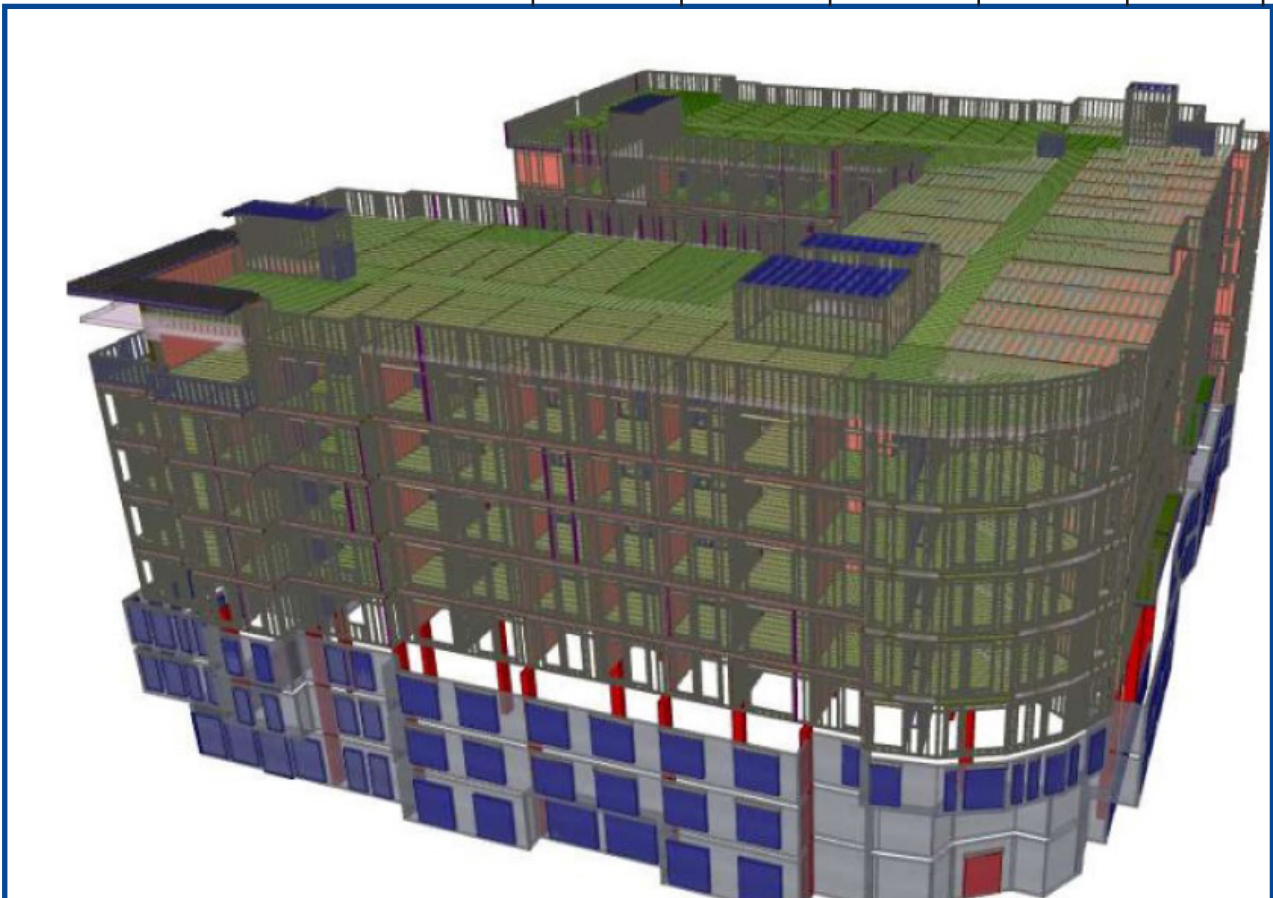




CASE STUDY:

Greystar, Tasman, Multifamily Construction Case Study





GREYSTAR TASMAN MULTIFAMILY CONSTRUCTION CASE STUDY

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INTRODUCTION



Greystar is well known in the multifamily construction industry. They develop, build, own and manage one of the most prolific real estate portfolios in the world.

MiTek has had a long-standing relationship with Greystar, and working together we have tested innovations that have brought new building and engineering systems to market.

This relationship made Greystar an ideal partner for a validation test of MiTek's new 3D building analysis BIM software, and plan optimization services tailored for multifamily construction, known as "Optimized Design Support or ODS."

ODS is built upon MiTek's industry leading 3D wood engine software that powers Structure, our truss DFMA system. It incorporates new engineering capabilities and analysis tools to output advanced engineering and building information. Equipped with this information, the design team can optimize the project and make better choices much earlier in the design lifecycle.



CHALLENGE: MATERIAL COSTS AND INEFFICIENCIES

In the ever-increasing competitive landscape that is Multifamily Real Estate, developers like Greystar must keep a keen eye on costs of components and the entire project.

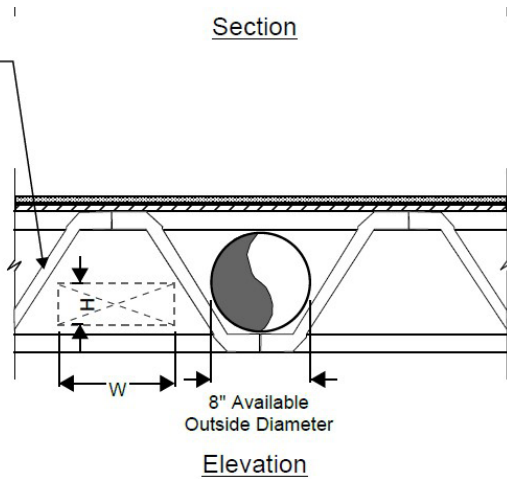
This cost-conscious behavior has become even more prevalent since the supply interruptions of the early 2020s, and the impact that inflation and capital rates have on the bottom line of today's new projects. Aware of these added costs, developers must find creative new ways to ensure that their projects pencil.

For Greystar's Tasman project, staying on budget was imperative. The project was a tear down urban infill in the city of Santa Clara, CA which is well known for very strict code standards for new developments.

Greystar Nor-Cal needed cost saving solutions that were structurally sound and would be accepted by the city plan check department.

Height (H) and
Width (W) Per
Schedule

Maximum Mechanical Service Clearance (Inches)	
H	W
2	14-1/2
3	13
4	11-1/2
5	10
6	8-3/4
7	7
8	5



MiTek®

SOLUTION: MiTek ODS

MiTek began its ODS engagement on the Tasman project at the end of the Design Development phase including:

1. Level of Design 400 3D BIM of the entire project
2. Full building analysis using our proprietary software
3. 3rd party peer review value engineering analysis
4. 3rd party peer review truss component analysis
5. Comprehensive clash detection
6. Comprehensive document review and correction
7. Ongoing support for design/trade coordination, and city plan check assistance

Through the process of BIM mapping in 3D, and running multiple analyses, MiTek was able to identify six areas of opportunity to value engineer and reduce total project cost. But, because this was an early pilot project to test our new system, MiTek and Greystar decided to focus in on two of these proposed solutions.

1. Top Chord floor to wall connections
2. Shallow depth Posi-Strut steel web wood trusses to replace TJI's

These were selected because it had become a standard structural detail to use I-Joist floor systems in this region of the state. These systems require a complex and often expensive bottom chord hanger connection. This also requires extra fire treated reinforcing materials at the rim joist location in order to meet the exterior firewall code requirements. Using our new detail, much of those required costly workarounds were no longer necessary. These two floor details combined to accomplish several cost saving efficiencies.

1. Reduced the total number of joists
2. Reduced the cost per unit of joist
3. Removed the need to use firewall hangers on exterior wall connections
4. Removed FRT Glulam rim joists at the perimeter of all floor systems

The net result of these improvements resulted in a real-world cost reduction of \$530,000.00 in material expense alone for the project, not to mention labor savings.

The net result of these improvements resulted in a real-world cost reduction of \$530,000.00 in material expense alone for the project, not to mention labor savings. We verified these savings by running the new material takeoffs through the framer Sheehan and their supplier BFS for actual net savings.



BUSINESS OUTCOMES: ONGOING COST REDUCTIONS IN FUTURE PROJECTS

The real-world savings potential on the Tasman pilot were dramatic. Greystar was looking for value engineering items of 50k-100k as a realistic expectation. To find a set of new floor details that delivered \$530,000 in material cost savings was quite a surprise.

The new details were presented to the city of Santa Clara and accepted by their review team upon initial review.

However, because the project was up against an aggressive start schedule, it was not feasible to make these changes last minute at the risk of holding up the job. Instead, Greystar has moved to incorporate these new details onto their future projects in that region.

The next upcoming project, Freedom Circle, is roughly three times larger than Tasman, and stands to save upwards of \$1.3m in material cost savings using the Top Chord Posi-Strut floor details. This illustrates the importance of early design for structure optimization. Delayed involvement will lead to missing out on significant economic and performance benefits.

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Greystar is now educating their other metropolitan construction teams about the floor detail, and their design partners are beginning to use this optimized floor design for their other multifamily clients in the Bay Area.

**** Greystar worked with structural engineering firm, DCI, and architecture firm, BDE Architecture, both located in the Bay Area. The framer on the project was Sheehan Construction, and their primary timber supplier was BFS.*

