

# A GRADUATE-LEVEL COURSE IN COLLABORATION CASE STUDY

ESCONDIDO VILLAGE GRADUATE  
RESIDENCES STANFORD UNIVERSITY  
PALO ALTO, CA





“Graham was responsive, cooperative, knowledgeable and an overall great team to work with.”

Bill Olson, Sr. Project Manager, Clark Pacific

## + PROJECT SNAPSHOT

**Architect**  
KSH Architects

**General Contractor**  
Vance Brown Builders

**Window Design Consultation**  
A collaboration between Graham Architectural Products and Clark Pacific

**Installer**  
Clark Pacific

**Product**  
GT6700 Projected & Fixed Windows

## + CHALLENGE

In the face of a compressed timeline, Graham Architectural Products had to design and build a custom window solution, manufacture 6,230 units, and then deliver them to a destination more than 2,700 miles away for installation into precast panels.

## + A GRADUATE-LEVEL COURSE IN COLLABORATION

Only 55% of Stanford University’s more than 9,000 graduate students are able to reside in on-campus housing. The Escondido Village Graduate Residences will add 2,400 beds, increasing the graduate on-campus housing rate to 75%.

But on-campus construction has unique challenges, including limitations in onsite parking, delivery locations, and access. And since students live near the construction site, minimizing impact to on-campus life becomes a key consideration.

Stanford chose to partner with Clark Pacific, a leading manufacturer of prefabricated building systems. In fact, Escondido Village quickly became Clark Pacific’s second-largest project ever, trailing only Apple’s “spaceship” (or “mothership”) headquarters in Cupertino, CA.

Fortunately, Graham had experience supplying windows to precast panel manufacturers. That expertise became more important when Clark Pacific created its own window installation team for this project. That team installed the glazing in exterior precast panels in the factory setting, increasing quality and reducing construction activity on campus.

But, first, Graham had to create a window that would meet Stanford’s and Clark Pacific’s needs.

### ***Necessity: The mother of invention.***

A member of the Stanford team discovered Graham’s 6700 Series window, the one with the appearance of an old steel factory sash, and recommended it for Escondido Village. But the 6700 did not meet California’s energy code.

“They have a very strict energy code in California, so the challenge became, how do we offer the look of the 6700 with high thermal performance,” says Michael DeRosa, Graham’s chief operating officer.

“The solution required a custom product that would involve blending two of our products together to bring the aesthetic of one to the thermal performance and manufacturability of the other,” explains Bill Wilder, Graham’s director of technical sales. “We were able to morph the aesthetics of the 6700 with the thermal performance of our GT6200, and in so doing create the a new window system we created that we ended up dubbing the GT6 platform.”

“We literally developed a whole new window for them,” adds Mark Hiscock, national sales manager for Graham. “We talked to the architect, KSH. We talked to Clark Pacific, went back and forth with their design guys and KSH, and we designed a window that met their sightlines, their energy requirements, and their operational requirements.

“We designed and built a new window – I mean, from scratch, from nothing – in like four months. The whole thing is amazing.”

### ***More challenges. More solutions.***

The project kept moving, with the various teams reaching consensus on one issue after another, from the look of the muntins, the glazing, and the type of spandrel glass to the paint finish, the colors, and the hardware finishes.

“All this was happening with the deadline looming,” says Wilder. Adds Hiscock, “We’d get feedback, address it, and turn it around.”

Meanwhile, Clark Pacific was assembling an in-house installation team. Says Bill Olson, a senior project manager at Clark Pacific, “This

project was one of our first self-managed window installations at the plant. In the past, we had subcontractors come in and perform this work. So we had a lot of questions, issues to clear up, and best practices to develop. Graham was very helpful in guiding us with this venture.”

California’s seismic requirements added an additional wrinkle. Clark Pacific wanted to install the windows with strap anchors that would allow the windows to move in the event of an earthquake. But they also wanted something to hold the windows steady during the precast panels’ two-and-a-half-hour journey from the company’s Sacramento manufacturing facility to Palo Alto.

“Clark Pacific had a great engineering team, and they designed the strap anchors in conjunction with us,” says Wilder. “That was really a collaborative effort to come up with a method of installation that allowed for both the required movement and the desired restraint during transport, while also delivering the aesthetic appearance that Stanford was looking for.”

“[Graham’s] technical staff helped in developing connections and getting the right material for the connections,” says Olson. “They provided timely responses to inquiries and connections to suppliers who delivered quality products.”

Adds DeRosa, “Working together, we put together a design that satisfied the building owner, the architect and met the needs of the installer.”

### ***Working together, the teams deliver.***

After receiving client approvals shortly after Labor Day, 2017, Graham manufactured and delivered more than 6,200 windows – beginning in December 2017 and continuing through early 2019 – to a destination on the other side of the country.

Clark Pacific, in turn, manufactured more than 14,000 panels, weighing 45,000 to 60,000 pounds each, and delivered them to Palo Alto in nearly 8,000 loads

“The sequence of delivery was critical and it was laid out to the day through the completion of the window installation,” says Wilder, noting that Graham Project Management coordinated delivery through weekly conference calls.

“Graham’s distance as it related to the schedule was some concern,” Olson admits, “but the main focus was getting a quality product for the client. Graham delivered on both the quality and the schedule.”

DeRosa recaps his team’s performance and is justifiably impressed, saying, “We customized the project, met the demand, and delivered a 6,200-window job, 3000 miles away in a pretty tight timeline.”

Olson agrees, saying, “Graham was responsive, cooperative, knowledgeable and an overall great team to work with.”



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