

BEST OF
2007
AWARDS

Samsung Austin Semiconductor Fab A2, Austin

Judges Award - Construction



Working under a breakneck schedule, the Samsung Austin Semiconductor Fab A2 project team brought the largest chip manufacturing factory in Texas to substantial completion in just 12 months.

The team juggled 200 construction packages and faced a fast-track start while design continued, putting in place an average of 3 sq ft of structure per minute. Construction of the \$880 million plant was complete in June, kicking off a months-long process of installing manufacturing equipment and getting the factory ready for commercial production of advanced flash memory chips before the end of the year.

Boasting three floors of fabrication clean room and sitting on more than 2,000 piers, the A2 consists of approximately 1.5 million sq ft of cast-in-place structure with a steel truss roof under a building footprint that covers an area the size of nine football fields.

Challenges included a hyper fast-track

schedule, relocation of multiple personnel, temporary power distribution, setup of 80 construction trailers, equipment mobilization, early material procurement and incomplete documents prior to project start in the form of seven different core and shell bid packages.

Building several levels at the same time, steel trusses began when one-third of the third floor was done. Steel erection was completed in 2.5 months. During the concrete phase, 700 to 800 craftspeople worked on the project daily, sometimes in double shifts.

Once construction moved into the mechanical, electrical and plumbing phase, about 2,000 tradespeople were onsite, some 24 hours per day. The project has been hailed by Austin city officials as a “next-generation center” for the semiconductor business – one of only five in the United States.

The Fab A2 is more than four times the square footage of Samsung’s original Fab built by Hensel Phelps at the Austin cam-



Key Players

Submitted by: Hensel Phelps Construction Co.

Owner: Samsung Austin Semiconductor, Austin

Architect: PageSoutherlandPage, Austin

MEP engineer: Kinetic Systems Inc., Austin

Structural engineer: PK Brown, Austin

Civil engineer: Baker-Aicklen and Associates, Round Rock

General contractor: Hensel Phelps Construction Co., Austin

Construction manager: Samsung Texas Construction Inc., Austin



pus 10 years ago, yet the allotted schedule was nearly identical. Two days after notice-to-proceed, the first rebar hit the job-site, and on the fifth day the first vertical concrete was placed. To meet the aggressive schedule, six tower cranes had to be procured and erected within 30 days of notice-to-proceed.

With approximately 2,300 columns on each of the three, 450,000-sq-ft floors, the variety of forming systems went from a flat slab to a pan deck to a through waffle—with 36-in. and 16-in.-diameter holes creating the waffle.

The largest of the jobsite cranes was the massive Lampson LTL 1100 Transi-Lift used to erect the roof trusses for the new Fab. The LTL-1100 was configured with 400 ft of main boom and 180 ft of jib, totaling 580 ft of live boom and an overall length from tip to counterweight of about 700 ft.

Assembly of the LTL-1100 took approximately three to four weeks for a crew of eight to 10 workers. Three smaller “support” cranes were required for assembly

for approximately 110 truckloads of components including mats, counterweights, boom sections and crawlers. Operation of the LTL-1100 required one specialized operator, two crawler operators and another hoist operator.

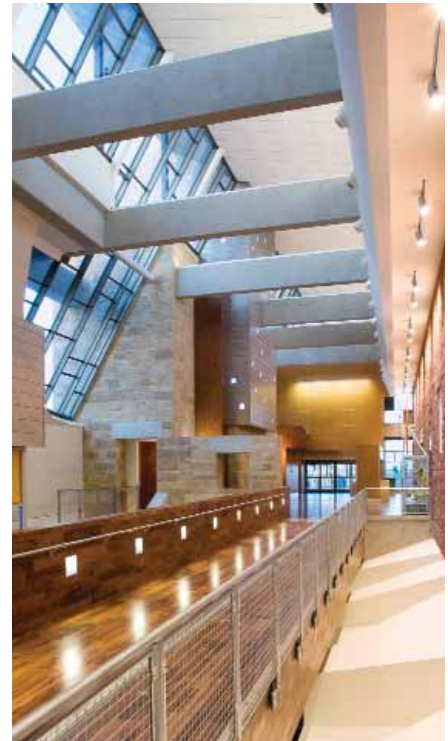
The project team completed this fast-track project in 187,855 total hours with only two minor recordable incidents. <<



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Dell Children's Medical Center of Central Texas, Austin

Judges Award - Design



The design of the Dell Children's Medical Center of Central Texas - the first hospital in the world designed to achieve LEED platinum-level certification - reaches beyond the structure itself to include the entire site and its surroundings.

The developer, city officials, Seton Health and the design team were equally involved in defining the design guidelines for the site. It was evaluated based on ingress and egress of visitors and emergency vehicles, as well as building placement in relation to future gardens and views of the city skyline.

Building materials and building size were also discussed in meetings between those involved in the project and neigh-

borhood commissions because the project was essentially setting the tone for future development on the site.

Initial studies led to a low, horizontal building profile of three floors above ground, which fit in well with the surrounding community. Changes in the topography of the site allowed for entrances at multiple levels of the building, which supported the hospital's programming. The first level is a service/maintenance floor; level two is dedicated for outpatient services; level three is the main floor of the hospital and includes the main entrance and public spaces as well as a separate entrance for the emergency department; and level four is primarily made up

Key Players

Submitted by: Karlsberger

Owner: SETON Network Facilities, Dell Children's Medical Center of Central Texas, Austin

Architect: Karlsberger, Columbus, Ohio

General contractor/construction manager: White Construction Co., Austin

Civil engineer: Bury+Partners Inc., Austin

Mechanical engineer: ccrd partners, Dallas

Structural engineer: Datum Engineers Inc., Austin

LEED Consultant: Center for Maximum Potential Building Systems, Austin

Landscape architect: TBG Partners, Austin

of inpatient care units.

Diagnostic and treatment areas were developed in conjunction with surgery, while a central Healing Courtyard was created that would be accessible from all levels and serve as a hub for the diagnostic, treatment and patient room components of the program.

In addition to the Healing Courtyard, the hospital features five other courtyards, each of which represents different ecosystems found within the hospital's 46-county service area. The courtyards are one of several green design features incorporated into the facility.

With a goal of ensuring natural light everywhere within 32 ft of an exterior wall, the courtyards help to provide daylight to 80% of the facility. They also serve as the "lungs" of the building and provide oxygenated and uncontaminated air to the air-handling units distributed on each floor of the hospital.

A particularly sustainable feature of the project is the development of an onsite combined heating power plant. Utilizing



the most efficient natural gas-fired turbine available (as compared to a coal-fired electric generation plant,) the CHP is 75% more efficient at converting primary fuel to useful energy. Because it is located onsite, there is no transmission loss. This results in a 42% savings in primary energy utilization when compared to a typical power delivery model.

The plant also creates steam as a waste by-product that has multiple benefits. First, the steam is distributed to the hospital and is used for heating, food service preparations and in medical equipment related processes. This steam is also used in absorption chillers to create chilled water, which is also distributed to the hospital. <<