

# SHOWCASE

# 6



 **Methodist**  
Healthcare  
Olive Branch Hospital

*Reaching Out*

## Methodist Olive Branch Hospital

GRESHAM, SMITH AND PARTNERS





METHODIST OLIVE BRANCH HOSPITAL

# REACHING OUT





#### CLIENT

Methodist Healthcare

#### LOCATION

Olive Branch, Mississippi

#### MARKET

Healthcare

#### SERVICES

Architecture

BIM

Interiors

Mechanical Engineering

Electrical Engineering

Plumbing Engineering

Landscaping

Signage/Wayfinding/Environmental  
Graphics

Structural Engineering

#### TEAM

PIC Gregory A. Gore, AIA, NCARB

PM Mack McCoy, AIA, NCARB, LEED AP

PP J. Brent Hughes, AIA, NCARB, EDAC,  
LEED AP BD+C

PP David N. Zegley, AIA, LEED AP

PC Andrew Holcomb, LEED AP

PD Gregory J. Wieland, AIA

PID Jane S. Skelton, NCIDQ, IIDA,  
EDAC, LEED AP

PID Ashley Roller

Betty J. Crawford

John David Chesak, PE.

Glenn T. Davis

John D. Brew, PE.

Lauren Harris



Focal walls provide an opportunity to display work from local artists, creating a connection with the local community.

**B**ordered on the north by the Tennessee/Mississippi state line, DeSoto County, Mississippi, has experienced tremendous growth over the past two decades. With nearby central Memphis losing residents at an unprecedented rate, DeSoto County suburbs such as Southaven and Olive Branch have been absorbing these migrating citizens.

In an effort to attract an estimated 47,000 northern Mississippi residents who travel across the state line to receive healthcare services, Memphis-based Methodist Le Bonheur Healthcare (MLH) elected to build a 100-bed, full-service, faith-based hospital in the growing city of Olive Branch.

## TEAM MEMBERS AS EQUAL PARTNERS

With the vision of creating a sustainable, state-of-the-art facility for \$100 million, MLH chose to implement an integrated project delivery (IPD) model to maximize its limited budget. As part of a unified team, GS&P, Smith Seckman Reid (SSR) and Turner Construction Company were selected to design and build the new hospital. The innovative tri-party agreement would require the collaboration of all team members as equal partners, reinventing the traditional owner/architect/contractor relationship.

“We had recently teamed with SSR and Turner, utilizing the IPD approach on the design and construction of Middle Tennessee Medical Center,” explains Greg Gore, GS&P





The main lobby monumental stair encourages physical activity, while creating an architectural anchor.

senior architect and principal-in-charge on the project. “IPD is essentially an integrated scheduling technique that foresees any out-of-sequence work that needs to be completed and allows the team to make early, informed decisions that benefit the project.

“Methodist needed a 100-bed hospital and had \$100 million to do the total project. That wasn’t just the construction—that included medical equipment, furniture and everything else that was going into the project. So we used an IPD tool called component team pricing, sometimes referred to as target value design. In short, we took the construction portion of the project and broke it down into smaller components—such as interior, exterior, heating and power budgets—and had weekly meetings with the owner

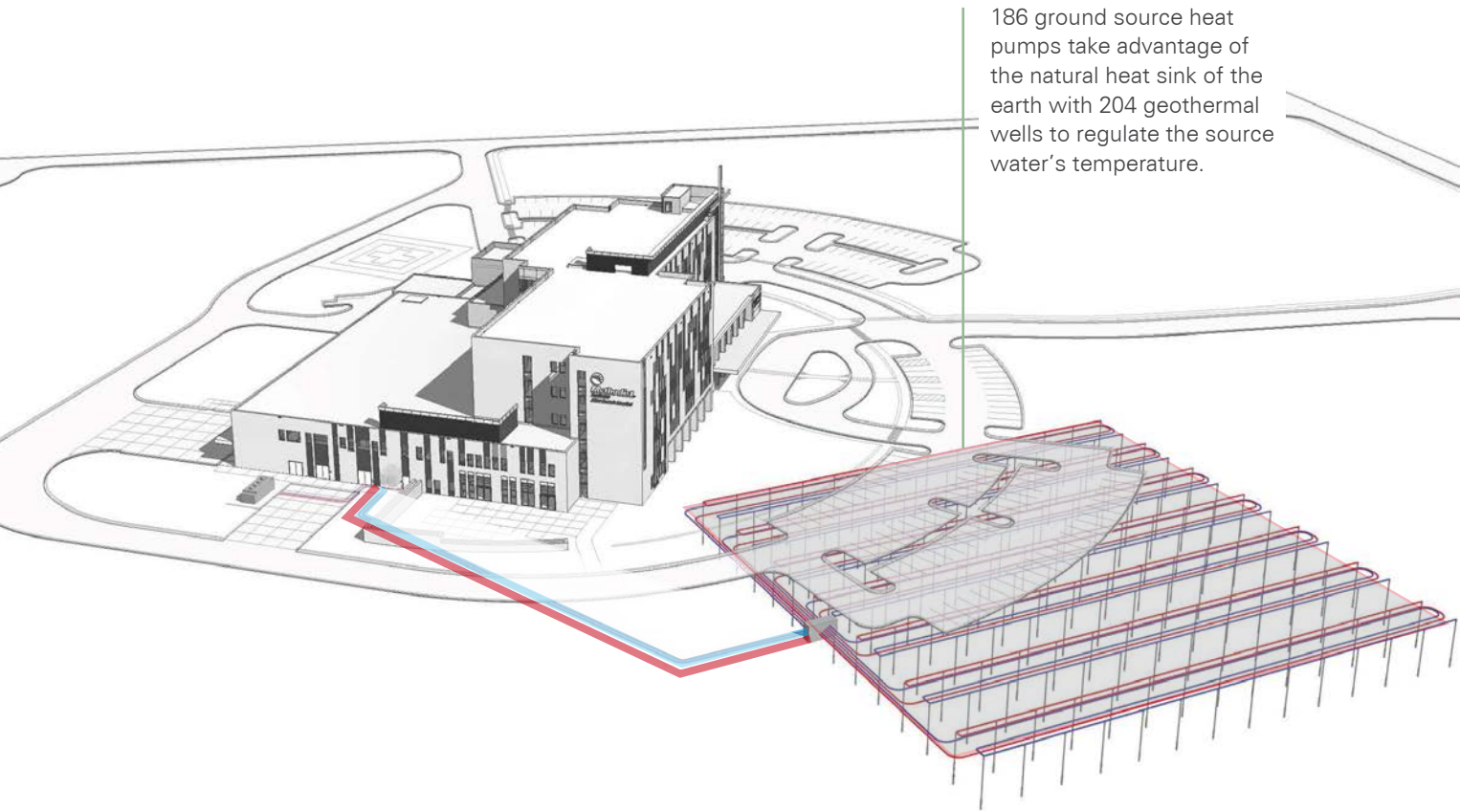
and contractor throughout the design process where we tracked the pricing. If we knew that one of the areas was going over budget, we could start taking actions to pull it back in. That’s how we were able to make sure the tight budget we were working with stayed on track.

“The biggest benefit of this whole process is that, as designers, we know where we stand on the budget at all times and know what we can or can’t design to. And there’s no end-pricing with this tool, so you don’t get to schematics or design development and find that you’re over budget. It’s a much leaner process for everyone involved, but we stayed on top of the budget all the way through the project, and of course that was crucial to the client.”

The use of building information modeling (BIM) also saved project

time and ultimately money by facilitating clash detection prior to the official release of documents. The implementation of this process—which enables the effective identification, inspection and reporting of interferences in a 3-D project model—allowed all building systems to be seen, analyzed and coordinated prior to working in the field, and enabled multiple disciplines to work together simultaneously.

“A model of the facility was uploaded every week so that the contractor and owner could see the progress,” says David Zegley, GS&P architect and project team member. “If we added extra square footage to the building, they would know right off the bat that this change had been made, and that subsequently the budget was going to change too.”



186 ground source heat pumps take advantage of the natural heat sink of the earth with 204 geothermal wells to regulate the source water's temperature.

## A COMMITMENT TO SUSTAINABILITY

Along with adhering to the limited budget, another key objective of the project team was to design an energy-efficient hospital that reflected Methodist Healthcare's commitment to sustainability.

In order to meet the energy-use goals of the client, the design team implemented energy-saving strategies such as the use of LED lighting; dynamic, photoelectric glass; and leading-edge geothermal heat pumps.

"A key energy efficiency component of the project was the use of the geothermal heat pumps," says GS&P architect and project team member Brent Hughes. "To get LEED credits, your building often suffers with energy consumption because you've opened up a lot of natural daylight that increases the heat load in the building. That in turn increases the stress on the mechanical system, which makes it run less efficiently.

"Since water is seven times more efficient at carrying heat than the traditional air handler, we installed geothermal heat pumps—186—throughout the building, including one in each patient's room. The pumps take advantage of the natural heat sink of the earth with geothermal wells that regulate the source water's temperature."

Utilizing the innovative system throughout the facility is projected to return an annual energy savings of 25 percent, with a five-year return on investment. However, the installation of the eco-friendly pumps presented the GS&P team with a number of unique logistical challenges.

"Each patient room has its own dedicated pump in a shared closet that allows individualized climate control," explains Zegley, "and it really was quite a challenge getting all those in. We had to determine how



## The innovative system is projected to return an annual energy savings of 25 percent, with a five-year ROI.

many closets were needed and how big each would need to be. It's pretty significant when you start putting down 8 x 6 closets every 200 square feet throughout a building."

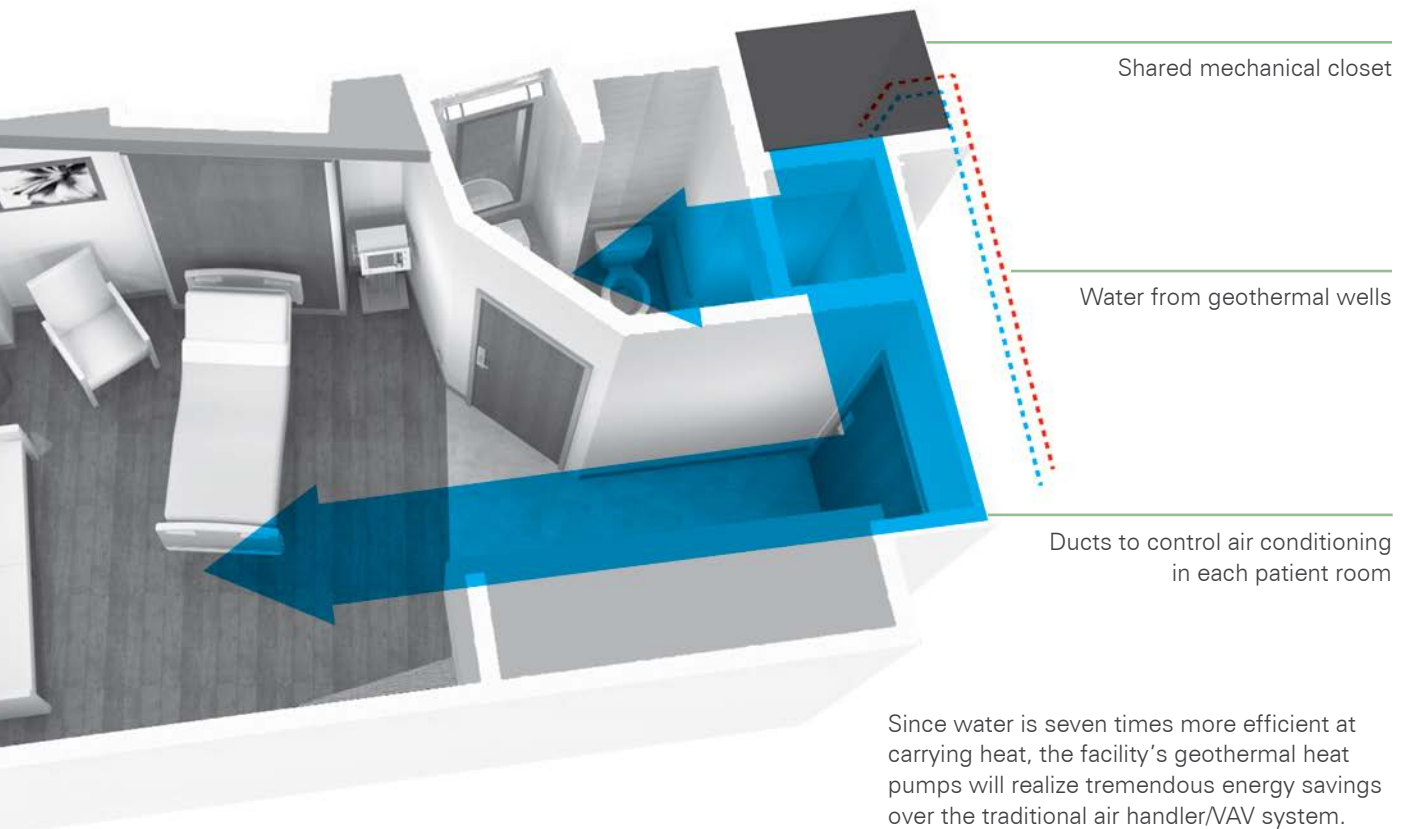
"We also put backed, louvered doors on the pumps that create soundproofing because we wanted a quiet building," adds Jane Skelton, GS&P senior interior designer and project team member. "We then painted the doors to match the walls, so it all blends in and essentially becomes an architectural function."

"Methodist Healthcare is very willing to innovate and be the first to try something, like adding those

extremely complex heat pumps," says Hughes. "This will only be the third time they've been used in a U.S. hospital facility."

Another pioneering decision made by MLH was to glaze the hospital's two-story lobby with dynamic, photoelectric glass, making Methodist Olive Branch Hospital the first building in the United States to use this revolutionary type of glazing.

"The glass electronically dims at certain set points," explains Gore, "and has the ability to transition from a clear to a variable tint at the touch of a button, so it gives operators the ability to reduce glare and solar gain. For instance, if you have a western exposure in the afternoon you can almost make it opaque. But at night you can set it to become clear again."







- 2 OPERATING ROOMS
- 6 ICU PATIENT ROOMS
- 1 HYBRID OR
- 1 CATH LAB & SUPPORT AREAS



## ROOM TO GROW

With growth patterns for small, greenfield hospitals often difficult to predict, Methodist Healthcare challenged the project team to design a hospital that would easily adapt to the ever-changing nature of health care. To achieve this, the GS&P team employed a design solution that not only gives the new facility room to expand, but also provides it with remarkable flexibility.

“We designed a lot of shell space into the facility that allows the hospital to grow within the existing building as its needs change,” says Hughes. “If you weren’t thinking ahead when designing a 100-bed hospital, you would probably locate surgery on the first floor with the ED and radiology department. But of course, we were planning ahead for future expansion, and so we moved surgical services and the intensive care unit up to the second floor, which is actually more customary for a larger hospital.”

“As designers, we were charged by Methodist to develop a master plan that incrementally grows the facility,” adds Gore. “We had to show them how you could take the hospital logically up to 200 beds and beyond. In the long run, the facility has actually been master planned for 400 beds.”

In addition to room for growth, flexibility was a major part of Methodist Healthcare’s vision for the new hospital. To facilitate this adaptability, patient areas and clinical

spaces were designed to have dual purposes, serving as overflow areas that will reduce wait times and improve the overall patient experience. Additionally, the connection of the hospital’s two main entrances will allow for overflow seating and promote simple wayfinding.

“We really tried to be lean within the facility and to make it as flexible as possible by building in inherent surge capacities,” explains Gore. “For example, the pre-admission testing area is immediately adjacent to the emergency department, and the pre-

admission testing rooms are also designed as emergency rooms. That gives tremendous flex capacity when ED volumes are running high on nights and weekends.”

“On the surgical floor we have a centralized prep and recovery area for out-

patients instead of the surgery, cath lab and endoscopy departments each having its own prep and recovery,” adds Hughes. “That just duplicates a lot of services in the hospital and increases the staff size. So we’ve consolidated prep and recovery into the one concise area that makes it much more lean and efficient for the facility.”

Also augmenting flexibility, the size of the central nurse station was dramatically reduced due to the incorporation of smaller, decentralized work alcoves (located outside each patient room) that enhance the nursing staff’s interaction with patients.

“We designed a lot of shell space into the facility that allows the hospital to grow within the existing building as its needs change.”

—Brent Hughes



## WORKING WITH THE SITE

While the location selected for the new hospital contained more than enough total area for the current program and future expansion, closer investigation revealed two wetlands and a protected blue-line stream that traversed the 40-acre site.

“Methodist’s public outreach doesn’t just extend into the surrounding community—it radiates out into the world.”

—Jane S. Skelton

These unexpected site limitations were to have an enormous impact on the design of the building, affecting its location, orientation, façade and landscaping strategy.

“The detection of the stream and wetlands affected the entire master plan,” reflects Gore. “We not only had to balance environmental impacts, but also, growth patterns and energy efficiency.

“Two-thirds of the site was behind the stream, and one-third was in front of it. We decided that the best option was to rotate the building so the hospital’s growth patterns could maximize the land they had. If we had turned the building any other way it would have been constrained. The small amount of tilt we put on it gave us the longest linear access that we could expand to, and we also took advantage of solar orientation and natural views.”

With the building’s location and orientation established, design

elements representing Methodist Healthcare’s commitment to spiritual outreach were incorporated into the hospital’s arrival sequence and landscaping.

“Methodist’s public outreach doesn’t just extend into the surrounding community—it radiates out into the world,” says Skelton. “The arrival sequence with the directions of travel, the shape of the roadways and adjacent parking mimics radiating water ripples that are symbolic of Methodist’s spiritual outreach. These ripples will be reinforced with landscaping that becomes denser as you move deeper into the site and closer to the entrance.”

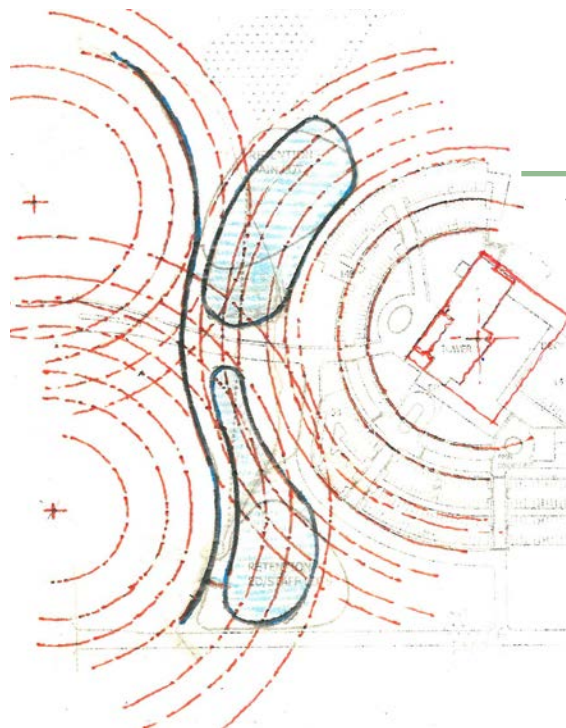
Representing the future of healthcare in the region, the new faith-based, patient- and family-centered hospital will allow Methodist Le Bonheur Healthcare to provide high quality, cost-effective care to the thousands of residents it already serves in its Memphis-based facilities. Services will include cardiology (open heart), obstetrics, MRI, a diagnostic and

therapeutic cardiac cath lab and emergency services.

Designed for LEED certification, energy-saving strategies incorporated into the facility exceeded MLH’s goals for energy reduction by earning an ENERGY STAR rating of 93, reflecting a 33 percent reduction in energy use and a savings of more than \$318,000 annually.

Also a substantial money-saver, the implementation of IPD enabled the team to produce a superior product that not only came in significantly under budget, but also ahead of schedule.

“Methodist Healthcare came to us with a very aggressive budget to design to, and then gave the contractor a very aggressive schedule to build to—and everyone lived up to their expectations,” says Gore. “They had a clear vision of what they wanted, which was a facility where they could deliver outstanding care to each and every patient. Methodist Olive Branch Hospital truly honors that vision.”



The arrival sequence:

The directions of travel, shape of roadways and adjacent parking form a series of ripples that are reinforced with landscaping, which becomes denser as you move deeper into the site.

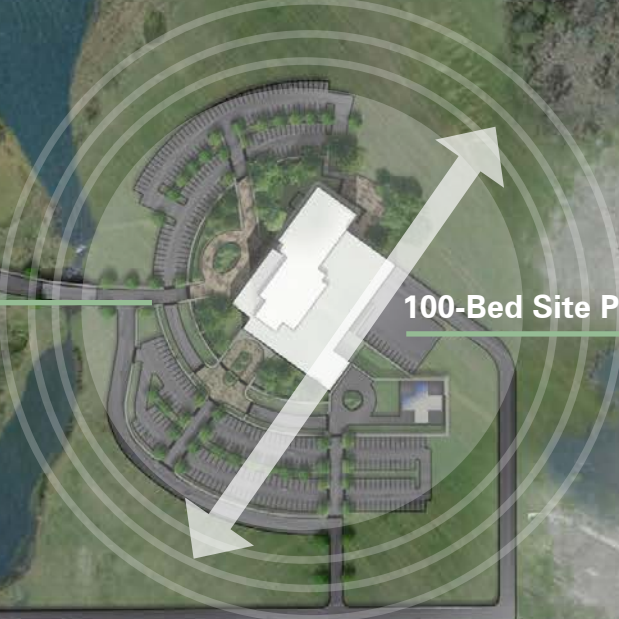


The location of the stream and the need for future expansion were determining factors in the siting of the building. The axis was skewed in order to take advantage of solar orientation and views.

Future master plan site for 400-bed expansion



400-Bed Site Plan



100-Bed Site Plan

Current master plan site of 100 beds



## ABOUT US

Gresham, Smith and Partners provides design and consulting solutions for the built environment that contribute to the success of national and international clients. For more than 45 years, GS&P has focused on enhancing quality of life and sustainability within our communities. GS&P consists of industry-leading professionals practicing architecture and engineering design as well as scientists and highly specialized strategic and management consultants in Aviation, Corporate and Urban Design, Environmental Services, Federal, Healthcare, Industrial, Land Planning, Transportation and Water Resources. GS&P consistently ranks among the top architecture and engineering firms in the world.



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