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CLARK PACIFIC PLOTS AMBITIOUS FUTURE IN THE GOLDEN STATE

Eight-lane Interstate 15 traffics a steady flow of bulk tankers from Cemex, CalPortland Co. and Mitsubishi Cement mills in the southern California high desert to the Los Angeles basin. Not all powder travels that far: Haulers have recently begun sharing the route with structural concrete loads dispatched from what is destined to be a fixture in West Coast precast/prestressed production and design-build work for generations.

With a 90-acre parcel and business plan offering commercial building owners and developers a prefabricated alternative to purely site-based construction, Clark Pacific opened its Adelanto plant in late 2017. The facility is located a few miles west of I-15 and about 75 miles northeast of Los Angeles. Production of prestressed double tee, columns and hollow core plank has commenced amid higher student housing, parking structure and office building demand across southern California and Nevada. Some current activity is a primer for building and infrastructure work linked to the Los Angeles-hosted 2026 Summer Olympic Games.

"The Adelanto plant allows us to better serve the market with our singular approach to construction," says Clark Pacific President Donald Clark. "We are changing the face of construction by moving work that is normally done at the project site to our nearby plants, where we can safely produce high-quality building products for projects throughout the region."

Citing a significant construction market labor shortage, where even well-managed projects run over budget and behind schedule, he adds, Clark Pacific's design-build model and prefabricated building systems provide owners cost and delivery certainty, along with resilient facilities. The producer partners with construction owners and design-build teams to develop and execute strategies for commercial and institutional projects of any scale across the Golden State and Nevada.

The Adelanto operation lies in a developing section of San Bernardino County and succeeds an older site in Irwindale, closer into Los Angeles. Bordered by open land harboring Joshua trees and staggered desert brush, the new operation becomes Clark Pacific's second, permanent precast/prestressed concrete site in southern California. It is situated about 50 miles north of an existing Fontana operation, east of Los Angeles, and expands the producer's fabrication and yard footprint to 135-plus acres in the market. The Adelanto and

Fontana plants parallel Clark Pacific's respective architectural and structural operations, West Sacramento (headquarters) and Woodland, in northern California. The four sites span more than 300 acres and a combined payroll approaching 1,500.

PRE-RECESSION ROOTS

Chino, Calif. fabricator and contractor Madole Engineering LLC installed a batch plant at Adelanto to parallel symmetrical double tee bed (390 ft.), column form (200 ft.) and Spancrete hollow core bed (600 ft.) expanses stretching from new 12,000-sq.-ft. maintenance and steel reinforcement shops plus adjacent 23,000-sq.-ft. office building. The batch plant has a drive through alley for mixer trucks, plus a second station with twin ribbon mixers charging buckets for hollow core plank. Madole Engineering detailed robust aggregate bin, cement silo and mixer mezzanine supports to ensure the batch plant structure meets seismic code provisions typical of southern California.

An expansive production line in Adelanto was initially envisioned under Hanson Structural Precast. It acquired the parcel in 2006 to replace precast/prestressed production lines operating on leased Irwindale and Chula Vista, Calif. sites. The deal occurred at the peak of a capital investment cycle Hanson Structural and sister Hanson Building Products America operations were enjoying ahead of the 2007 Hanson Plc and HeidelbergCement AG merger. With the deep recession still weighing heavily on parts of the merged North American business, Lehigh Hanson Inc., HeidelbergCement began to narrow its global focus to integrated cement, aggregate and ready mixed concrete businesses—and review Hanson Building Products operations in North America and the United Kingdom.

Clark Pacific acquired the Hanson Structural California assets in 2012. The Irwindale site enabled the producer to augment the Fontana plant's architectural precast output and more readily serve southern California and Nevada markets, especially parking structure and office building customers.

Adelanto site planning coincided with extraordinary market events shaping Clark Pacific's northern and southern California prospects and stature. In Los Angeles, developers and city planners were beginning to put a new face on downtown, starting with construction of the \$1 billion, 73-story Wilshire Grand Center, the tallest U.S. building west of the Mississippi. Opened in 2017, the 1,100-ft. hotel and office project is anchoring a wealth of central Los Angeles residential and commercial development, including parking structures and other precast/prestressed candidate work. During Wilshire Grand construction, the city learned of its successful bid to host the 2026 Olympics, boosting building demand for the better part of the next decade.

In northern California, Clark Pacific landed a riser contract for Levi's Stadium in Santa Clara, a project fast-tracked to afford the San Francisco 49ers a new home by the 2014 National Football League season. Greatly dwarfing that delivery—and indeed any other commercial building package in the history of North American precast/prestressed production—was a 2013-2016 structural and architectural product contract for Apple Park, Cupertino, Calif. It placed Clark Pacific at the heart of project exceeding 3 million square feet of building and parking structure space befitting a new headquarters for Apple Inc.



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The batch plant serving the Adelanto production beds combines new iron, including basic structure, twin 575-bbl. cement silos and a six-compartment, 180-ton aggregate bin, with a 450-bbl. silo and twin ribbon mixers transferred from the vacated Irwindale site. A 36-in., main charge conveyor belt transfers aggregate to the ribbon mixers or 10-yd. cone-equipped truck mixer alley through a flop chute. The plant mixers load buckets feeding the Spancrete hollow core line, while mixer trucks supply double tee and structural column beds and forms.



An eight-bunker aggregate stockpile structure frames the end of the batch plant section, which runs near the length of the Spancrete and structural product beds. Clark Pacific uses a Jonel Archer Batching system to centrally control the dry cast mix station and transit mixed concrete alley. Moisture control and proper water cement ratios are critical for the plant's zero slump concrete requirements. Jonel Engineering provided moisture probes for aggregate bins to offset any free moisture variability in lightweight and conventional materials; additional probes for the ribbon mixers dynamically adjust to any workability variation once all cement and additives are introduced. The two-step, real time measurement process ensures a consistent low slump product well suited for placement and casting.



PHOTOS: Madole Engineering (aerial); Concrete Products (stockpiles)

STRESSING SAFETY AND SUSTAINABILITY

As an industrial operator in California, particularly with high desert, San Bernardino County acreage hovering Los Angeles, Clark Pacific needs little incentive to conserve fresh water, capture non-process area runoff, and recycle process water. At the Adelanto plant, management is especially keen on the latter: Water from the plant mixers, mixer trucks and batch plant areas is settled in 13-ft. wide weirs, automatically adjusted to target pH levels by a Fortrans carbon dioxide treatment system, then conveyed to a Water Treatment Solutions EnviroSystem Model #15. With a 15-cu.-ft. filter press of 30 800-mm square plates, the EnviroSystem is equal to 100-gallon/minute treatment rates. Post-press water is pumped to a 3,000-gallon cone bottom storage tank supplying the batch plant plus mixer and truck washout areas through 2-in. lines.

Process water treatment and recycling, coupled with strong adherence to environmental and safety rules or regulations, demonstrate a commitment to sustainability at the Adelanto plant mirroring that of Clark Pacific's West Sacramento flagship. The Business Environmental Resource Center presented the company the 2018 Sacramento Sustainable Business of the Year award for green building, recognizing employers for sustainability-driven work practices. The Center particularly noted the producer's "dedication to environmentally friendly manufacturing and construction methods and significant reduction of environmental impacts at hundreds of construction sites across California."

"This is a testament to our efforts over the years to refine our environmental policies and the awareness we place on how our work can make a positive impact on sustainability and the environment," says Clark Pacific Environmental Manager Richard Maddux. "We look forward to making even greater sustainability contributions to all the communities we serve in the years to come."



PHOTO: Water Treatment Solutions

The Water Treatment Solutions EnviroSystem filter press and Fortrans CO₂ pH adjustment, plus settling and storage vessels, support water recycling key to sustainability measures at Clark Pacific's newest plant in Adelanto.



PHOTO: Madole Engineering



Mindful that worker safety and environmental management are top sustainability program priorities, Clark Pacific stresses the "One Company. One Life. Zero Injury." message throughout the Adelanto plant, from the gate, to the double tee bed, to a steel fabrication shop laden with welder protection gear and air quality assurance.



EFFICIENT ENCLOSURES

Adelanto plant permitting took place against a backdrop of record output for Clark Pacific's northern California operations, along with a continuing shift in commercial building specifications and practice—all favoring a savvy precast/prestressed producer mindful of design-build methods and willing to broaden its service offerings.

To extend long-held fabrication efficiencies that architectural and structural precast exhibit when compared to competing materials and methods, Clark Pacific recently introduced building panels with preinstalled windows. Such units are part of a new set of integrated structural and façade components, branded CP Campus Housing, that a) maximize mid-rise dormitory or apartment project flexibility; and, b) enable more owners and designers to leverage off-site construction for cost and schedule savings and to limit campus or community disruption. Clark Pacific tailors contracts around standard components: structural precast and integrated enclosure framed panel with windows; internal structural frame; three different prefabricated and factory-topped slabs to accommodate mechanical, electrical and plumbing; plus, provisions for floor-to-floor heights equivalent to other systems.

"Traditionally, each campus housing project is approached as completely new, yet when you compare jobs side by side, there is very little variance in structure and layout," notes Clark Pacific Director of Corporate Development Roy Griffith. "With CP Campus Housing, our custom manufactured systems are designed to work together to provide a cost competitive and durable building. Project owners tell us that they want to use more prefabrication and off-site construction, but don't know where to begin. CP Campus Housing makes it easy to start designing for prefabrication and brings full building packages to market in less time, with less risk and greater cost certainty, than competitors' solutions."

While owners and design teams are aware of prefabrication benefits, he adds, many project principals are not familiar with incorporating the method. By standardizing on structural and integrated façade components and simplifying the approach, CP Campus Housing accelerates the learning curve and presents project stakeholders the advantage of a prefabricated structural design early on.

Clark Pacific has equipped the northern and southern California operations for CP Campus Housing contracts. The program hit the ground running with Escondido Village Graduate Housing in Palo Alto, Calif. The collection of four residence halls, ranging from six

to 10 stories and providing a total of 2,400 beds, will bring the level of Stanford University's 9,000-plus graduate students in on-campus housing from 55 percent to at least 75 percent. The CP Campus Housing package will net 1.835 million sq. ft. of residences and just over 1 million sq. ft. of precast concrete and architectural glazing enclosure by a 2020 completion.

Clark Pacific has modeled CP Campus Housing on another branded program, Clark PARC, which offers parking structure owners and developers greater cost and schedule certainty when compared to competing methods or precast/prestressed peer systems. The pre-engineered parking solution is based on standardized plans, yet it customizable to meet unique project requirements and aesthetics.

Northern and southern California sales, engineering and production staff are both poised to execute Clark PARC and CP Campus Housing contracts while crafting additional value propositions for owners and developers receptive to minimizing site operations across narrower construction schedules—and knowing final construction costs and occupancy dates with high degrees of certainty.



Clark Pacific sees increasing traction among owners and developers for contracts covering complete building structure and enclosure systems fabricated offsite. In addition to scheduling and cost certainty over a 2017-2020 construction window, the value proposition for the Escondido Village Graduate Housing project (top), weighed against cast-in-place concrete alternatives, asserted: Less noise, air and water pollution, traffic congestion, roadway degradation and positive impact on safety when factoring the effect of routing 3,000-plus mixer trucks to the Stanford University campus in Palo Alto, Calif. That message will be stronger in southern California as Clark Pacific ramps up fabrication and deliveries from the Adelanto plant (above).