

# Duluthian

JULY/AUGUST 2023

OFFICIAL PUBLICATION OF THE DULUTH AREA CHAMBER OF COMMERCE

## LHB:

### THE CAN-DO LOCAL PARTNER FOR ESSENTIA'S VISION NORTHLAND

#### ALSO INSIDE

- 148TH FIGHTER WING
- CHESTER BOWL'S CAPITAL CAMPAIGN
- COMPASS MINERALS
- DESTINATION DULUTH
- LAKE SUPERIOR ZOO
- GRINDSTONE APARTMENTS

\$3.95



**DULUTH**  
AREA CHAMBER OF  
COMMERCE



BY PATRICK LAPINSKI

# A REMARKABLE Job

**LHB SERVES AS BOOTS ON THE GROUND FOR ESSENTIA'S VISION NORTHLAND PROJECT**



**A**s a civil engineer, Dan Shaw has been involved in many projects in the Duluth area during the course of his two-decade career with LHB, Inc., the Duluth-based multidisciplinary engineering, architecture and planning firm. In the past five years he was heavily involved in what became the largest commercial development in the history of Duluth, Essentia's Vision Northland hospital.

"This was probably the largest project I've done," said the soft-spoken Shaw, who spearheaded LHB's civil engineering portion of the Essentia project.



The relationship between LHB and Essentia goes back to the days of St. Mary's Hospital, which evolved into Essentia St. Mary's before becoming present-day Essentia. Long before the realization of the Vision Northland project, LHB had been involved in preliminary discussions with Essentia about the possibility of expanding their campus or building a new hospital. Once Essentia made the decision to go forward with a new hospital they selected the Philadelphia-based architectural firm of EwingCole as the architect of record for the project.



It didn't take long before the project team at EwingCole reached out to LHB to see how they could collaborate.

"We're a national firm," said project manager Oscar Gomes (pronounced Gomez), principal with EwingCole. "The way that we approach is to team up with a local architect. That does two things for us. It provides boots on the ground and it enhances relationships with city and with the state agencies."

### SCOPES OF WORK

Gomes and his team from EwingCole met with LHB's leadership in Duluth to discuss aspects of the project and how to possibly split the scopes of work.

"What you see in terms of new building, like the tower and the outpatient building was all designed and documented by us as the architects of record," Gomes said. "They (LHB) were critical in getting all the approvals from the city in terms of the land use and the civil engineering component of it."



In addition to the new construction, the project also involved complicated tie-in between the new and existing buildings, and significant renovation within existing clinic buildings. Given LHB's vast knowledge of existing structures, and the ability of LHB staff to do extensive field verification of existing conditions due to their proximity to the site, it made sense for LHB to lead design efforts for tie-in between new and existing buildings and to perform a majority of more than 125,000 square feet of renovation within existing buildings. This included new loading dock facilities for the entire campus, a new emergency ambulance garage, bio-med and maintenance workshops, and other support spaces located within existing buildings.

Shaw recalls early in the project, back in 2018, coming to the realization that there was going to be a lot of coordination with the City of Duluth's Engineering Department regarding the impact Vision Northland would have on local pedestrian and vehicle traffic around the site, plus connecting all the utilities; infrastructures such as water, sewer and electrical. "It was a very large, complicated project."

Evan Aljoe, lead member of LHB's health care team, became the project manager for LHB's portion of the work, coordinating activity between EwingCole and the general contractor, McGough Construction.

"It wasn't just our architectural expertise, but our structural, mechanical and electrical teams were involved as well, and our civil department performed all the civil work for the entire project. They reached out to us because of our past history with and knowledge of Essentia, the campus and the buildings, as well as our continuing work with the city on the civil front," recalled Aljoe, in a conversation from his motorcoach while vacationing in a remote part of California.

"They were just great partners to work with," noted Gomes, "both on the civil side of it, and obviously different teams within the organization. Even though there were two different scopes of work on the civil and structural side, Evan led the way and organized his internal teams to make sure everybody was rowing in the same direction."

### SURVEYING AND SITE WORK

Before the construction began the first step in the process was surveying the property. "It's a very basic part of design work on a project, but it's important," explains civil engineer Shaw. "The location of the building and so forth begins with a topographic survey to get contours, and to make sure that what you build doesn't cross over right-of-way lines or other people's property."

Once the surveying was complete the landscape architects could plan how to position the building on the site. This was the point when the real work begins, Shaw said. For instance, on East 2nd Street, Shaw's team worked closely with the landscape architects on laying out the in-patient access, making sure things like the turnaround and drop off areas were large enough to accommodate all the vehicles that would be expected. The same thing was true on Superior Street for the out-patient drop off area, as well as the emergency room entrances on 1st Street, and the placement of the loading docks.

One of the unique aspects of Shaw's job is that he sometimes gets to do a little bit of urban exploration. "This was such a large project that it impacted the utilities in the right-of-way to the point where the city-owned utilities needed to be modified and upgraded as part of the project."

During the site work Shaw got a close-up look at a portion of Duluth's early 1900s era brick and stone stormwater drain that runs down the middle of 4th Avenue East. "We didn't actually modify that," he said, "we just connected to it. We built a separate system on the Essentia side of 4th Avenue, and then connected to the existing system in the middle of the road at various points running down the hill."

A medical facility the size of the new Essentia building requires a lot of power as well, said Shaw. "EwingCole did the electrical design for the building, but I worked with them to design the routing of the electrical equipment and the communications equipment from the remote power stations and transformer stations to the building, a lot of that was running in the right-of-way," explained Shaw.

Because it's all high voltage, dangerous stuff, the LHB team designed a series of concrete duct banks, basically





four-sided concrete boxes, running beneath the street to house the electrical conduits connecting to the new transformer station.

There was plenty of work to be done on the structural side as well, including the partial removal of some clinic buildings and the demolition of existing structures such as the Center for Personal Fitness and the Medical Center Lodge office space. The most difficult portion of the site work was the removal of thousands of yards of bedrock from the Duluth hillside to ready the working footprint before the contracting firm of McGough Construction could begin putting up the shell of the building.

Joe Litman, Chief Operating Officer at LHB, put his structural engineering expertise to work coordinating the removal of the rock sub-contracted to the Duluth-based Northland Constructors.

"This is some of the strongest rock there is. It's tough to blast it out and at the same time achieve some level of production while making sure you don't damage adjacent buildings." To reduce the impact, Litman said they used smaller charges, stretching out the rock removal time. "They were blasting at times, literally feet away from existing buildings, and close to the highway tunnels below Superior Street," said Litman.

LHB project manager Aljoe noted that seismic monitors were placed in several buildings of Essentia's adjacent campus during the rock removal so they would know if they were exceeding any structural limitations. "Communication was set up between the contractor and the building owners so that an owner could, if things got to vibrate a little bit too much, call the contractor and shut it down. As you can imagine, if somebody is in surgery, you don't want a lot of vibrations happening. Fortunately," said Aljoe, "St. Mary's was a couple of blocks away, but it's weird how sometimes vibrations can transmit through rock."

### LHB HEALTH CARE STUDIO

Daniel Maldonado, LHB's health care studio lead, who has worked on acute and ambulatory care projects for more than two decades, said that some of the biggest

challenges came early on, before the construction got underway, while working with the multiple stakeholders that were part of the Essentia project.

"Even on small projects, let's say an emergency department project that LHB has done, we still have multiple stakeholders. You've got the emergency department personnel, but you also have the administration and financial people with their stake in it. You have security, you have biomed, you have all these other entities that play into it. So, when you're dealing with health care organizations, you always have multiple stakeholders. On a project like Vision Northland, multiply that times the number of different departments that you have in hospital."

The challenging part was trying to find consensus among the different groups out there, said Maldonado. On the client side, Maldonado said it was sometimes difficult to engage some of the stakeholders, especially the medical staff, on project details that were four years out. They questioned things like, "Why are we talking about patient rooms and where you want to put the toilets now, when it's not gonna happen for four years? Part of our job is to make sure that we retain the focus as much as we can; that's what we're trained to do, and that's what we do," said Maldonado, whose resume encompasses a wide range of projects, including inpatient mental health facilities, primary care clinics and adult and neonatal intensive care units, as well as rehabilitation of existing facilities, labs and offices. He said it oftentimes meant going back and reviewing details they thought were already resolved, having to review the decision-making process with stakeholders to make sure they were comfortable with a decision they made a year previously.

### LHB HISTORY

Sustainability is a hallmark of LHB projects. Recently, the American Institute of Architects recognized the firm for "its longstanding leadership in sustainability," awarding LHB with the AIA 2021 Minnesota Firm Award.

While sustainability is part of the architectural nomenclature today, it wasn't even a concept back in 1966



when Redwood Falls, Minnesota, native Lauren Larsen set up shop in Duluth as a structural engineer. Larsen received his degree in civil engineering from the University of Minnesota prior to serving in the U.S. Navy's construction battalions during the Korean Conflict and settling in Duluth. As CEO, Larsen guided his company "into the region's largest full-service engineering and architectural firms." Along the way he partnered with Harvey Harvala, later adding Bob Berquist to the mix in the early 1970s, the trio forming the nucleus of LHB, Inc.

Today, LHB is led by CEO Rick Carter. During a 2020 interview, Carter recalled being hired by Larsen in 1982, joining what was then a small, seven-person team at LHB. Little did he know he would one day head a much larger version of the firm.

"In 1991 he pioneered the company's commitment to regenerative and sustainable design," noted the lead-up to the interview. "He participated in the design of the first American Lung Association Health House, the state's first LEED pilot project and several other pioneering sustainability demonstration projects. He led the team that created the state's sustainability guidelines and launched the state's Regional Indicators Initiative, a collection of energy and other critical data."\*

In 1998, LHB expanded to the Twin Cities during the large I-394 freeway project. "The expansion office embraced the notion of sustainable design – referred to then as "healthy building design," Carter said.

Propelled by client expectations, LHB advanced the concepts of sustainability "beyond what our teams incorporate as our standard practice...It is our job to show them the way to design projects that improve the built environment's impact on natural resources and enhance their communities, within their means."

Today, LHB employs about 250 people, between offices in Duluth, Superior and Minneapolis. Additionally, LHB has a small survey team located in Cambridge.

## CRISIS MANAGEMENT

At one point in its timeline, Essentia's Vision Northland was considered the largest private hospital construction project in the country. EwingCole, during construction, came out every two to three weeks for a couple of days to observe and to monitor what was going on, but we really took the lead on construction, said LHB project manager Aljoe.

"When the construction started, most of the communication funneled through LHB, and then out to EwingCole and other consultants. We had numerous consultants on the project. Strategically we were local, we're five blocks from the project," Aljoe added. "It made a lot of sense for us to take the lead on the construction phase of the project because of our proximity and our ability to respond really easily."

Project managers always build time into their schedules for the "unexpected," but no one was expecting a global pandemic. Fortunately for EwingCole, they had a highly experienced team from LHB on site when travel restrictions prohibited cross-country travel. LHB became

the de facto liaison between EwingCole, McGough Construction and various sub-contractors during this period of the construction.

"I would say that 60 or 70 percent of that building was constructed under COVID protocols. It was real hard for our people from Philadelphia to travel to Duluth because you simply couldn't," recalled Gomes, "but, because we had an arrangement with LHB, they were able to fill in that role with what we call construction administration, which is kind of oversight during the construction of the project. They were instrumental in understanding that and not missing a beat in terms of building the building."

"We had the fortune of being able to watch it go up, literally out my window where I work," said COO Litman, reflecting on the past five years. "It's extremely complex, and knowing everything that goes into bringing a project like this to reality in real life, it still amazes me." Litman praised all the contractors and individuals who took part in the project. "It takes a whole lot of people and a heck of a strong project team to get there and they did a remarkable job, McGough, all the contractors and EwingCole. It's pretty amazing." 📍

*NOTE: Interview with Rick Carter sourced from: Sustainable design leader takes helm at LHB, with eye on future. Jim Buchta, Star Tribune, July 20, 2019.*

Patrick Lapinski is a freelance writer who grew up in Superior, Wis.



## CONGRATULATIONS, ESSENTIA!

We're pleased to be your hometown partner on this landmark achievement for Duluth and the Northland.

ARCHITECTURE | ENGINEERING | PLANNING



[LHBcorp.com](http://LHBcorp.com)