



ROBINS & MORTON





3

What We're
Building

4

Our Team

5

Conditions of
Satisfaction

6

Carilion's Place in the
Region's History

9

Innovation

14

Construction
Facts

16

Programming
& Stacking

What We're Building

Crystal Spring Tower

The Crystal Spring Tower will be constructed to the south of the hospital, where out-of-use tennis courts previously existed. It will consist of two floors of parking, an expanded Emergency Department (ED) and six floors that will make up Carilion's Cardiovascular Institute. The ED will include approximately 95 exam/observation rooms. Carilion's Roanoke-based heart and vascular services will be consolidated into one location. "This project will address many of the needs our

community has told us about," said Steve Arner, chief operating officer for Carilion Clinic and president and CEO of Carilion Medical Center, which includes Roanoke Memorial and Roanoke Community hospitals along with several other clinical sites. "There will be more capacity in our emergency department – one of the busiest in Virginia – and there will be more easily accessible parking for our patients and visitors. To top it all off, our Cardiovascular Institute will find a new home in the addition."



Our Team

OWNER

Carilion Clinic is a not-for-profit health care organization serving nearly one million people in Virginia through hospitals, outpatient specialty centers and advanced primary care practices. Led by multi-specialty physician teams with a shared philosophy that puts the patient first, Carilion is committed to improving outcomes for every patient while advancing the quality of care through medical education and research.



For more information, visit CarilionClinic.org.

ARCHITECT

The architect is Nashville-based Earl Swensson Associates (ESa), a nationally recognized architecture firm with extensive knowledge and experience in designing hospitals and other medical facilities. ESa is working with local firm Balzer & Associates



For more information, visit ESarch.com.



For more information, visit balzer.cc.

CONTRACTOR

The contractor is Birmingham-based Robins & Morton, a nationally ranked healthcare contractor. Robins & Morton is partnering with locally based Branch Builds - one of the largest and most respected construction management firms in Virginia and North Carolina.



For more information, visit robinsmorton.com and BranchBuilds.com

Conditions of Satisfaction

The following items were defined by our project delivery team as requirements for a successful project outcome.

Project Delivery Health

Deliver a state-of-the-art, cost-efficient and timely project in the safest environment

Community

Improve access to care for western Virginia

Establish and facilitate outreach programs to recruit and educate local craft workers

Quarterly participation in community-oriented events

Monthly creative town hall sessions to communicate project health to all stakeholders

Couple local knowledge and national experience to improve quality in the industry

Plan & Logistics

Develop and sustain a process to identify operational impacts

Bi-weekly facility coordination to communicate plans and logistics

Utilize leading-edge technology

Trust & Respect

Develop and nurture relationships that drive measured accountability

Establish an environment that fosters a collaborative culture

Implement a measured assessment to continuously improve team health

Carilion's Place in the Region's History

Carilion is not an overnight success story. Its roots run deep in the region, touching generations of families in the Roanoke and New River Valleys and beyond.

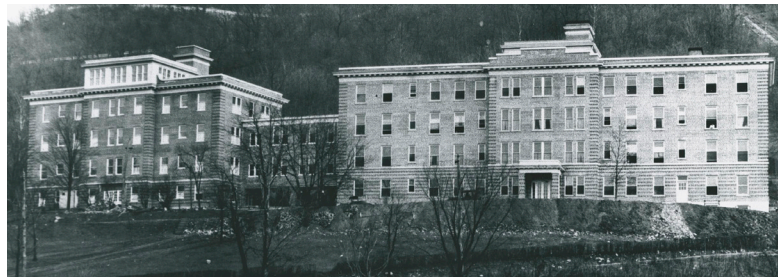
In 1881, the town fathers of what was then known as Big Lick persuaded the Shenandoah Valley Railroad and the Norfolk & Western (N&W) Railway to connect rail lines in their community. Injuries to railroad workers were frequently severe and infections were common, but no emergency care facility existed in Roanoke; local physicians referred seriously ill cases to Johns Hopkins in Baltimore or the Medical College of Virginia in Richmond.

Top right

Original building, opened June 1, 1900

Bottom right

North Wing (Flickwir Memorial Unit) in 1925



In 1892, several energetic, dedicated and persevering women established the first charitable hospital in Roanoke and outfitted a residence with six beds, but the hospital was too small and its equipment inadequate to serve the needs of the growing population. In 1888, six local businessmen secured a charter for the Roanoke Hospital Association, and in 1900, the Roanoke Hospital opened its doors to all citizens, regardless of their ability to pay.

By the 1920s, Roanoke's population had topped 50,000 people and the flu epidemic had underscored the need for improved medical services. Thanks to fundraising efforts, the South Wing opened in 1922.

1947

Hill House purchased as third nurses' residence



1959

Nurses' school and dorm (now Medical Education Building)



1971
West Pavilion



1994
South Pavilion, dedicated May 24, 1994




 The logo for SmartFab, featuring the word "Smart" in orange and "Fab" in black, with a registered trademark symbol (®) to the right.

In 2019, Carilion Clinic awarded Robins & Morton and Branch Builds the contract for a \$350 million expansion to the Carilion Roanoke Memorial Hospital campus. The expansion includes a 507,000 square-foot patient-care tower.

Innovation

SMARTFAB® CASE STUDY

The project was identified as an ideal candidate to apply the SmartFab approach because of its size, incredibly tight site, challenging logistics and downtown location adjacent to major thoroughfares. Because the SmartFab approach is customized based on project needs, establishing this project's participation in the design phase was essential as it encouraged the entire project delivery team to begin collaborating from the onset.

The idea behind SmartFab is to maximize the value of each definable feature of a project through identifying and systematically implementing modular systems and prefabricated solutions while eliminating waste and redundancy. To accomplish this, the SmartFab approach also integrates quality, productivity, and logistics (QPL) planning.

As a part of the holistic approach, Robins & Morton held multi-hour SmartFab

sessions with each incoming trade contractor and will continue this process as the final design materializes.

Since the work at Carilion Roanoke Memorial Hospital will not conclude until 2025, the largest initiatives to date are in their early phases. For example, one of the most critical pieces to the SmartFab strategy is the offsite prefabrication warehouse that will serve as a hub for the foundations and underground mechanical, electrical and plumbing (MEP) systems. In addition to encouraging collaboration among the trades in maximizing prefabrication opportunities, it also provides a controlled environment to boost quality, improve productivity, and mitigate the challenges associated with material laydown on a tight site, providing a central location to consolidate materials for just-in-time deliveries.

SMARTFAB® SAVINGS

Aside from identifying modular and prefabrication options, the sessions led to additional solutions:

- Resequencing door frame installations to ensure they will not be damaged during construction
- Using concrete truck drivers with advanced American Concrete Institute (ACI) certifications to help manage the quality of the particularly difficult concrete installation
- Single sourcing onsite rental equipment, realizing \$1 million in savings and improving safety and quality
- Using a Telescopic Handler instead of a tower crane, resulting in budget, safety and quality improvements
- Pre-coring each foundation to locate bedrock, reduce contingency, improve production and minimize unforeseen delays, which could result in an estimated \$1,000,000 in savings
- Virtual Reality (VR) mock-ups of patient rooms and other spaces saved another \$500,000 over conventional mock-ups; Carilion will also use these VR mock-ups in their simulation lab for testing, education and performance studies



CO-LOCATION

A co-located office is being used for the project delivery team, consisting of the client, architect, trade contractors, and trade partners. This open office environment facilitates efficient information flow and access to shared resources, such as VDC, meeting spaces, technology, and infrastructure. Working together, relationships are forged, trust is built, and stakeholders maintain alignment throughout planning and construction.



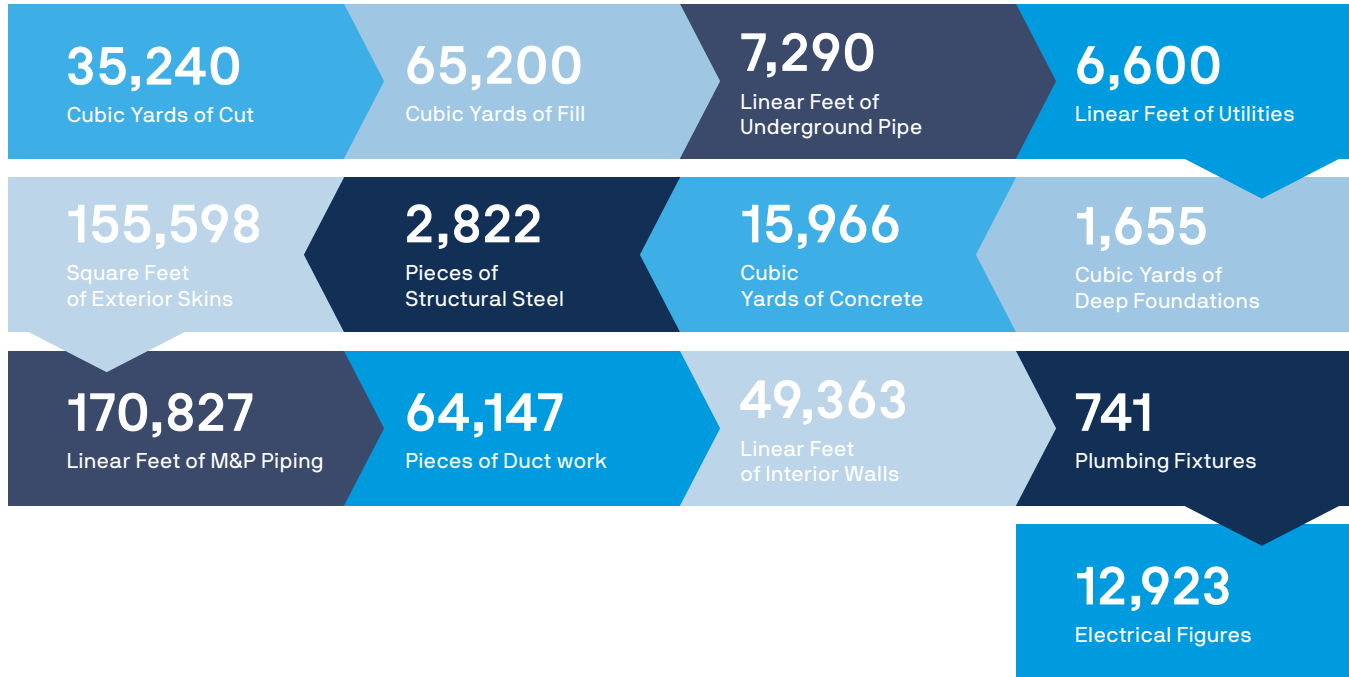



VIRTUAL REALITY

Virtual Reality (VR) mock-ups of patient rooms and other spaces saved another \$500,000 over conventional mock-ups. Carilion Clinic will also use these VR mock-ups in their simulation lab for testing, education and performance studies.



Construction Facts

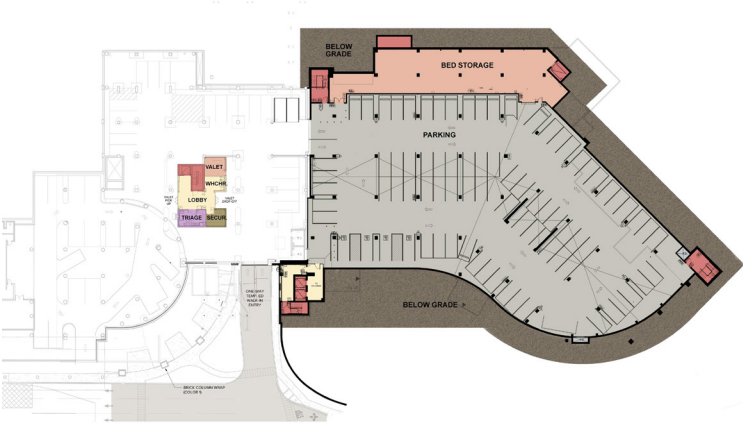




The site of the new expansion is situated on top of Crystal Spring, a large natural spring that is managed by the Western Virginia Water Authority. The spring generates nearly 5 million gallons of water per day and has been a primary water source for the area since 1907.

Programming & Stacking

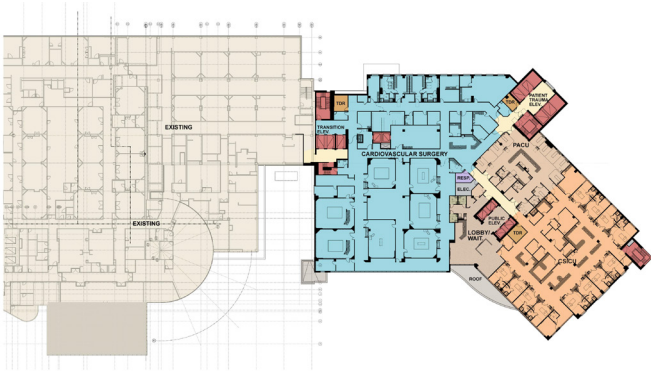
Ground Level
Parking



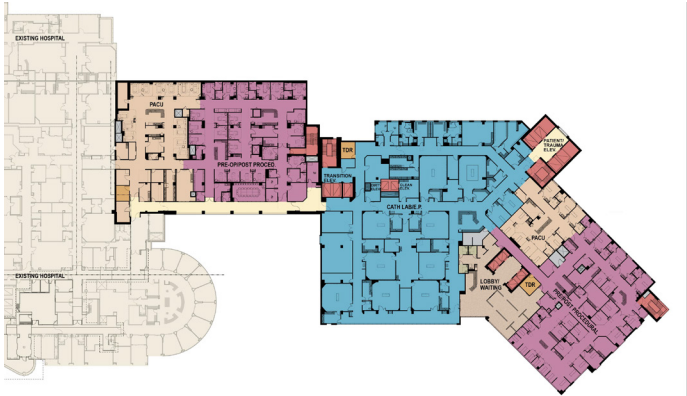
1st Floor
Parking



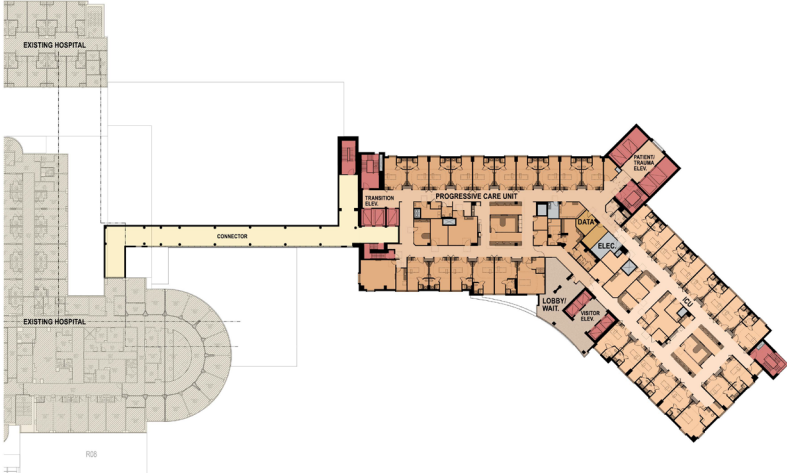
4th Floor
Cardiovascular Surgery, ICU



6th Floor
Prep/Recovery, Cath Lab, PACU



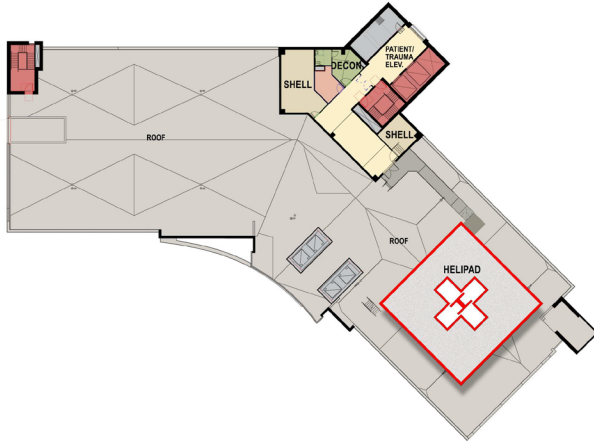
9th Floor
Progressive Care Unit, ICU



9th Floor
Shell Space



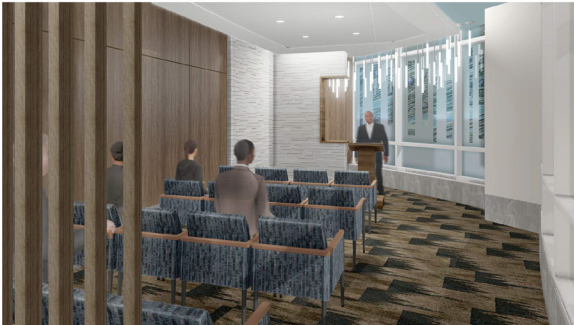
Roof
Helipad



Lobby



 Chapel



 Expanded Dining





Surgery Family Lobby





CONTACT US

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TO LEARN MORE ABOUT THIS PROJECT, VISIT
<https://www.carilionclinic.org/news/expansion/>