CERNER INNOVATIONS
PHASES I & II
KANSAS CITY, MISSOURI
At the intersection of Health Care and Information Technology sits Cerner Innovations, Cerner Corporation’s latest addition to the Kansas City landscape. The street names reflect the vision and mission of the world’s largest publicly-traded health information technology company.

JE Dunn Construction Company was the General Contractor for Phases 1 & 2 of Cerner Innovations, which is located in Kansas City, Missouri, east of I-435 between 87th Street and 95th Street (East Bannister Road).

Phase 1 is an 11-story office tower served by a twelfth floor mechanical penthouse. North of Phase 1 is Phase 2, an eight-story office tower served by a ninth floor mechanical penthouse. The two towers are connected by the four-story Connector building, which has a fifth-story rooftop terrace.

South of and contiguous to Phase 1 is the Link, a two-story structure which will eventually link Phases 1 & 2 with Phases 3 & 4. The latter two phases are in the planning stage.

The Phase 1 tower and the Connector building contain a total of 465,517 square feet; the Phase 2 tower contains 315,763 square feet; and the Link contains 77,259 square feet. The total square footage of all four buildings is 858,539.

The Central Plant serves all of Phases 1 & 2 and is located on the east side of Phase 1, on the first floor. Future phases will have their own Central Plant.

JE Dunn mobilized to the site on January 19, 2015. Phases 1 & 2, including the Connector, are scheduled to be completed on time by the end of 2016. The Link is scheduled to be completed on time in March 2017. The four buildings were coordinated and constructed concurrently in order to meet the fast-track schedule, said Kyle McQuiston, Vice President/Project Executive, JE Dunn.

JE Dunn self-performed the concrete, masonry, rough and finish carpentry, and precast concrete erection. They reached a peak of approximately 650 workers during the fall of 2016, when they were finishing all scopes of work including the sitework, landscaping, and final layer of asphalt for the parking areas.

About 3,000 employees, mostly software engineers, will begin moving into Cerner Innovations in January 2017. The entire project calls for a total of eight additional towers on the 258-acre site, with construction projected to take approximately 10 years, said Mike Gillaspie, Cerner’s Director of Facilities Development. Cerner Innovations is the largest economic development project in Missouri’s history, he added.

The complex is in an area that was either undeveloped or formerly home to Bannister Mall, the Montgomery Ward & Co. building, Benjamin Stables, and Hypermart USA. (Phases 3 & 4 will be built where the Hypermart was.)

**PROJECT TEAM**

The JE Dunn project team includes Kyle McQuiston; Curtis Golba, Vice President; Matt Jansen and Will Thilen, Senior Project Managers; Kevin McPartland, Mike Schmelig, and Mark Patras, Project Managers; Jamison Clark, MEP Engineer; Cassie Morrison and Cherie Caughern, Senior Project Engineers; Hillary Kaub, Nick Dutton, Jerad Croghan, Emily Held, Sam Breitenbach and Nick Woodard, Project Engineers; Mitch Swymeler, Quality Specialist; Andrew Letsch, BIM Specialist; Kim Sanders, Linda Webb and Shanna Clausen, Project Coordinators; Dan Kanzler, General Superintendent; Jason Prutt, Doug Prutt, Dave Evans, Paul Cook, Matt Gregg and Clark Bowden, Project Superintendents; and Miss GG Owens, Community Relations Representative.

Cerner Property Development, Inc. (CPDI) is the Owner. Cerner contracted with Grand Construction to be the Owner’s Representative. Cerner Properties and Facilities will operate the facility.

Gould Evans is the Design Architect and the Architect of Record. Gould Evans was represented by Tony Rohr, AIA, National Managing Principal; Deb Ford, AIA, Project Architect and Vice President; Todd Ault, AIA, Associate Vice President; Jay Browning, AIA, Senior Project Architect; Emily Harrold, AIA, Interior Designer; Doug Hurt, AIA, Senior Project Architect; and Nick Christopher, AIA, Matt Pauly, Nick Baumgart and David Parks, AIA, Project Designers.

The project is expected to meet the 15% Minority Business Enterprise (MBE) and 10% Woman Business Enterprise (WBE) goals for participation. More than 40 MBE/WBE trade partners have performed work on the project.

**COVER PHOTO**

West elevation. Phases 1 & 2 of Cerner Innovations near completion on December 12, 2016. The Phase 2 (north) tower is at left. The Phase 1 (south) tower is at right. **(Photo by Paul Kivett)**
Cerner’s Fourth Major Complex

Upon entering Cerner Innovations from 87th Street to the towers, Hillcrest Road has been renamed Health Care. From the roundabout west of Phases 1 & 2 to East 93rd Street, Hillcrest Road has been renamed Information Technology. The Phase 1 & 2 towers are numbered 1024. This address, which is for Cerner’s internal property use, converts in bytes to one kilobyte—a reference to technology.

The official Cerner Innovations address on file with the City is 8779 Hillcrest Road. This address was chosen to reflect the company’s history, said Mike Gillaspie. The number 8779 recalls the year the company went public (1987) and the year it was founded (1979). The number 87 was placed before 79 because the Unicode symbol for 8779, a triple tilde [≡], refers to Three Trails, the name by which the complex was originally known.

Cerner Innovations is the company’s fourth major complex in the Kansas City area. The other major complexes are: Cerner World Headquarters Campus at 2800 Rock Creek Parkway; Cerner Realization Campus at 10234 Marion Park Drive; and Cerner Continuous Campus (pictured below) at 1024 Information Technology Way. The latter campus is located at the east edge of the Legends Shopping District, near Interstates 70 and 435.

JE Dunn and Grand completed Cerner Continuous Campus in May 2014. Its two nine-story office towers provide office, conference and support spaces for 4,000 employees and are connected by a dining facility and health clinic. The entire complex contains a total of 650,000 square feet and was named “Continuous” because it houses client support operations that are open 24 hours a day, seven days a week.

Gould Evans was the Design Architect and Architect of Record for the Cerner Continuous Campus as well.

Leveraging Technology

Integration and utilization of advanced technology at Cerner Innovations was a top priority for JE Dunn, said Andrew Letsch, the company’s Senior VDC (Virtual Design and Construction) Specialist.

“In recent years we have made a significant investment in technology to enable groundbreaking innovation, increase efficiency, and collaborate more frequently with all trade partners,” commented Andrew. “Buildings have become more complex and schedules tighter. This has created a need for tools that reduce worker hours, rework, and waste. Our advanced and widespread use of technologies such as Building Information Modeling (BIM) have transformed the process of design and construction throughout all phases of the project lifecycle, from conceptualization through project completion, resulting in substantial savings in construction costs.

“On the Cerner Innovations project, we leveraged BIM 360 Glue, Autodesk’s cloud software,” he continued. “Models from several players were brought together and clashed for conflicts or design issues. After the conflicts were identified and submittals reviewed, trade partners could confidently send their models to fabrication, allowing installation to be done correctly the first time.

“The real value is the efficiency gained during construction. A total of 175 trade models, 25 JE Dunn models, and 10 design models were compiled to create federated models using BIM 360 Glue. Leveraging the cloud greatly enhanced team collaboration by allowing all team members access to the project models at any time, on any device.

“During installation, trade partners’ field staff used iPads for unfettered access to cloud models that were updated in real-time. This is a more Lean-oriented approach to the typical siloed approach using Navisworks, which is a static model. With the tight schedule and constantly changing scope of work, the cloud-based software allowed field staff to keep up with the changes.

“Near project completion, coordinated trade models were linked with operation and maintenance data to help facilities management easily find maintenance cut sheets for specific equipment. The owner can use the intelligent or ‘smart’ models for facilities management over the life cycle of the buildings,” added Andrew.
A Mutual Stake in Safety

An Owner-Controlled Insurance Program (OCIP) was used to cover virtually all liability and loss arising from the project. “Managing safety through an OCIP was new to the team, but with Cerner placing a major emphasis on safety and our team seeking ongoing enhancement of its safety culture and protocols, this project presented the perfect opportunity for us to collaborate,” said Joey Smith, Safety Coordinator, JE Dunn.

“Setting clear expectations and being transparent with tradespeople and trade partners was an important step in furthering our mutual goal of a safe work environment. Everyone onsite had a voice in identifying and correcting potential safety risks and every voice was heard, giving workers a sense of ownership in their personal safety.

“A ratio of one safety manager to 30 tradespersons was maintained for each contractor, and a full-time nurse was also dedicated to the site. This helped support the goal of zero incidents. We want all tradespeople to go home safely to their families at the end of each workday,” added Joey.

Building Overview

The two towers have reinforced concrete framing. The framing for the Connector building is concrete up to level three and steel above level three. The Link building is all structural steel due to its complex nonrectilinear shape.

The HVAC uses a direct air system. The first two floors of Phase 1 are fed from outside air units which pull the air in, allowing those floors to be zoned individually. When there is an evening event, the HVAC can be running for the level 1 and 2 lobbies without being turned on in the rest of the building.

Similarly, the mechanical room in Phase 2 contains the HVAC systems for levels 1 and 2, including the health clinic, fitness center, lobby spaces, and the User Experience Lab – each of which can be zoned off.

In both towers, levels 3 and above are fed from their respective mechanical penthouses. The penthouses have a series of HVAC units and relief units (all of which are direct outside air units) that feed the desired zones as needed.

The Central Plant provides the chilled water and hot water for the boilers. This water feeds out to all the individual units. The outside cooling tower allows for water to be chilled as needed for particular floors.

The floor plans in both towers primarily include open workspaces which have been left open to the concrete structure above for an industrial look. In certain areas, ceiling panels (“clouds”) were hung within the concrete pans for acoustical purposes. Ceiling panels were also used throughout the corridors, where they conceal most of the mechanical and plumbing. A 6”-high access floor in the workspaces provides space for electrical wiring. All air conditioning ducts are overhead.

Rain Screen

The towers and the Link have an exterior stainless steel rain screen. The stainless steel was purchased in the United States, where it went through several processes including decoiling (in which the coils of stainless are unwound, made flat, and cut into sheets), and stamping with a linen texture.

The individual sheets were shipped to Walldürn, Germany, for the Light Interference Coating (LIC) process. Initially, a small number of coated sheets were returned to the United States to be incorporated into the rain screen mock-up that was made onsite. The LIC process involves controlled oxidation of the stainless, which thickens its naturally-occurring chromium oxide layer so that it reflects only certain wavelengths of light and has the desired coloration. The chromium oxide layer is UV resistant and has a finish warranty of 50 years, noted Curtis Golba.

The following stainless finishes were used on the towers: Bead Blasted Charcoal, Linen Charcoal, Linen Natural, and SWL Natural. The following types of stainless finishes were used on the Link: Bead Blasted Magenta; Bead Blasted Gold/Green; and Chocolate Bronze and Titanium for approximately 30,000 square feet of aluminum composite material. The stainless finishes used at Cerner Innovations help distinguish it from the Continuous Campus, where Linen Natural and Sharkskin Wheat were used.

The stainless sheets were crated and transported from Walldürn to Hamburg, where they were loaded into containers and shipped back to the United States. Upon arriving in Kansas City by rail they were delivered to Flynn Midwest, LP’s shop. Flynn Midwest fabricated the sheets into the final panels and installed them using swing stage (Hydra deck) scaffolding. Prior to this, added Curtis, Flynn Midwest was responsible for installing the new air barrier system, insulation, structural girts and extrusions to support the stainless panels, and glazing (photo below).

Training spaces for new employees are located in the Phase 2 (north) tower, on level 3. Floor-to-ceiling glass fronts were used to create a more open and collaborative environment.

Cerner Innovations Phase 2 (North) Tower: North Elevation

The efficient sequencing of the exterior skin and enclosure of the towers was facilitated by use of a Hydra deck mobile scaffold system on the perimeter of both towers simultaneously. The exterior framing, installation of the windows, and installation of the substructure for the rain screen were performed from the respective Hydra deck work platforms, which helped drive the schedule. The Hydra decks are driven by gas-powered motors and were loaded every morning with all the materials needed for the day. The decks travel up (and down) the silver mast sections (or posts), which are made of steel and are structurally anchored (bolted) to the concrete floor slabs.

The white portion on the exterior is the air barrier, which has been sprayed over the green portion, which is an exterior-grade gypsum board product. Once the air barrier has been sprayed, the window frames can be set. The silver diagonal galvanized portions hold the insulation in place and are part of the substructure for the rain screen panels, which lock into the aluminum back member sections (the dark vertical lines). The tower crane is independent of the Hydra deck, and is being used to load the roof with materials. SPandrel glass is used at the floor levels to conceal the concrete slab.

In the last few years Grand and JE Dunn have completed almost $500 million of work in place for Cerner Corporation. None of it has been simple. We have had to deal with challenges on all fronts, including budgetary and scheduling issues, but we have been blessed with strong leaders within the JE Dunn team who are good at keeping their eyes on the end goal and not becoming distracted. Thanks to the team we have every reason to believe that the end users will be extremely happy with the completed projects.

– Rory O’Connor, President, Grand Construction Company LLC

(continued on next page)
Phase 1 level 3 has a large meeting room with walltallkers (which have a high gloss paint surface) and back-painted glass (which provides a high-tech feel) for dry erase presentations.

**THE DESIGN PROCESS**

“Cerner’s expectation is that design decisions reinforce their corporate attributes and goals. They really enjoy and insist on there being great meaning behind the design,” said Tony Rohr. “Cerner Innovations is different culturally from the Continuous Campus in that because of the nature of what they do, people at Cerner Innovations move across and up and down the buildings more frequently, collaborating and going to meetings. To reflect this interaction between levels, we wanted the rain screen and the window patterning at Cerner Innovations to span more than one floor. At Continuous Campus, the rain screen sits on the slab edge, but at Cerner Innovations the rain screen system runs past the slab, and strips of glass span two floors.

“At Continuous Campus we also worked with the rain screen providers to achieve multiple depths from the outside of the skin to the glass, which helped create a patterning of depth and shadow on the building,” continued Tony. “We did some of this at Innovations, but not as much. Cerner Innovations really represents another evolution in the way DNA is used artistically in the patterning of the skin. Most of the exterior glazing is concentrated toward the center, where there are the most areas of collaboration inside. The rain screen becomes more concentrated toward the edges because that is where most of the ‘heads down’ space is.

“One of the things we learned from Cerner’s IP [intellectual property] engineers is that they spend a certain amount of time during the day with their teams talking about what they have accomplished and what they are working on, and whiteboard this information at collective team meetings,” explained Tony. “Many of their engineers said that when they go back to their work they don’t want to be distracted, they don’t want too much light, they need heads down time. That’s why we made some of the floors quieter and not completely bright, and other areas full of natural light. The design was very purposeful.”

**NODES**

Each tower has neighborhood nodes which will help employees move from one floor to another. Each node will also have its own purpose, from a library to a game room to a maker’s space.

“The nodes are significant because of Cerner’s decision to create these special places that combine floors where you can go to relax, or to use the other side of your brain, or get away from your computer and do something active. They allow for a little bit of rejuvenation, a little bit of a break. The nodes give the floors character, variety, and uniqueness that Cerner asked for in terms of helping enhance their culture. Their technology engineers were very helpful in determining what these nodes should be,” added Tony.

**CONNECTOR**

Visitors to the Phase 1 & 2 towers park on the west side of the Connector and enter the grand entrance lobby on level 1. This lobby features a metal panel barrel vault ceiling that extends from the second to the third level. A wide stairway connects the first and second levels. The second level opening around the stairs has glass rails to enhance the open feel.

On the south side of the lobby, a wall of blackened steel panels extends from the first level to the second level. On the south side of this wall is a patent tree with existing patents and room for future patents. Polished concrete flooring is used throughout levels one and two.

On the east side of the Connector is an outdoor courtyard with a fireplace and board-formed concrete walls that lean outward to the second level.

The Connector’s fifth-floor outdoor rooftop terrace has furniture and planters and will serve as a gathering place. Its 12”-high rooftop paver system conceals a series of roof tile anchors. Window cleaners can remove the pavers and hook their rigging to the anchors in order to clean the glass facade. On the east and west side of the roof are 3/4”-thick laminated glass wind breaks attached by structural caulking to “knife blades,” which hold the glass in place. The knife blades were custom-designed to meet the wind loads and are bolted to the concrete decks.

The first floor of the Link contains dining facilities that will serve Phases 1 & 2 and eventually Phases 3 & 4. There are three dining pods in the Link with a variety of food options. The back-of-house kitchen is located on the east side of the first floor of Phase 1, near the loading dock. On the second floor of the Link is a 1,000-person conference space that is divisible into six spaces.
The main part of the Link faces west. A series of sawtooth fins were used on the west side of the building to reduce the solar load, which also reduces the amount of natural light into the main level and second floor. The sawtooth fins extend from the main level up to the canopy. To bring more light into these areas, three rooftop monitors were added on the west side of the Link; the monitors face north.

Cerner wanted to be able to make the conference space black for presentations, said Todd Ault. Therefore the large glass walls on the north side, which can pick up natural light from the roof monitors, can also be blacked out.

On the south side of the Link is a first floor patio with a cedar clad ceiling which will eventually tie into an outdoor patio space. The patio space is next to a section of land (between the Link and the planned Phase 3) that will serve as a floodway for the site. A second floor patio terrace, outside the event conference room, has a deep overhang (also cedar) to provide shade.

The Link has shear walls with exposed x-bracing. There are four exits: a stairtower at the north end of the Link, an exterior stairtower at the southwest corner, an exit on the north through the tower, and a monumental stair located in the dining space (image on page 5).

PULLING TOGETHER

The second floor of the Phase 2 (north) tower has a health clinic and pharmacy where employees can pick up prescriptions. Fitness stairs connect the health clinic to the fitness facility on level 1. The fitness facility serves Phases 1 & 2 and will also eventually serve Phases 3 & 4. The guardrails for the fitness stairs outside the health clinic, as well as the main lobby stairs in the Connector, reflect Cerner’s culture and vision.

“We embedded several quotes about health and health care from Neal Patterson [Chairman and CEO of Cerner] and Cliff Illig [Vice Chairman and Co-Founder of Cerner] into the railing systems,” said Tony Rohr. “We went through a list of quotes from their leadership over time, and Cerner’s client team helped us pick out the ones they thought were the most relevant.”

Curtis Golba recalled that as JE Dunn was preparing to pour the second level, the original design was altered to provide for the fitness stairs. The change reflected Cerner’s belief that the health clinic and fitness facility are intrinsically married, commented Todd Ault. JE Dunn installed a block-out to create an opening in the flat slab for the fitness stairs and the pour was made on schedule, eliminating the cost of saw-cutting out the slab and performing structural modifications. “This was a great example of the team pulling together,” said Curtis.