Long-Span Composite Systems

3 WAYS TO OPTIMIZE MULTI-STORY CONSTRUCTION

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A Steel Dynamics Company

Realize the breadth and depth of long-span composite system benefits

Minimize floor depth and optimize floor-to-floor height

Total composite floor depth is directly affected by required spans and loads, and also by the system selected. Sometimes “deeper is cheaper,” but it has become increasingly important to consider overall building height and the interrelated costs of materials and installation.

Control performance-related considerations

Factors related to performance include load, fire, vibration and sound ratings. Load requirements, fire-resistance ratings as well as methods for ambient noise and sound transmission management vary with each system. Review and compare your options.

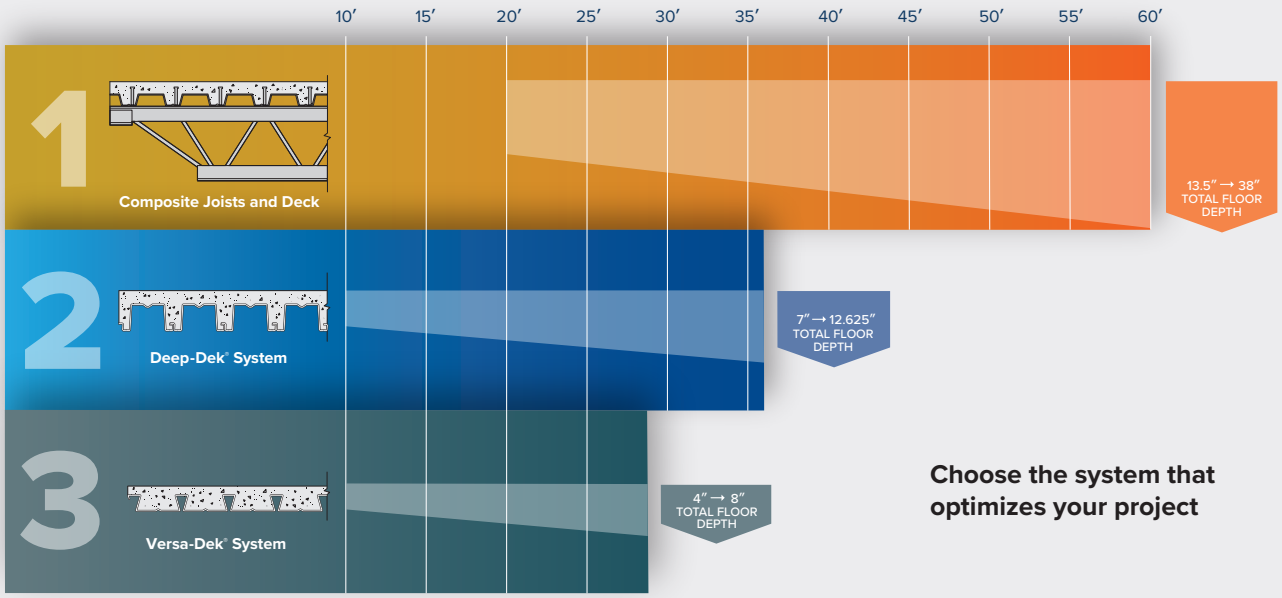
Achieve the desired aesthetics

The system you choose must support the finished look and feel of the project. Does the design call for an exposed structural appearance with finish coatings or for the addition of ancillary ceiling systems? Determine how you want the mechanical, electrical, and plumbing systems to integrate.

Manage project costs

Above and beyond material costs, what labor costs are associated with the system of choice? Will additional costs be incurred to achieve the finished look and performance? Select the system that optimizes the span and overall height of the finished structure while contributing to greater occupancy and owner profitability.

COMPARE SPAN CAPABILITIES TO TOTAL FLOOR DEPTHS



Cedar Grove, a Project Frog, Inc. prefabricated building. Photo courtesy of Project Frog, Inc.

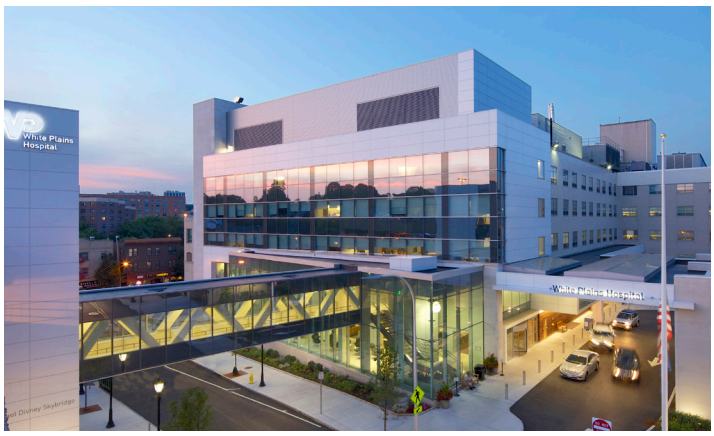


Photo credit: W&W Glass

Know your options

Long-span composite systems can open the door to a wide range of building design possibilities. The optimal combination of steel and concrete can enhance your multi-story project while creating wide-open spans uninterrupted by support columns.

Today you can choose from multiple long-span composite systems to optimize your multi-story project. The optimal system for your application must meet the span requirements while providing fire, vibration and sound control. In addition, the system you select can also manage floor depth, maximizing floor-to-ceiling height and minimizing overall structural height. With optional acoustical treatments to absorb sound energy, you can create architecturally exposed deck solutions that eliminate the added costs of suspended or furred ceilings.

To choose the right system for your multi-story application, start by understanding the range of long-span composite floor options available and the span, depth, performance and aesthetic solutions they can provide.

New Millennium is your source for design assistance, technical information and long-span composite steel building systems supply. We can help you choose the right system, help accelerate the construction timeline and reduce costs on your next project.

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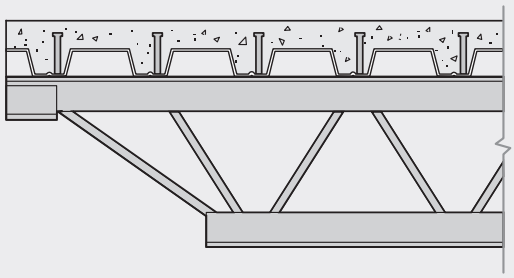
option 1

COMPOSITE JOISTS AND DECK



- Longest spanning system capable of 20′ to 60′ and beyond
- Reductions in steel material, timeline and related costs
- MEP routing through joist webbing

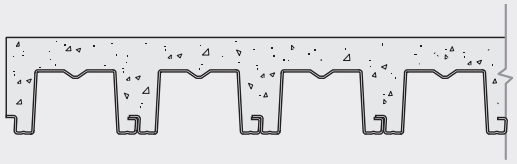
Create the longest open spans possible

A composite joist (CJ-Series) is a steel joist designed for shear connection to the overlying concrete slab using field-applied shear studs, such that when the decking is filled with concrete, the shear studs become embedded in the hardened concrete and a unified load bearing system is created that deflects as a single unit. Advantages include a stronger, stiffer, lighter and less costly steel structure compared to other structural steel frame approaches.

For more information, visit: **newmill.com/longspan**

option 2

DEEP-DEK® COMPOSITE SYSTEM



- Spans up to 36′ with unshored pours up to 22′
- Deep-ribbed steel profile with closed ends speeds installation
- Safer and cost-effective panelized construction method

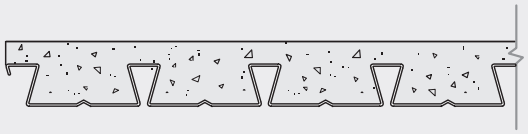
Minimize overall composite floor depth

Span-to-depth ratios equal to traditional cast-in-place concrete and hollow-core plank. Deep-Dek® Composite helps make steel frame solutions cost-effective. Patented side-lap connections achieve composite bond. Choose from a deep-fluted appearance or add the cellular deck option for a smooth surface with thin structural ribbing. Available in a variety of finish options. Deep-Dek® Composite as a base system has comparable acoustics to standard construction methods. Optional acoustical treatments increase the Sound Transmission Class (STC) and Impact Insulation Class (IIC) ratings of Deep-Dek® Composite.

For more information, visit: **newmill.com/longspan**

option 3

VERSA-DEK® COMPOSITE SYSTEM



- Dovetail deck design enables clear spans up to 28′
- Two profiles create the thinnest floor depths possible
- Exposed aesthetic with concealed deck fastening
- Up to 40% less concrete than concrete plank

Strength and aesthetic appeal of dovetail deck

The telltale shape provides a lineal plank ceiling look, available in 2″ and 3.5″ profiles. Creating clear spans up to 28′, this system allows the thinnest total floor depth possible in multi-story projects, reducing story height while maximizing ceiling height. Ideal for use in mid-rise residential and hotel structures, Versa-Dek® Composite systems are suited to work with light gage structural steel, panelized wall systems as well as any beam or bearing-wall method. Optional acoustical treatments increase its base STC and IIC ratings.

For more information, visit: **newmill.com/longspan**

Your nationwide resource for the broadest range of cost-optimized, high-performance structural steel joist and deck solutions

- Structural steel joists, Joist Girders and deck
- Architectural decking solutions
- Multi-story long-span composite systems
- Custom engineering and design assistance
- BIM-based steel joist and deck design
- Nationwide manufacturing and availability
- Design-Build and Integrated Project Delivery (IPD)
- AIA and PDH courses for project optimization

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A division of Steel Dynamics Inc., we engineer and manufacture a full range of steel joist and deck for commercial construction projects. We work with you right from the start, resulting in the efficient selection, engineering and supply of the optimal system for your project.