The new building follows the same footprint as the previous structure, and has two secondary entrances on its south side that maintain existing pedestrian circulation paths. These entrances are now marked by a recessed, two-story porch with informal seating, offering a welcome respite from the hot Texas sun. Campus design guidelines for buildings within the historic campus core, calling for distinct bases, mid-sections, and tops, were followed by CO Architects while creating a contemporary building. The two-story based façade is made from light buff limestone similar in hue to the granite on the signature University of Texas Tower, which is visible from the new facility. The base is composed of a syncopated rhythm of solids and voids that form a backdrop to the broad tree-lined avenue following the length of the building. The middle layer combines red-brown brick matching adjacent buildings with glass. The roof represents a marked departure from the traditional red-tile roofs, which would have been inappropriate, given the height and scale of the building. Instead, CO Architects created a large overhang as a support for solar hot-water generation. The expansive, perforated-steel roof overhang allows filtered light to penetrate in the winter, while also providing shade to the entire south façade in the summer. The play of light through the south-side mounted perforated steel is a contemporary interpretation of the older, traditional overhangs on campus that often feature visible undersides of painted buttresses or other decoration.

The main entrance is a two-story atrium at the southeast corner that opens onto a tree-covered plaza, which is a gathering place for students, staff, and pedestrians who approach from Speedway Mall (the main campus thoroughfare). Above the entrance, the four-story glass volume contains informal lounges featuring sofas, tables, and chairs, and wheeled marker boards. Filled with light, and providing dramatic views to the surrounding campus, the recessed volume results in a landscaped outdoor terrace overlooking the entrance plaza.

For NHB, CO Architects and UT collaborated with the Lawrence Berkeley National Laboratory to use the building as a case study that would implement the “Labs21” approach. Labs21 is a system for energy-efficient laboratory environmental performance that encourages laboratory owners and operators to make capital investments based on life-cycle cost savings, to pursue advanced HVAC systems, to recover waste heat, and to incorporate renewable-energy sources. In addition to labs and other spaces that required temperature adjustment for occupants, some of the equipment itself had special temperature-control needs. To help keep samples, materials, and laboratory equipment cool, the neuroscience research labs require 150 gallons per minute of process chilled water. The 12,000 gallons per day of air-handling Unit condensate generated is
reused for process cooling water for equipment cooling with a projected project savings of 22,000 ton hr/year. The water is then routed back to the campus central plant saving UT 4,300,000 gallons per year in cooling-tower make-up water. That, in addition to utilizing non-portable water for irrigation and low-flow plumbing fixtures, reduced building water use by 40%.

Heating energy was reduced by 90% by the 1,394-square-meter roof-mounted vacuum tube water-heating array that connects into the building heating water system, yielding savings of approximately 1,800 mmbtu/hr of heating energy. Many other proven strategies were adopted to obtain energy and water savings, and attain a LEED Gold rating:

⑴ Variable air-volume HVAC systems
⑵ Local re-circulating cooling units for equipment rooms and high heat-load spaces
⑶ Cascading air from surrounding spaces into high fume-hood density labs
⑷ Variable frequency drives for all air- and water-moving equipment
⑸ Photocell sensors to control lights when rooms are unoccupied
⑹ Automatic daylight controls
⑺ Low-VOC, recycled-content, and local materials
⑻ City of Austin “purple pipe” reclaimed-water irrigation system
⑼ Storm-water retention system
⑽ Daylight harvesting system
⑾ Diverting 82% of construction waste from landfill

The combination of green design measures, in addition to the energy-efficient design of the LT Campus systems, yielded excellent energy-saving results. Compared to an ASHRAE 90.1 base-case model for the building, it achieved 19%