

Bench Test: California Hospital Project

by Lance Parker

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*Image used
courtesy of Fong
and Chan
Architects.*

Our company Performance Contracting Inc. was recently contracted to work on several renovation projects at Washington Hospital in Fremont, Calif. The scope of this job includes the building of a new 37,000-square-foot Central Plant, Interim Loading Dock, Utilities Connection Project, and Underground Service Passage. In addition, the next phase of the project will entail building a new Center for Joint Replacement.

We are now finishing up the metal stud framing on the Central Plant Project, where we used ProX Headers instead of traditional built up box headers. Headers are supports that span an opening for a window, door, or large mechanical opening. Headers are a crucial component of framing, because they carry the dead loads placed on the framing members above the opening. The larger the span, the greater the loads.



*The ProX Header
was site tested and
approved to meet
OSHPD
requirements.*

Particularly in the Washington Hospital job, this was even more of a consideration than usual, because the facility is only two miles from the Hayward, Calif., fault line. So there were special structural calculations that had to be done for this specific seismic zone.

In the past, we have most commonly used built-up box headers. These systems require multiple pieces (studs and tracks) and are assembled in the field. The amount of pieces we would need using this traditional system was dependent upon the size of the openings. For example, if we were building a header for a 3-foot door, we might only need three pieces welded together.

But if the opening was for double doors, we would need a built-up box header, two studs, plus two or three pieces of track. Then all those components would need to be screwed or welded together, and finally, connected to jamb studs or king studs.

What's different about the ProX Headers is that for most openings, they come out in a single piece, pre-engineered and no assembly.

This eliminates the task of putting the box together with multiple components. The ProX has a recessed channel and an insert that you can easily snap in if the header span requires additional strength. There's also no welding necessary.

Meeting California State Agency Requirements

Although ProX Headers have been used in several OSHPD-approved projects before and the product recently received ICC-approval (ESR-1765) as well, they were not part of our original OSHPD-approved documents. Since we were making a substitution to the previously approved plans, the OSHPD District Structural Engineer required the ProX Headers to be field tested and approved separately by OSHPD at Washington Hospital under what they call "field review."



The field test was setup and designed by the structural engineer of record. The weight and force criteria were calculated by the SEOR and to the OSHPD district structural engineer's satisfaction.



First, we built a wall assembly using the largest opening that we were going to see on the project (8 feet). We used a single piece ProX Header (without the ProX insert). We installed Double Wide Flange Jamb Studs to eliminate any flex from the vertical support members, which provided full loads into the ProX horizontal member, and Brady's Jamb Connector Clip was used, which eliminates all double jamb stud welding. We built two of these wall assemblies side by side 24-inches apart, which represented two actual 10-foot sections of wall detailed and scheduled for this project.

After the assembly was constructed and inspected, the test was performed by Construction Testing Services. First the company mounted digital dial gauges and hydraulic rams at the specified locations along the headers length.

Secondly, CTS mounted thick steel plate weights directly on the ProX Header to test the deflection with a straight dead load.

Then CTS used synchronized hydraulic rams to apply a horizontal force, all carefully loaded with weights to mimic loading during a seismic event.

In all facets of the testing, the ProX headers passed with flying colors. Everyone was impressed with the results. So the OSHPD approval was granted for use on the Central Plant and Center for Joint Replacement projects.

Installation



ProX Headers simplified construction by making it easier to place insulation, and by providing a smooth face for flush drywall installation.

With the testing out of the way, we were ready to install. Since the ProX was a new product for us on this job and our framers had never used it before, there was a small learning curve that the guys had to go through at the beginning of the installation. But once everyone had learned how to use the system, the installation went very well. With less pieces to put together, the job of building and installing headers got done faster.

Another benefit of using the ProX Headers was less material buildup. Before, with traditional box headers, there would be an extra piece of material where the headers connected to the jamb studs, and then a screw on top of that. So there were multiple material components stacked at the corner, and often in those corners with that material buildup, the drywall would get pinched, leaving a mess for the finishers/tapers to clean up, which used even more man-hours. The ProX Headers are right in line with the jamb studs.

There's nothing overlapping the jamb studs and there's no buildup, this leaves a perfect drywall finish, which requires no extra finishing time.

Field Test Wrap Up

Overall it was a successful field test, and we'll be continuing to use ProX Headers on the Center for Joint Replacement. The testing we did proves that the product meets or exceeds the tough standards and design criteria for



this California hospital project. So with some more front-end coordination on our part, the positive results of using ProX Headers were a simple, clean, and efficient installation; with no welding and less cutting and screwing required on site.



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