

# POWER PROFILE

**Customer:** UNC REX Healthcare

**Location:**

Raleigh, North Carolina, USA

**Customer Business Issue:**

Expanded standby power capabilities to support growing medical campus

**Solution:**

Two Cat® C175-16 diesel generator sets  
One Cat 3516 generator set  
One Cat C175-20 generator set

**Cat® Dealer:**

Gregory Poole Power Systems



*UNC REX Healthcare was the first hospital in the Triangle to be designated a Magnet hospital, which recognizes quality patient care, nursing excellence and innovations in professional nursing practice.*

**POWER NEED**

Based in Raleigh, North Carolina, UNC REX Healthcare is a private, not-for-profit healthcare system that supports an acute care hospital, five wellness centers, two skilled nursing facilities and numerous other medical facilities throughout Wake County.

UNC REX Healthcare was the first hospital in the Triangle to be designated a Magnet hospital, which recognizes quality patient care, nursing excellence and innovations in professional nursing practice. In 2017, UNC REX Healthcare received a five-star rating from the Centers for Medicare & Medicaid Services, placing it among the top 9.1 percent of hospitals nationwide.

In the mid-2010s, UNC REX Healthcare officials planned a multi-year expansion at its medical campus in Raleigh – including the construction of the new eight-story, 306,000-square-foot North Carolina Heart & Vascular Hospital. To meet the growing power demand needed to support the highest level of care, leaders decided to build a new 17,000-square-foot energy plant that would repurpose standby power equipment already in use while adding new diesel generator sets offering industry-leading power density.

**SOLUTION**

UNC REX Healthcare officials purchased two Cat C175-16 diesel generator sets for the power plant to join a Cat 3516 generator set that was relocated from the basement of the existing hospital. A Cat C175-20 generator set was added later to support the Heart & Vascular Hospital. The high power density of the 4 MW Cat C175-20 diesel generator set is a key benefit for standby power used in many large, mission-critical installations, such as data centers and hospitals.

“We have a long, ongoing partner relationship with our Cat dealer, Gregory Poole,” said Jeff Carter, director of facilities, construction and biomedical engineering at UNC REX Healthcare. “We’ve had a very good relationship with them for many years, and it was pretty much decided that we were going to use Cat generators at the beginning of this project.”

The power plant can generate 12.25 MW of power – more than enough to cover the entire electrical load of the campus.

“If we lose our main utility power source, these generators will automatically kick on within 10 seconds or less and provide full power to the hospital,” Carter noted.

**RESULTS**

As many as eight to 10 times a year when inclement weather threatens, the operations staff of UNC REX Healthcare follows storm running protocols by switching over to the facility’s own power sources.

“An office building or other businesses can ride through a storm having their power blink on and off a little bit, but we can’t because we’re a hospital,” said Michael Brailsford, manager of plant and energy operations for UNC REX Healthcare. “We have doctors who are operating and other procedures going on, such as people who are on life support, so we must maintain as smooth a flow of power as possible.”

Also, UNC REX Healthcare has an agreement with Duke Energy to generate 75 percent of its own load when called upon by the utility. These requests are typically made during periods of extreme ambient cold or heat when there is a higher demand for grid power.

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The generator sets are tested weekly by the UNC REX Healthcare facilities staff to ensure they are in proper working order. Every other week, the staff performs a base load test where 30 percent of the capacity of each of the generator sets is utilized, running three at a time. On alternating weeks, they isolate the campus' load from the grid and run the generator sets for an hour at full load.

While UNC REX Healthcare staff perform routine maintenance, all regularly scheduled maintenance is performed by Gregory Poole

Power Systems as part of a Customer Support Agreement (CSA) with the hospital.

"We have operators who have basic knowledge of the maintenance that needs to be done on the generator sets, but Gregory Poole has highly skilled service technicians who can come in and work on these engines at any time. They pretty much know them inside and out," Carter observed.

For more information, please visit [cat.com/powergeneration](http://cat.com/powergeneration)



*UNC REX Healthcare upgraded its standby power capabilities by building a new 17,000-square-foot energy plant that currently houses four Cat diesel generator sets.*