

2014 ACE AWARDS

CATEGORY 10

Best Building Project – GC (Over \$70 Million – General Contractor)

PROJECT

Lone Tree Medical Office Building

OWNER

Kaiser Permanente

GENERAL CONTRACTOR

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Lone Tree Medical Offices

Lone Tree Medical Offices is a 275,376 sf, state-of-the-art specialty medical center in south metropolitan Denver. The building is Kaiser Permanente's largest new Colorado facility in 40 years. Blending interior and exterior spaces through a combination of design transparency and views, the building creates a warm and welcoming experience for users and visitors in a highly sustainable, signature facility.

Developed on a greenfield site amidst a burgeoning sprawl of low-grade offices and mid-rise multi-family, this Class A building distinguishes itself as a jewel among thieves. This stunning masterwork of elegant form and efficient function, presents the client's members, staff and visitors with a reaffirming vision of 21st century health care.

Challenges and innovations addressed include:

- Aggressive schedule
- High-level technology integration in design, construction, team communication, project monitoring and final documentation
- A wide array of building materials required cohesion among specialized trades and material / equipment suppliers
- Rigorous client-driven QA/QC and safety inspection processes
- Interface with multiple Authorities Having Jurisdiction

In every aspect of design and construction, the building stands as a resounding testament to the near-limitless possibilities when true collaboration serves as the centerpiece of decision-making.

Solutions of Special Problems

A focal point of success on this project was A&P's positive long-standing relationships with the Owner, both architectural firms and many of the design subconsultants and construction subcontractors affiliated with the project. By leveraging the expertise of the many talented individuals engaged in the project and the deep personal connections that pre-existed among

many of the key participants, the team worked harmoniously to balance innovation and practicality, aesthetics, constructability, cost and schedule in the finished facility.

Aggressive Construction Schedule: The client's expectation was that the facility begin serving patients in December 2013. With groundbreaking in September 2012, the challenge was to construct a significantly complex building in just 14 months. Similar scopes generally take 16 - 17-months. Schedule collaboration was managed through a series of Bid Packages (earthwork and utilities, core and shell; interiors), allowing groundbreaking to take place prior to the completion of overall construction documents. A&P revised the initial master project schedule in increasing level of detail as bid packages were issued. This allowed precise schedule segmentation to compel cohesive trade flow and facilitated the client's monthly job walk by ensuring subcontractors were aware and prepared for inspections. The client-led inspection team reviewed progress area-by-area and identified any deficiencies. This allowed subcontractors to correct issues in stream without affecting subsequent trades. This acute sequencing/inspection process increased overall quality control and expedited implementation.

Integrating Diverse Exterior Building Materials: Designed to be a showstopper, the architecture merges a diverse pallet of exterior building materials, including terra cotta, glass curtain walls, metal panels and masonry in an exquisite ballet. The erection of an exterior mock-up slice detailed the multi-layered assemblies and facilitated the seamless interface of so many divergent materials. All trades involved in exterior erection worked together to develop the mock-up, expediting implementation and enhancing quality control.

Medical Equipment Coordination: Due to the dynamic nature of medical technology, equipment is constantly evolving, which includes changes in the equipment's spatial and power requirements. This in turn necessitated modifications to the building structure, floor-to-ceiling heights and internal wall placements throughout construction. A&P reinforced continual communication with vendors to understand the evolving spatial requirements of each apparatus. Additionally, in anticipation of future technological advances in medical science and equipment the building's overall structural capacity was increased mid-construction.

Excellence in project execution and management/team approach

A high-profile commission with state-of-the-art expectations, Kaiser Permanente insisted on a literal zero-tolerance deviation from ICC Specifications in every regard. A&P worked collaboratively with the client and design team to establish rigorous project controls including:

- An onsite leadership team;
- Multi-faceted technology integration;
- Daily trade inspections balanced against both QA/QC and schedule expectations; and
- Partnership with the client, designers and specialized equipment vendors to ensure the constructed facility would accommodate the spatial and structural capacity required by changing equipment.

Strong Onsite Presence: A&P maintained a multi-dimensional onsite presence throughout construction that included distinct offices for the Project Management Team; QA/QC Team; MEP Coordinator; Safety Supervisor; and the client's Project Management Group. Additionally, A&P's onsite Building Information Modeling (BIM) Manager, a licensed architect, was stationed in the Project Management office. The BIM Manager facilitated fluid coordination between A&P and the dual-architect led design team - troubleshooting coordination conflicts as they arose. This robust onsite brain trust enabled all facets of the project team - owners, designers and builders - to resolve challenges face-to-face. This saved time, money and effort, while streamlining documentation tasks and enhancing both quality and team comradery.

Financial Resources Managed Within \$100,000 of Budget: Absolute transparency and real-time estimates complimented by cost-trend tracking of design and material decisions allowed the client to understand the first cost and long-term operational cost of each decision. During construction, similar methodologies allowed the team to make adjustments regarding changing equipment requirements or project eventualities.

Construction innovations/state-of-the-art advancement

The client-driven progress review process necessitated monthly total-team job walks over and above the weekly Owner/Architect/Contractor Meetings. The inspection process was further intensified by the client's desire to use the project as a model process for future construction and the oversight of multiple regulatory review agencies.

Multi-Layered Project Inspections: Beginning with the client's internal project review process, which included tiered inspections by a MAT team, oversight spiraled outward to include two distinct municipal Authorities Having Jurisdiction and the Colorado Department of Public Health and Environment. A&P's strong onsite presence allowed inspectors immediate access to every level of the project leadership team. Any issue that arose during a client or regulatory inspection benefited from the onsite team's ability to analyze every aspect including cost, quality, constructability, design and aesthetics in a collaborative, real-time environment. Ultimately, this expedited best-case issue resolution.

Technology-Driven Construction Management: Every aspect of Construction Management integrated innovative technologies to increase design and construction coordination, documentation and quality control.

- Auto Desk 360 BIM Field drove the QA/QC program resulting in a rolling completion list as construction progressed.
- Multivista Construction Documentation, resulted in a detailed photographic record of every assembly throughout the building during construction.

Collectively, these systems enabled "within-the-walls knowledge" while creating a living Operations and Maintenance Manual. Tablet technology allowed owners, designers and builders to walk the jobsite with hand-held access to every facet of project documentation further enhancing the "team-think" mentality to problem solving.

Environmental/Safety

Environmental Considerations: The team incorporated numerous sustainable design features into the building in support of the client's desire for an environmentally and socially responsible building. Achieving LEED Silver Certification, the building incorporated many green initiatives including:

- Use of building materials with recycled contents and lower toxins
- Water-use reduction of 20 percent through xeriscaping and low-flow plumbing fixtures
- Energy-use reduction targeted at 20 percent through Xcel Energy conservation measures built into the project
- Shading devices installed in window wall system to help balance solar heat gain

Safety Considerations: Both A&P and Kaiser Permanente maintain a culture of safety and very high safety standards. Together, our zero-injury approach began with a project-specific safety plan in the preconstruction phase. A&P engaged a dedicated Safety Supervisor, who worked on site and conducted daily inspections. Other high impact techniques included:

- Centralized site check in station
- Pre-task planning
- Mandatory site orientation meetings for everyone entering the site including Subcontractors, Owners, Inspectors and Visitors
- Daily communications briefings on planned activities, equipment movements, utility connections/shutdowns
- Site badging;

Once construction was complete, A&P conducted a comprehensive sterile infection control cleaning of the entire building. This included wiping all surfaces with long-acting antiseptics, wet mopping floors with disinfectant and vacuuming floors, walls ceilings and all surfaces with HEPA filtered vacuum as well as cleaning ducts and systems..

Once the initial sterile cleaning was complete, A&P's site auditor worked with the client's Safety Department and Infection Control Department to conduct a thorough site inspection to verify the

completion of all work within established guidelines. Following that inspection, A&P performed a second sterile cleaning and a final air quality test before releasing the site.

Key Safety Indicators:

Total Man Hours on Job:1,023,669

OSHA Recordable Incident Rate: Zero

Lost Time Accident Rate: Zero

Excellence in client service and/or contribution to community

“Since 1988 when A&P completed their first project for KP they have consistently delivered high quality construction management services; they work with us and the A&E consultants as a team, solving the issues together. Their teams have helped to save on both costs and time for multiple projects. A&P has completed more than 70 projects for KP in Colorado; projects ranging from a 1,000 SF remodel to the largest project to date for KP Colorado: the \$86 million 300,000 SF, Lone Tree Medical Offices. Their dedication to our staff and members always goes above and beyond expectations.”

Martha Carlson, Sr. Project Manager

Kaiser Permanente







