

# Tech Savvy

Silicon Valley hospital embraces its environment

Article by Amy Eagle • Photography by Michael O'Callahan

Revised state seismic regulations prompted the construction of a technologically advanced replacement facility at El Camino Hospital, Mountain View, Calif., which is designed to support patients and families, create operational efficiencies and adapt to future needs. The new building can withstand earthquakes and earth-shaking changes to clinical or operational practices.

**PROJECT OVERVIEW**

**PROJECT NAME** El Camino  
**LOCATION** Mountain View, Calif.  
**TOTAL FLOOR AREA** 469,304 square feet  
**NUMBER OF FLOORS** 5  
**NUMBER OF BEDS** 231  
**PROJECT COST** \$480 million  
**CONSTRUCTION COST** \$262 million  
**GROUNDBREAKING DATE** May 2006  
**OPENING DATE** November 2009

**PROJECT TEAM**

**OWNER** El Camino Hospital  
**ARCHITECT** KMD Architects  
**GENERAL CONTRACTOR** Rudolph and Sletten Inc.  
**INTERIOR DESIGNER** Millican Jones  
**INTERIOR DESIGN CONSULTANT** K2A Architecture + Interiors  
**MEP ENGINEERING** Mazzetti  
**Nash Lipsey Burch (M+NLB)**  
**STRUCTURAL ENGINEERING** Thornton Tomasetti  
**MEDICAL EQUIPMENT PLANNING** RTKL Associates Inc.  
**LANDSCAPING** Design + Planning at AECOM (formerly EDAA)



The urgent care area of El Camino Hospital's emergency department denotes comfortable efficiency.

## Digital displays convey hospital's message

**E**l Camino Hospital uses an integrated digital communications platform with electronic art, messaging, wayfinding and scheduling systems that work together to engage, soothe and inform patients, visitors and staff.

Electronic artist Charles Woodman's "American Diorama" is installed in the surgical waiting room and the critical care unit family respite area. This 45-minute audio-video presentation synchronizes images and sounds from across the United States, from Cape Cod to California, across five screens. With its artistry and measured pace, the piece is meant as a calming diversion for people in these two high-stress areas of the hospital.

Between each 45-minute presentation, the hospital may broadcast its own videos of announcements, events or physicians discussing their latest research.

This type of messaging is also incorporated into the digital artwork system by Roundtree Visuals, Emeryville, Calif., built into the hospital's public elevator lobbies. These pieces feature nature images and inspirational quotes that hospital staffers can enter into a central control panel and schedule to appear throughout the day. They may also add announcements and marketing or branding messages.

The reams of paper tacked on public and staff bulletin boards have been consolidated on digital billboards—five for community announcements, one for human resources and education messages and one for donor and volunteer recognition. These serve to celebrate accomplishments, inform people about upcoming events and educate them on health and hospital-related issues.

The digital wayfinding kiosks have interactive, three-dimensional mapping animation. They are linked to the hospital's scheduling system for instant updates of meeting, class and event times and locations.

A digital display next to each meeting room in the hospital's conference center lists all activities taking place in that room during the day. These, too, are centrally controlled and can be updated automatically.

From art to information, the entire system is designed to communicate the hospital's message clearly and beautifully. ■



**TOP** A surgery waiting area on the second floor features "American Diorama," a 45-minute digital art piece.

**BOTTOM** A digital nature wall display in the third-floor elevator lobby, which features a view to the roof bamboo garden.



### COMING UP GREEN

A two-story garden lounge on the ground-floor concourse adds a touch of nature to the high-tech patient care environment.

**Supportive environment** KMD Architects, San Francisco, designed the low-profile facility with a gently curved front that "reaches out to the community," says Nancy Jones, design director with Novato, Calif., interior planning and design firm Millican Jones.

The exterior curve is echoed in the main lobby's ceiling and flooring patterns. Curves and elongated arcs throughout the building — down corridors, in architectural gestures above nurse stations, along the top of patient room casework — compose a repeating melody and counter melody in the design,

says Jamie Millican, IIDA, CID, Associate AIA, principal, Millican Jones.

In the main lobby, a two-story glass wall showcases a courtyard garden, one of several gardens included in the design. Stretched fabric ceiling forms and high-impact, washable, fabric-wrapped acoustic panels along the walls help maintain a quiet environment in the open public space.

A concourse leads to the existing hospital, which has been renovated for outpatient and support services that require a lower seismic performance rating than that

needed for acute care. Retail spaces along the concourse have window displays, rather than open storefronts, to create a more elegant backdrop for the garden and simplify wayfinding. "We deliberately limited the exposure to visual noise" that might unduly distract patients or visitors, says Millican.

### Technology and innovation

El Camino Hospital bills itself as "The Hospital of Silicon Valley," and *Popular Science* magazine dubbed it the "most advanced facility ever." Automated robots deliver supplies

in the building, patients can register using biometric scanners, and patient beds in the critical care environments can translate common hospital phrases (such as "What is your pain level?") into 24 languages, among many other sophisticated clinical and communication systems in use at the hospital.

Rob Matthew, AIA, LEED AP, EDAC, principal and director for health care facilities, KMD, says the hospital's high-tech equipment and operations were integrated into the building design without compromising the layout. For example, the corridors did

not have to be widened to accommodate the delivery robots, a welcome change from just a few years ago when code officials consulted by KMD indicated this type of equipment would require a separate path marked off beyond the standard corridor clearance. Matthew attributes this to advances in technology and the public's comfort with it. According to Ken King, the hospital's chief administrative services officer, patients now expect the same technological infrastructure they have at home, at work and at their local coffeehouse.

### Accommodating change

To create an environment in which technology and innovation will continue to thrive, the project team worked to design a building that can accommodate future change.

They explored a number of structural alternatives with engineers from the San Francisco Bay area offices of Thornton Tomasetti. The decision to use a moment frame system rather than a braced frame gives the hospital open bays that can be modified more easily.

A braced frame has a lower first cost, but King says the moment frame will pay for



**CRITICAL COMFORT**

The seriousness of the hospital's critical care patient rooms do not detract from their homelike touches and attractive views.

itself in the first 10 years of replacement equipment projects. "Having that flexibility in the building makes it less expensive ... to do the renovations and remodels that you are inevitably doing because of technology and obsolescence," he says.

To make updates even easier, the hospital's operating rooms and special procedure rooms are designed as "plug-and-play" environments that can be taken off the hospital grid for renovation. "The gasses, the power, the air systems, the communication systems — everything in the room can be shut down without impacting the room next to it or any other room," says

Matthew, who credits the MEP engineering work of Mazzetti Nash Lipsey Burch (M+NLB), San Francisco, and the commitment of hospital leaders.

**Efficiency and flexibility**

The hospital also was designed with a number of operational efficiencies to leverage the capital investment in the new building. Inpatient and outpatient radiology are consolidated, with separate entries and circulation routes for emergency, inpatient and outpatient care. This design saves on the duplication of space, equipment and highly-trained staff.

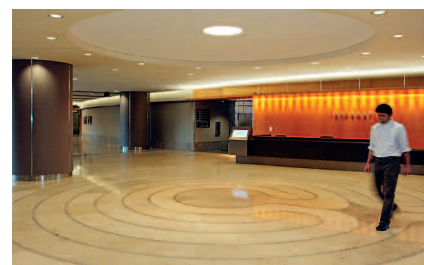
The patient units are bridged by a number of patient rooms

that can be served from nurse stations in either of the connected units, allowing the size of a unit to flex. Distributed support spaces reduce walking distances for nurses. Walking distances also were reduced by placing the patient bathrooms along the outboard wall of the units. "You don't have that vestibule to walk past, six or seven feet or so each time, coming and going," Matthew explains.

This layout also improves visibility into the patient rooms from the decentralized nurse stations. These are

located across the corridor from the patient rooms to keep patient information from being visible over nurses' shoulders and to enable nurses to face the corridor as they work, rather than turn their backs to it. "There's an innate level of anxiety when strangers are behind your back," says Matthew.

Even the public spaces of the hospital are designed for flexible use. A labyrinth is worked into the lobby floor pattern to be used for walking meditation in the evening or at night. The



**FINDING THE WAY**

The first floor main concourse features a labyrinth-patterned marble floor and information desks.

demonstration kitchen adjacent to the hospital dining area can be closed off to create a private dining room.

**Significant accomplishment**

King calls the new facility El Camino Hospital's "most significant accomplishment since the original opening in 1961." The forward-thinking design is made to serve the community for years to come, whatever the years may bring. **HFM**

Amy Eagle is a freelance writer based in Homewood, Ill., who specializes in health care-related topics. She is a regular contributor to *Health Facilities Management*.



**SPEC SHEET**

**PRINCIPAL DESIGN MATERIALS** **Carpet:** Bentley Prince Street Inc. and Mohawk Industries **Carpet tile:** Mohawk Industries and Tandus Group Inc. **Ceiling:** Armstrong World Industries Inc., Decoustics and USG Corp. **Curtainwall framing:** Walters & Wolf Inc. **Door hardware:** Assa Abloy, Door Controls International Inc., Overhead Door Corp.'s Horton Automatics div. and Yale Security Inc. **Doors:** VT Industries Inc. **Flooring:** Altro Floors, American Terrazzo Co., Concept Surfaces, Forbo Flooring Systems, Mondo, nora systems Inc., Solnhofen Stone Group and Tarkett **Glass:** GlasPro, Pulp Studio Inc. and Skyline Design **Lighting:** Acuity Brands Inc., Arch Lighting Group Inc.'s Architectural Lighting Systems, Belfer Group, Birchwood Lighting Inc., Boyd Lighting, Cooper Industries Inc., Delray Lighting Inc., Eurolight, Focal Point, Kirlin Co., Leucos and Philips Group **Paint:** Benjamin Moore & Co., Dunn-Edwards Corp., Imperial Chemical Industries and Kelly-Moore Paint Co. **Plumbing accessories:** Bobrick **Plumbing fixtures:** Danfoss, Delfield Co. and Zurn Industries **Resin panels:** 3form Inc. **Signage:** Hackley Architectural Signage **Tile:** Apavisa Porcelanico, Caesar Ceramics USA Inc., Casa dolce casa, Ceramica Cisa, Crossville Inc., Daltile, Emileramica and Impronta Italgraniti USA Inc. **Wall coverings:** Carnegie, Steelcase Inc.'s Designtex, JM Lynne, Knoll Inc., MDC Wallcoverings, Maharam, Maya Romanoff Corp., Omnova Solutions Inc., RJF International Corp. and Wolf-Gordon **Window treatments:** MechoShade Systems Inc. **PRINCIPAL FURNISHINGS** **Cafeteria seating:** Design Within Reach **Cafeteria tables:** West Coast Industries Inc. **Casework:** Mid Canada Millwork and Mission Bell Mfg. **Conference tables:** Bretford Inc., Coalesse, Herman Miller Inc. and Nevins **Critical care patient beds:** Stryker **Files and shelving:** Bretford Inc. and Herman Miller Inc. **Lounge seating:** Coalesse, Cumberland Furniture, Geiger International Inc., Krug, Martin Bratrud and Patricia **Office desks:** Geiger International Inc. and Herman Miller Inc. **Office seating:** Allsteel Inc., Herman Miller Inc. and Humanscale **Patient beds:** Hill-Rom **Patient over-bed tables:** Nurture by Steelcase **Patient room seating:** Brandrud, JSJ Furniture Corp. and Wieland **Patient room message boards (custom):** Peter Pepper Products Inc. **Woodworking:** Mission Bell Mfg. **MAJOR MEDICAL EQUIPMENT** **Magnetic resonance imaging, computed tomography and positron emission tomography-computed tomography scanners:** Siemens Corp. **Nurse call:** Rauland-Borg interfaced with Vocera Communications Inc. **Operating room booms:** Getinge Group and Stryker **Patient lifts:** Getinge Group **INFRASTRUCTURE** **Air-handling units:** Huntair **Building management system, fire safety and security:** Siemens Corp. **Chillers:** Ingersoll Rand **Electrical equipment:** Schneider Electric **Elevators:** Otis Elevator Co. **Generator:** Caterpillar **Kitchen equipment:** Garland Group, Gaylord Industries, Hobart, Victory Refrigeration and Wells Bloomfield **Palm scanners:** Fujitsu

Information provided by El Camino Hospital and KMD Architects



PROFILE

**Nature enhances patient and staff comfort**

Connecting the inside and outside world was a keynote of the design of El Camino Hospital, according to Rob Matthew, AIA, LEED AP, EDAC, principal and director for health care facilities, KMD.

"When you are in an environment in which people may be in a state of anxiety, being able to have respite areas, views to natural settings and the ability to focus some distance away, rather than being in an enclosed environment, is really important. Not just for patients but for staff, so they can collect themselves," he says.

The hospital has been described as "the perfect blend of technology and comfort," says Ken King, chief administrative services officer, El Camino Hospital. The facility is located on a 41-acre parklike site with views of the Santa Cruz mountains, the city of San Jose and nearby foothills. The site has over 1,300 trees, 300 of which were added during the hospital's construction. Thirty heritage trees were relocated on-site in the course of the project. Parking areas are tucked in among the trees.

A courtyard garden is the focal point of the main lobby and concourse; this garden is accessible at ground level off the hospital's dining area. A terrace garden and meditation garden are also available to patients, visitors and staff.

Another courtyard garden serves as a visual buffer between patient units. This garden is designed to help people relax as they enter the units; it also provides a wayfinding cue.

Where a direct connection to nature was not possible, the designers emulated one. In the hospital's below-grade dining room, stylized nature scenes on glass panels by Cheryl Gordon of K2A Architecture + Interiors, San Francisco, are backlit with a gradually brightening sunrise effect that repeats roughly every 20 minutes. As Jamie Millican of interior planning and design firm Millican Jones explains, "It's a gesture of hope." ■

**ABOVE** A ground-level garden courtyard and respite area brings visitors in touch with natural elements.

**BELOW** A third-floor greater desk in the corridor to the critical care unit provides a view of the courtyard.

