view their status.

ADVANTAGE #2: FLEXIBILITY

Acumatica includes native payroll, CRM, inventory management, purchasing, and many other applications in a single platform. With a fully connected and centralized Acumatica solution, data extends across all industries and modules, providing a 360-degree view of the business. Acumatica's open architecture with no-code and low-code integration offers an agile solution for rapidly growing businesses. Add certified plug-and-play solutions for shipping, estimating, project management, and scheduling.

Create modular component product designs in CAD or PLM applications and synchronize engineering bills of material (BOMs) with manufacturing inside Acumatica. Manage part revisions with Acumatica's native Engineering Change Control module with tailored approval workflows.

"When I discovered Acumatica, I was quite surprised that anything like that existed. I was amazed that it could do all the things it could do. There's nothing we do that doesn't include Acumatica. Acumatica is literally the lifeblood of our business."

– FRANCIS NWABUDIKE, PRESIDENT AND CEO
SPACEMANAGER CLOSETS

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ADVANTAGE #3: FASTER PROJECT COMPLETION

Factory-controlled environments reduce construction timelines, mainly when site preparation and module creation occur simultaneously. Streamline project material management, including receipts, and process material returns. Acumatica's Warehouse Management automates picking (wave and batch), packing, shipping, movement, and physical inventory. Create efficient workflows for job site deliveries with Advanced Material Management.

Expedite material demands for modular components with a seamless flow from the construction project to manufacturing Material Requirements Planning (MRP). The material demand on a project will appear automatically in MRP. If the module is not in stock, it will create a production order and generate purchase or transfer orders to ensure all the required materials are in stock to create the module.

ADVANTAGE #4: LOWER COSTS

Technology enables better planning and resource management, minimizing waste and reducing material costs. Acumatica's MRP module time-phases material requirements based on actual or forecasted demand to mitigate shortages and stock-out scenarios that result in costly changeovers and rush orders. Identify critical materials impacting production schedules and drive material plans from defined or historical demand forecasts. Track material, outside processes, and labor costs by production order, identify work-in-process (WIP) costs for modular component production and compare estimated costs to actual production order costs.

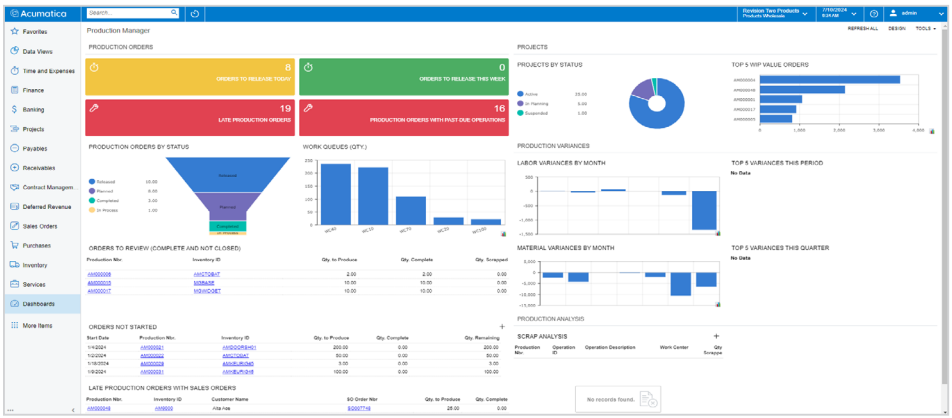
The Acumatica Product Configurator includes a rules-based product configurator that builds custom bills of material and production instructions based on options and values, such as modular component dimensions. It also calculates costs and customer quotes or orders. Advanced product configuration is available with the connected Revalize Configure One Cloud product, which is popular with modular firms.

ADVANTAGE #5: QUALITY CONTROL

Automated processes improve the quality of modular components, reducing human error. The Acumatica platform supports lot and serial tracking with connected quality management to ensure high-quality products with traceability and reporting required for industry compliance. Barcode scanning and mobile apps can automate shop floor material and labor transactions. Complex procurement processes can be automated to manage multiple products, contracts, and suppliers.

ADVANTAGE #6: RISK MANAGEMENT

Modular construction methods are widely considered to be much safer than traditional on-site construction. This is partly because factory-built structures eliminate on-site risks such as weather delays and accidents. Technology helps accelerate that safety advantage with holistic risk management tools for employee training documentation and compliance initiatives. Acumatica includes dozens of features to manage compliance requirements, keep workers safe, and maintain the project timeline.



Lower modular production costs by using the Manufacturing Production Dashboard, with drilldowns into orders, projects, WIP, labor costs, and more.

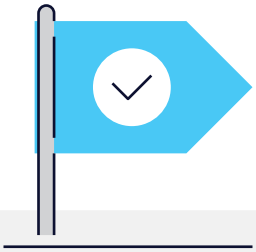
Achieve the Ultimate Modular Advantage with Acumatica

The rise of modular and prefab construction methods promises many growth opportunities in the coming years. However, contractors and manufacturers who are unable to integrate systems must operate as separate entities with siloed data. Collaboration issues hinder product design, inventory, production, and construction decisions.

Leverage Acumatica to break free from industry-specific constraints. Enhance modular operations by connecting customers, stakeholders, and vendors. With native collaboration to connect all parties, Acumatica features intelligent workflows and market-leading usability to optimize resources, reduce waste, improve quality, and seize new opportunities.

No other ERP solution bridges industry gaps quite like Acumatica, giving contractors the tools to manufacture and service modular components. Acumatica provides a scalable, holistic, and adaptable platform that supports advanced business and industry requirements without high costs or complexity.

We are passionately committed to helping modular-focused companies grow on their terms with technology to address real-world needs. Acumatica is a unique business platform that will support your modular business today, tomorrow, and for years into the future.



"Acumatica is more efficient because we can manage inventory better and allocate it to a specific job, so we have a clearer view of our inventory and what we have available."

– DAVID PELLICOTT, ENVIROTECH CUSTOM INJECTION MOLDERS

Acumatica
The Cloud ERP

Acumatica Cloud ERP is a comprehensive business management solution that was born in the cloud and built for more connected, collaborative ways of working. Designed explicitly to enable small and mid-market companies to thrive in today's digital economy, Acumatica's flexible solution, customer-friendly business practices, and industry-specific functionality help growing businesses adapt to fast-moving markets and take control of their future.

For more information on Acumatica, visit www.acumatica.com or follow us on LinkedIn.