



Benefits of Utilizing Sto Panel Technology Prefabricated Panels St. Charles County Department of Corrections Pedestrian Bridge

In mid-July 2020, during the height of the pandemic, McCarthy Building Companies contacted TJ Wies Prefab about a new pedestrian bridge in St. Charles County, MO for the St. Charles County Department of Corrections (DOC). The project had a deadline of December 31, 2020 - less than five months away. The pedestrian bridge was in the very early stages of planning, only containing a footprint plan and renderings of some exterior façade options. TJ Wies Prefab was asked to offer solutions and formulate a prefabrication proposal, including input on a realistic and reasonable schedule.



By October 2020, TJ Wies Prefab's newly purchased and remodeled Innovation Center was fully functional, housing a showroom and office space in addition to an expansive shop floor, just in time to begin fabrication of thirty-eight panels for the St. Charles County DOC Pedestrian Bridge. The short time to prepare leading up to panel fabrication was an intensive process but prefabrication was undeniably worth the time and efforts undergone in the planning and design stage due to the many difficulties avoided in comparison to traditional construction.

Completing a complex project like the St. Charles County DOC Pedestrian Bridge, from very early stages to final occupancy in just five short months, is an extremely compressed timeframe, and very uncommon. Typically, substantial planning goes into a prefabricated panel job –on average around six months of planning and a six-month period for fabrication/install, dependent on project size and complexity. The ultra-condensed schedule that the St. Charles County DOC Pedestrian Bridge called for was the most significant challenge this project posed. Traditional construction would have taken an estimated six to eight months. With the ability to begin construction of prefabricated Sto Panel Classic NEXt ci Panels offsite, before the site was ready yet, construction of the panels was able to run parallel to initial site work. With the proper planning and design upfront, and the ability to construct offsite and early, TJ Wies Prefab was able to deliver to St. Charles County a complete project one-hundred and forty days from receipt of renderings and solicitation of a proposal.

Extensive planning and design are vital during the initial stages of a prefabrication project's life cycle. Unfortunately, most construction drawings will inevitably have details or aspects containing design flaws, conflicts, or simply non-constructible facets. Early in the 3D panel-design process TJ Wies Prefab's team reviewed multiple disciplines' and trades' drawings, fabrication drawings, and shop tickets to confirm every detail and identify potential conflicts. TJ Wies Prefab has experience in identifying and correcting small- to large-scale conflicts and design flaws prior to material procurement and beginning fabrication, saving projects from schedule delays, rework costs, and in turn added frustration and stress.

Another challenge often encountered on construction projects is weather, especially unpredictable Missouri weather. Many times Missourians can't count on historical averages in regards to weather, as Missouri can be warm and sunny one day, and cold and snowing the next. The St. Charles County DOC Pedestrian Bridge project was scheduled for October 2020 through December 2020. The application of EIFS exterior to match that of the existing structure would have required full tenting

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Panel Prefabrication





Panel Installation



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and temporary heat over the fall and winter months. Traditional EIFS application and its accompanying timeframe would have put the estimated completion date around March 2021. Utilization of prefabricated Sto Panel Technology panels constructed in a controlled manufacturing facility allowed the project to meet the requested deadline of the year's end, while simultaneously avoiding weather delays.

On some construction projects, especially additions to existing or occupied structures, contractors must contend with tight and cramped project site footprints. The St. Charles County DOC Pedestrian Bridge was no exception. The location of this project was in a historic downtown district where, in addition to narrow streets and sidewalks, the streets are also on significant slopes. There was little to no laydown space available, or enough room to easily navigate lifts, much less construct full scaffolding. Prefabrication allowed TJ Wies Prefab to install fully finished exterior enclosures in the extremely narrow site footprint even in the absence of laydown space.

In addition to the schedule savings of prefabrication, in some cases considerable cost savings can be achieved. When a traditional build is difficult, impossible, or too lengthy to complete in the desired timeframe, prefabrication can avoid accumulation of substantial general conditions expenses, such as in the case of the St. Charles County DOC Pedestrian Bridge. If constructed traditionally, the necessary scaffolding, tenting, and tarping for temporary heat, as well as the longer duration of the schedule, would have contributed to considerable additional general conditions costs. Residually, none of these additional costs would have given any added value to the project. With prefabrication, TJ Wies Prefab was able to save the client money, while safely delivering a high-quality, finished project, and most importantly complete the install in one-tenth of the timeframe compared to typical stick-build and field install.

The St. Charles County Department of Corrections Pedestrian Bridge project schedule spanned ninety-three days from shovel-in-the-ground to approved occupancy; just one hundred and forty-three days from TJ Wies Prefab's receipt of colored renderings for review and comment to occupancy. The Pedestrian Bridge was comprised of thirty-eight prefabricated Sto Panel Classic NEXt ci Panels, including both wall panels as well as underside soffit panels. The first panel was placed on November 23, 2020 and the final on December 4, 2020.

When asked about his experience with TJ Wies Prefab, McCarthy Building Companies, Inc. Project Manager, Corey Black, stated, "With a near impossible schedule to achieve, we knew TJ Wies was a partner we could count on for the St Charles County Detention Center Pedestrian Bridge, but what we learned along the way was how their Prefabrication services really could make an impossible schedule possible. By getting involved early in the design, guiding the material selection process, fabricating completely finished panels in a climate-controlled warehouse, preparing a flawless erection plan and then executing perfectly, TJ Wies and their Prefabrication Services were instrumental in helping us achieve what many considered to be an impossible project in the given timeline. Without TJ Wies Prefab, we never could have completed this project as safely and with the attention to quality in the amount of time required. From beginning to end, it was a truly amazing and enjoyable process."

Project team members on the St. Charles County Department of Corrections Pedestrian Bridge included:

McCarthy Building Companies, Inc.

TJ Wies Prefab

Sto Panel Technology

Phillips Company

DLR Group

Peer Engine

Landmark

Heitmann & Associates, Inc.