The USF Health Center for Advanced Medical Learning & Simulation (CAMLs) is envisioned as a world-class, state-of-the-art, approximately 90,000 square foot medical education conference facility. Beck is both the architect and general contractor for CAMLS, a first-of-its-kind for the nation that will revolutionize how to learn, practice and perfect advanced medical skills of tomorrow.

The facility, located in Downtown Tampa, will transform the training of healthcare with simulation-based education. CAMLS will also focus on designing and testing new medical devices and technologies in the Research and Innovation Lab. CAMLS – where people, technology and learning converge to shape tomorrow’s healthcare, today.

The University of South Florida and USF Health (Tampa, FL) desired to develop an urban location for their academic programs, and thus purchased property in downtown Tampa.

The three-story CAMLS facility is approximately 90,000 square feet in size and houses:

- 60,000 SF for surgical skills labs, operating suites, lecture halls, exhibition halls, auditoriums, robotics lab, virtual hospital/simulation center, research and innovations lab on the first two floors;
- 30,000 SF of office and general classroom space.
Project site

- CAMLS, which encompasses a half city block facing Franklin Street in downtown Tampa, sits on a 1.2 acre site.
- Tight site tolerances; the project had a zero lot line. This was quite a feat considering the site sits between two major arteries in downtown Tampa.
- Only seven feet were clear at times between the construction crane and a 600-volt trolley catenary line.
- Because CAMLS sits within the Franklin Street District, downtown Tampa’s highly active pedestrian-friendly corridor, the first 20 feet of the building along the Franklin Street side was required to include retail, personal service or public facility uses.
- Additionally, 12% of the site was dedicated to public open space.
- Beck’s project team had zero safety incidents during construction.

Team

- The Beck Group served as the Design/Builder.
- RS&H was commissioned as a Vivarium Consultant.
- Structural Engineer: Walter P. Moore
- Civil Engineer: WilsonMiller Stantec
- Mechanical/Electrical/Plumbing Engineer: Affiliated Engineers, Inc.
- Beck worked with medical equipment providers, who were located worldwide, to coordinate the installation and functionality requirements.
  - The Beck team worked with the Philips’ European design team to develop the first system in the U.S. that incorporates elements needed for both the Ambient Surgical Lighting and the C-Arm Technologies within a Hybrid Catheterization Lab.
  - Globally, this is one of first instances where Philips has completed this integrated system.
  - In addition to this integration of systems, the Beck team worked with all of the medical equipment companies so that their designs and equipment installations complied with U.S. standards.
  - This required a high level of coordination. So much so, that Beck dedicated a full-time team member to oversee this process.
  - USF CAMLS houses one of largest collections of Stryker equipment in the U.S. It is also the first to utilize Stryker’s SuiteStream Telecommunications System allowing seamless video conferencing across the web.
  - The Beck team incorporated USF’s medical equipment installation into the building’s overall construction schedule.

Economic Impact

- CAMLS expects to draw more than 30,000 health professionals each year to the City of Tampa for training.
- The City expects CAMLS to also help generate new companies and jobs, such as medical device manufacturers.
- The facility’s guests will boost downtown hotels, restaurants and retailers and is anticipated to generate nearly $6 million a year for Tampa.
USF Health Center for Advanced Medical Learning and Simulation (CAMLs)
Tampa, Florida

Seeking LEED®-NC Gold Certification
Size: 90,000 SF
Services provided: Design/Build
Architect: Beck
Construction Manager: Beck
Cost: $38 million

Design Features
• Over 13,000 square feet of architecturally finished cast-in-place concrete.
• Concrete wall pour operations were closely managed to ensure consistency in the field.
• There is a seven-degree lean to the building’s west face, which creates an architectural feature, as well as adds square footage to the floor above.
• The building measures 70 feet in height.
• The public lobby’s main wall is finished with a finely detailed laminate wall panel system from Italy. The system includes both walnut and textured white laminate panels, which are held in place by an intricate aluminum fastening system. This is the first time this new advanced system has been installed in the world.
• The building’s exterior is accented by over 500 linear feet of Philips Color Kinetics architectural LED lighting, the height of a 50-story building.
• The heart of the building is the large, highly advanced lecture hall. The outside of this space is delineated by a curved, micro-perforated, walnut acoustical wall panel system. The panels were manufactured in St. Augustine, Florida.
• The project includes a custom-frosted glass guardrail system that is point fastened to the side of the concrete stairs/landing. The glass panels seem to float along the stair, fastened only at the bottom by an elegant, machined aluminum fastener.
• Exterior metal panels have three different sizes of perforations in the metal panels. These both help to create both dynamic lighting conditions on the interior, and an active exterior elevation.

The Golden Section
• In architecture, one of the basic principles of balancing space and proportion is the golden section. Homage to this number is featured on the first floor of CAMLS.
• Beck’s design team chose to feature this number because the golden section’s application yields pleasing, harmonious proportions.
• A famous illustration of the use can be seen in daVinci’s ‘Vitruvian Man’. This applies to CAMLS in two parts:
  • The proportions of the human body, as seen in the ‘Vitruvian Man’, were used to improve the function and experience of the architecture.
  • The number connects the skill of design and the art of the human body together, which is the focus of Beck’s design/build process.

Sustainable Features
• USF Health CAMLS is anticipating LEED-NC Gold Certification.
• LEED (Leadership in Energy and Environmental Design) rating system was created by the U.S. Green Building Council. After meeting certain prerequisites, projects can earn LEED certification levels. There are four levels of LEED certification: certified, silver, gold and platinum.
• Sustainable materials were selected from local, renewable, recycled or recyclable sources.
• Glazing is insulated, partially reflective and low-E filtered.
• Staff work spaces are well lit with natural daylight, with ample views to the exterior, except for those requiring special security.
• The perforated metal panel screens that wraps the exterior of the building, act as a sun screen over the south, east and west glass curtainwall. The panels were manufactured by a local Tampa company, McNichols.
• Plumbing fixtures are low-flow to conserve water.
• Construction waste, as well as foundations from previous structures discovered on-site during excavation, were recycled.
Facility
• At 90,000 total square feet, this is the largest facility of its kind in the world.
• All of the nearly 40 surgical stations are equipped for actual surgery.
• 68 medical equipment and lighting booms manufactured by Stryker, the heaviest of which weighs over 1400 pounds.

First floor features. The Surgical and Interventional Training Center (SITC) which houses the largest surgical facility in the United States:
• Three surgical skills labs with 39 surgical stations
• A trauma operating room
• Robotics training room with two high-tech daVinci robots
• 11 operating microscopes
• A synthetic cadaver
• 64-slice CT scanner
• High-definition scanner that is first of its kind for CT angiography.
• A hybrid operating room where two normally divided sets of medical rooms are combined into one. This operating room is the first of its kind and the only one in the world.
• Ambient light and morphing colors can change the mood the room to simulate different environments, like a battlefield.

Second floor features mostly education facilities:
• A semicircular, tiered auditorium, hard-wired for satellite video-conferencing, audience response system, digital recording and high-speed internet access with Wi-Fi and direct connection capabilities that can seat 200 people.
• Three, flexible-seating, 50-seat classrooms where USF classes are held.
• Amphitheater-style, tiered fixed classroom for seating up to 45.
• Executive board room which can seat up to 38
• Exhibit space and a built-in registration area
• Kitchen and dining space, with catering area, which can accommodate up to 250 people.

The third floor contains:
• Virtual Patient Care Center (VPCC) which houses:
  • More than a dozen smaller training rooms
  • Six patient exam rooms
  • Three debriefing rooms
  • Five larger team training rooms
  • Training pharmacies
  • VPCC is also the beta test site for the world’s first laparoscopic hysterectomy simulation module.
• Tampa Bay research and Innovation Center (TBRIC)
  • Medical faculty, engineers, computer scientists, management experts and industry partners can meet to work on projects, like how to develop better medical devices
  • One of the Innovation rooms, affectionately named the ‘War Room’, is paneled with a dry erase system called ‘Wall Talkers’ so that faculty, researchers and teams can write their ideas on the walls.
  • A rapid prototyper, a three-dimensional printer, produces silicone models such as pediatric teeth and gums, all to scale. The printer uses seven materials to replicate seven different densities. This can be used to print replicate of bone, tissue, muscle, etc. The prototypes can then be used by students for practice in the classroom.

Construction Timeline. It took 13 months to construct the project from design inception to completion.

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<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>02/06/2012</td>
<td>USF Health conducts first class with students</td>
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<tr>
<td>01/31/2012</td>
<td>Certificate of Occupancy is granted from the City of Tampa</td>
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<tr>
<td>09/01/2010</td>
<td>USF releases Beck to begin Design</td>
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<tr>
<td>01/11/2011</td>
<td>Ground Breaking</td>
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<tr>
<td>08/25/2012</td>
<td>Topped Out</td>
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<tr>
<td>03/30/2012</td>
<td>Grand Opening</td>
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