MiTek®

The Village at Madrone:
Successful Collaboration Through Design-Make-Build™

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Developed by Jemcor Properties, The Village at Madrone is a 249-unit, 320,000 sf affordable housing development located in Morgan Hill, CA, consisting of 14 building types with three floors of framing and a community clubhouse.

NIC Structural Engineering Consultants led Structural Engineering. Under the expertise of firm Principal Dr. TJ Eimani, Ph.D., SE, they have successfully completed numerous large-scale developments in residential, hospitality, and other sectors.

249	320,000	14	THREE FLOORS	COMMUNITY
UNITS	SQ. FT.	BUILDING TYPES	OF FRAMING	CLUBHOUSE

A key attribute of NIC is their ability to affect positive outcomes for their clients through careful planning and coordination with all project stakeholders. Due to the size and scale of this project, KTGY Architecture and Planning knew they needed an SE firm well equipped to take on the challenges ahead, assisting them with carrying out their vision for this new community.

JEMCOR Development Partners

NN STRUCTURAL ENGINEERING CONSULTANTS

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MiTek®

A TRUSTED INNOVATOR

Structural Engineers have one product they sell to their clients: Construction Documents. If the structural plan set includes unavailable building materials, is challenging to install, or adds some other burden to the project, the value in their thoughtfully organized CDs is lost. Structural Engineers are bombarded with phone calls, emails, and, by far the worst, unannounced visits by salespeople, all promising the same thing. Better product, lower cost. Rarely are these promises ever fulfilled. Thankfully for NIC Structural Engineering Consultants, when a contractor approached them to consider using MiTek's Posi-Strut® to design a new multifamily project, they knew they were dealing with a brand they could trust.

MiTek has a long history of structural innovations, dating back to 1955 when an engineer named John "Cal" Jureit invented and patented the Gang-Nail connector, the first metal punch-tooth connector plate for wood trusses. Many innovations have followed since then, and MiTek's role in the industry has broadened, but its core purpose has remained the same. MiTek exists to solve problems.

Today, they recognize this method of problem-solving as Design-Make-Build™. This methodology brings value to the building industry by unlocking the potential of off-site construction solutions. When the right people, processes, and products are utilized, off-site construction will reduce construction schedules, reduce waste, require fewer resources, and provide better outcomes for all involved.

Optimize build plans for off-site construction with software and services that enable collaboration across specialties.

Get high quality components that compress your schedule through the power and control of off-site automation technologies.

Minimize resources, waste, and time on-site with componentized roof trusses, lateral systems, floor trusses, and exterior wall systems that arrive ready to drop in place.

SPANS THAT LIBERATE

Posi-Strut is not a new innovation from MiTek. It has been used regularly across Europe, Australia, and other markets for decades as a valuable addition to the off-site construction segment. However, its use in the U.S. has been infrequent, mainly due to a need for more awareness surrounding the product.

Traditional floor trusses offer tremendous value to a construction project. However, sometimes, the depth allowed within the floor cavity is so minimal that a traditional floor truss loses some of its value by decreasing the open web area. For instance, a 14" traditional floor truss will provide, at best, a 9" diameter of clearance when running through a floor truss panel. That figure can decrease across the truss span depending on where the wood webs are located and the size of the required connector plate. Of course, a boxed-out chase can always be designed into the truss, but that requires the design team to know precisely where that duct will be routed early on.

This decreased value of traditional floor trusses at shallow depths (14" and under) is what has caused some building designers to consider alternative options such as solid-sawn lumber and Engineered Wood Products (EWP). Solid-sawn lumber and EWP both contain their own features and benefits that bring value to a project. However, if multiple mechanical and other utility lines are going to be routed through the floor, an open web solution is the logical choice. Further, if that floor has a shallow depth, this is where Posi-Strut trusses make the most sense.

Drop ceilings and soffits, commonly used in conjunction with shallow-depth floor systems, are expensive and often unsightly additions to a design. If space is limited and multiple utility lines must be routed through the floor framing, they can seem unavoidable.

Thankfully, there is a better way. MiTek's Posi-Strut metal web system is the ideal solution due to its shallow depths and unique web design using light gauge steel that maintains a consistent open web space throughout the span of the truss. Like traditional floor truss technology, chases can be used with Posi-Strut, multiple end conditions can be utilized, etc. However, unique to Posi-Strut is the ability to maintain a larger, consistent, and pre-determined open web dimension throughout the span of the truss.

ADVANCED OFF-SITE TECHNOLOGIES

When talking about trusses, knowing who manufactures them and their important role in the entire process is essential. Trusses are designed and fabricated by Component Manufacturers (or CMs for short). They do this carefully with the core members of the design team. This list typically includes the architect, structural and mechanical engineers, and contractors. Worth noting is that while the technology that enables this segment of the industry is developed and managed by MiTek (among others), the way this technology gets implemented for each project is up to the CM. They are independent entities, and their business models can vary widely. When selecting a CM for a project, it's important to evaluate their capacity, design process, project management capabilities, past experiences with other customers, and what is included/excluded from their bid. If all these things align with the objectives of a given project, then you know you have the right partner to help move it forward.

The CM is more than just a supplier. When functioning correctly, they are a true partner in the success of a project from design to fabrication (or "make") and through completion of build-out. For the Village at Madrone project, the developer found a partnership with the Nor Cal Lumber leadership team and their customer, West Coast Framers. General Manager of Truss Operations Russ Somervill stated, "The selling point for us and what really helped persuade Jemcor to work with us was our commitment to live out our values. We believe our people are our greatest asset. That philosophy extends beyond our employees to our customers and into the communities we serve. We know our markets. We've worked with many of the same engineers for years in the Northern California region and established a proven track record with them. They speak well of us, and that speaks volumes to a developer."

"WE'VE ESTABLISHED A PROVEN TRACK RECORD."

RUSS SOMERVILL,
GENERAL MANAGER
TRUSS OPERATIONS

COLLABORATION IS CRITICAL

Like all projects, success depends on having all the right team members. However, if all the right people are involved but collaboration is limited, so will the success. This is where MiTek makes the difference. MiTek is the enabler that brings together all stakeholders to engage collaboratively toward positive outcomes. It was through this collaborative effort that full optimization of the framing package was realized, including the use of a panelized wall system, roof trusses, efficient utility routing, and top chord bearing Posi-Strut® floor trusses, which eliminated the need for a great deal of costly rim board and hangers while allowing for a simpler and more efficient framing system from floor to floor.

Through the collective efforts of the entire Design-Make-Build team, The Village at Madrone is now complete and ready to start housing local residents.