

# USG STRUCTURAL PANEL VS. PAN-DECK AND POURED CONCRETE

**Head to head comparison of SPEED and COST of subfloor and roof deck installation on a 6-story commercial hotel structure.**

USG Structural Panels are a lightweight, cured, panel product that provide fast and low-cost installation of a subfloor or roof deck. In order to demonstrate this, an estimated cost and time study was deployed on a 6-story, noncombustible, hospitality building.

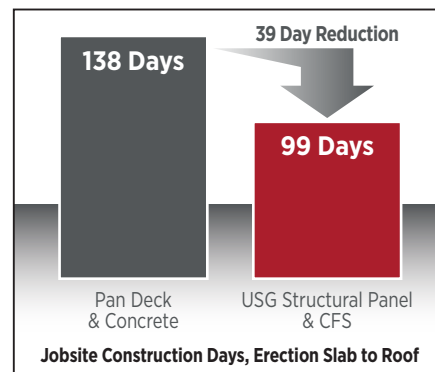
Two sets of structural designs were created for the same building; one with USG Subfloor and Roof Deck on cold-formed steel framing, and another with a common pan deck and 3 in. thick normal density poured concrete system. An experienced general contractor was hired to estimate the cost and time of structure erection for the two designs. The results were then compared.

The study results show one example of how USG Structural Panels as a construction method can contribute to project cost-savings while meeting the performance demands of noncombustible, midrise structures. To learn more about USG Structural Panels visit: [usg.com/structural](http://usg.com/structural)

## THE STUDY RESULTS

**USG Structural Panels on cold-formed steel significantly sped up the building superstructure erection, and therefore significantly reduced project costs.**

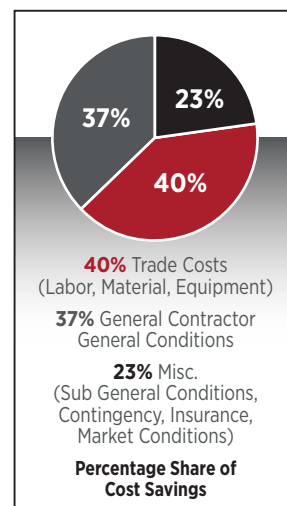
### 39 Days Faster, Erection Slab to Roof\*



Dry construction with structural panels eliminates any need to wait on cure, plus minimizes the sequencing of trades, so this project achieved a completed superstructure faster. Additionally, USG Structural Panel installation is quick and easy—lay and fasten—using common carpentry skills and tools.

\* Time required to erect structure had direct bearing on General Contractor General Condition costs.

### \$482,000 In Project Cost Savings (where the Structural Panel is a factor)



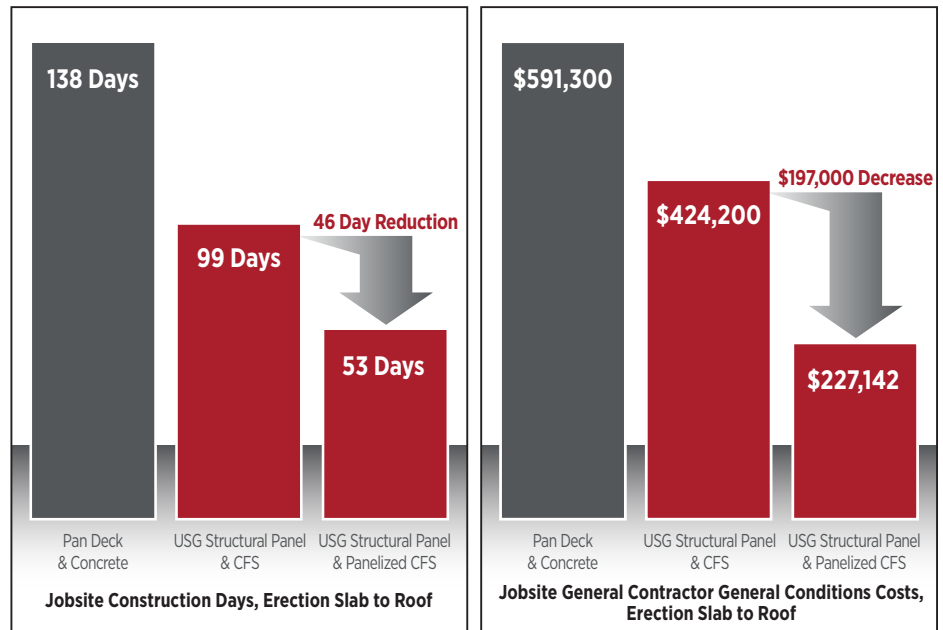
The quick project pace due to an eliminated wait on cure, decrease demand for trade sequencing, plus easy product installation, drove jobsite efficiency that translated to cost savings. Significant savings were from a decreased dependency on labor with subfloor installation occurring over a shorter time. And nearly as much was saved from a reduced General Contractor General Conditions charge due to the quicker moving project. And nearly a quarter of the cost decreases were within miscellaneous costs that included Market Conditions, OHP & Insurance, Estimating Contingency, and Subcontractor General Conditions.

## THE ACTUAL PROJECT

### Move even faster. Save even more.

Outside of our study, the actual six-story hotel whose architectural drawings were used, was erected using a panelized floor framing system. The cold-formed steel floor and roof deck panelized frames were sheathed on the jobsite with USG Structural Panels.

Comparing our study timelines to this live project we see **panelization has removed an additional 46 days from the framed structure erection schedule** when compared to the study's stick built cold-formed steel building using the USG Structural Panels. At a minimum, this **panelization contributes an additional savings of \$197,000 in jobsite General Contractor General Conditions** charges for the project (calculation based upon General Conditions fee of \$30,000 per week). Other construction cost savings could also be expected.



## COSTING STUDY DETAILS

### Costing Study Disclaimer

- The building selected for the costing study was a six-story hospitality structure located in the middle of the United States.
- Two teams of structural professional engineers were enlisted to design the structures of two buildings.
- The first building was designed using cold-formed steel (CFS); that included loadbearing CFS walls and CFS floor joists and the USG Structural Panel Concrete Subfloor and CFS shear walls throughout the building.
- The second structure used poured concrete and pan decking supported by joists, and masonry shear walls.
- The structural design parameters placed the building in the mid-west (St. Louis area) and did not account for any special design conditions due to high winds or high seismic. The location was selected to produce an average building structure for the United States.
- Costing of the two structural buildings was performed by a professional estimator, knowledgeable in the construction industry. Average database values were used for the construction industry, as would be used for producing an estimate for a project bid.
- Results of the structural design and of the building costings are likely to vary when performed by different structural engineers and different estimators.

#### PRODUCT INFORMATION

See [usg.com/structural](http://usg.com/structural) for the most up-to-date product information.

#### TRADEMARKS

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#### SAFETY FIRST!

Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.

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