



Highly available. Always on.

How the Mercy Data Center supports 24/7 health care.

Today, providers depend on the availability of technology.

That's why MTS designed and built the Mercy data center from the ground up to meet the specific needs of health care.

For caregivers, providing exceptional patient care means relying on instantaneous access to information, and having technology that is "always on." That's the core principal behind MTS' development of the Mercy Data Center. Custom designed and built specifically for the needs of health care, this state-of-the-art facility offers the speed, stability and reliability that doctors and nurses can rely on, even under the most difficult conditions.

From the bedrock under the building to its seismically reinforced roof, the Mercy Data Center reflects years of planning for a wide range of potential hazards. With fully duplicated sources of power, water, data and other systems, this facility has solutions in place for outages, Internet system interruptions, fires, earthquakes and tornados. And thanks to its geographically disparate "mirror image" sister site, Mercy can ensure business continuity even in a worst case scenario.



Mercy Data Center:

Designed and built from the ground up for health care.



The Facility

The Mercy Data Center features two roofs and a “building within a building” design, meaning a corridor completely surrounds and separates the concrete exterior wall of the facility from the interior wall that protects the data center floor space.

All doors can withstand hurricane-force winds. Seismic bracing and earthquake accommodations can be found everywhere in the facility, from the unique support structure of the data center floor to special couplings on water pipes.

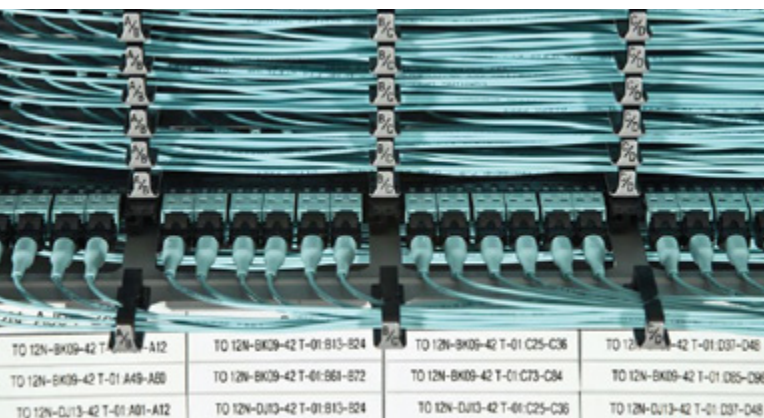


Operational Command Center

Like NASA's Mission Control, the command center is a central monitoring area where MTS can manage the performance and conditions of the center itself and all related technology resources 24/7. The ability to monitor all aspects of infrastructure to support all clinical and business functions is key.

Large screens allow easy oversight of the network and operations, unifying the efforts of IT teams and improving support for technology.

A second, geographically disparate command center is also manned around the clock.



Main Distribution Frame (MDF)

This room contains the physical network connection between the facilities MTS serves and the information they need to perform their roles.

Three telecommunications carriers provide network connectivity to the data center via disparate, redundant paths, with all feeds routed into the MDF room. If one network fails, the center immediately switches to another.

The MDF routes and balances incoming and outgoing data and keeps the data secure as well.

The Data Area

The data area is the heart of MTS' technology operations. Here, data is stored, accessed and used to serve Mercy and our partners. Computer servers that allow caregivers to store and retrieve patient data almost instantaneously are connected to additional storage space where millions of additional patient records are stored.

The data area's flooring is raised 30 inches above a concrete floor and is seismically braced. The space below the floor allows water pipes to deliver cooling to every server and eliminates the potential for damaging water to drip from overhead.

Servers are grouped into a "pod" design. Redundant power, cooling and network connectivity are built into each pod. If any component fails, a backup immediately ensures uninterrupted operation. Our goal is to make sure that, if there's a problem, our caregivers will never know it.

VESDA (very early smoke detection apparatus) pipes run through every server cabinet and throughout the data center. They constantly sample the air for the smallest particles of smoke, providing early alerts of potential problems.



Data Center Support

The east and west sides of the ground floor have replicated power management, cooling and other key systems. If a component fails on one side, a backup ensures continued high availability of service.

Three miles of water piping run directly under the raised floor, moving 35,000 gallons of water through the chilled water system to prevent the technology from overheating.

The data center has an uninterruptible power supply (UPS) that provides consistent, conditioned (non-fluctuating) power to its systems even during power surges, brown outs and complete outages. The facility has enough fuel on site to function for up to 72 hours using backup generators.

All equipment is delivered to loading docks on the ground floor, where it can be carefully unpacked. This keeps debris and dust away from sensitive equipment on the second floor.

The data center and its geographically disparate sister site function as an active-active pair for production workloads, offering full redundancy in case of an emergency. So if a system goes down in one location, the other site is able to take over immediately for seamless continuity of service.



Let's see how our solutions can accelerate your health care goals.

Visit us at [MercyTechnology.net](https://www.mercytechnology.net).



Facts and Figures

- Built in 2010, this 42,500 sq. ft. facility cost \$60 million to build and is fully HIPAA, SOC2 and PCI compliant.
- The data center's location was chosen based on access to alternate sources of power and water, distance from earthquake fault lines, quality of bedrock, proximity to Mercy facilities and safe distance from its sister site.
- The facility can withstand an F2 tornado with 113 to 157 mph winds and is seismically braced throughout.
- Designed to be compliant with LEED standards set by the U.S. Green Building Council, the facility was built with 255 tons of completely recycled steel.
- More than 2 million feet (nearly 400 miles) of fiber optic cable is used to carry data through the center – enough to reach from St. Louis to Milwaukee.
- Mercy servers house millions of patient records. As of 2019, MTS manages approximately 28 petabytes of total storage, enough to store the entire contents of the Library of Congress with room to spare.

Today and Tomorrow

As health care pursues new ways to better care for our communities, technology will be a key enabler.

- Specialty services that once were available only in large metropolitan areas are becoming possible in every location through telehealth services and other telecommunications technologies.
- Care for chronic medical conditions is enhanced through the use of health monitoring devices in the home, transmitting blood pressure, EKGs, medication compliance and more, with results flowing directly into the patient's electronic health record.
- Remote access to patient information can allow families to become more involved in the care of their loved ones – even those who may be far away.

The Mercy Data Center's scalable design means every support system and technology can grow to meet the ever-expanding needs of health care. Its initial design provides over 9,000 square feet of space for servers and related equipment, with an option for another 12,000 square feet if needed. In this rapidly changing environment, this facility means MTS can help Mercy and our partners remain agile and prepared to offer these innovations and many more, well into the future.