



Peaking power

> Case History

World Trade Center, Brazil

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Power Generation

Where:

World Trade Center business tower, retail and hotel complex in São Paulo, Brazil

What:

A combined peaking and emergency standby power system featuring three lean-burn natural gas generator sets and a “black start” diesel generator that together provide more than 5.25 MW

Purpose:

To save money on energy expenditures during peak demand periods and to ensure power reliability during frequent utility outages and voltage fluctuations

Primary choice factors:

Proven track record with other buildings in the area, advanced technology and on-site support

World Trade Center São Paulo generates reliable peaking power with Cummins Power Generation Inc.

SÃO PAULO, BRAZIL — Opened in October of 1995, the World Trade Center (WTC) São Paulo is truly an all-in-one complex. The 1.75-million-square-foot facility includes the state-of-the-art WTC Business Tower, the elegant Hotel Gran Meliá São Paulo WTC and one of Latin America’s most upscale malls, the D&D shopping center. To help ensure reliable and low-cost power to the enormous WTC São Paulo, Cummins Power Generation provided three gas-powered generator sets to reduce the cost of energy during peak demand periods and to guarantee power availability to the complex in the event of a utility outage or power crisis. Since 2003, the power system has reduced electricity costs and improved reliability to such an extent that the WTC promotes the power system in its advertising for tenants.

A world-class building

São Paulo is located in the southeast corner of Brazil and is the capital of the state of the same name. With a population of more than 18 million residents, the city is considered to be the economic and financial center of South America.



Three gas-powered generator sets are used for peak demand periods and to guarantee power in the event of a utility outage or power crisis.



This three-story power building that houses generator sets is designed to blend in with the rest of the complex.

What distinguishes the WTC São Paulo is the combination of size and sophistication. Its 1.75 million square feet makes it one of the largest commercial buildings in the world, while its superior design makes the complex one of only six world trade centers — out of 330 worldwide — to receive Silver Certification by the World Trade Center Association (WTCA), the organization’s highest endorsement.

Powering the WTC

In October 2003, the WTC São Paulo decided to install its own power center to help cope with rising energy costs. “After meeting with several companies and looking at numerous proposals, we decided on Cummins Power Generation,” says Ferdinando Mugnato, general manager of the WTC São Paulo. “We chose Cummins Power Generation because of their proven track record with other buildings in the area, advanced technology and better on-site support.”

To provide peaking power for the enormous structure, the WTC São Paulo relies on three 1.75 MW QSV91G lean-burn gas generator sets for a total generating capacity of 5.25 MW, enough to power a city of 5,000 residents. “Since the building is located in a commercial and residential zone, only natural gas-fueled power plants are approved by the environmental agency,” notes Mugnato. In addition to the three generators, Cummins Power Generation installed a PowerCommand® DMC300 digital master control for operating the power plant, switchgear, transformers, transfer switches and a diesel generator with “black start” capability to ensure the system would be able to start during a total power outage.

Fitting the building’s layout

“One of the biggest obstacles to installing the generators in the building was the relatively small space we had to work with,” notes Mugnato. “Cummins Power Generation

examined the available space and devised a workable solution. The generators are on the first two floors, and the switchgear and other equipment are on the third.”

Providing power at peak times

The main purpose of installing the generators was to reduce costs during peak times when electricity rates are at a premium. “Here in Brazil the cost of energy during the peak times of the day is much higher than off-peak times.”

“By being able to produce our own power, we are able to save as much as 30 percent on energy costs during peak hours.”

Backup power in case of emergency

Another purpose of the generators is to provide consistent and reliable power. Utility power in Brazil is not very reliable, and there are often outages and fluctuations in voltage that affect equipment inside the building.

“When the generators are running during the peak hours, they are paralleled with the local utility,” explains Mugnato. “If there is a utility failure, then the generators are automatically isolated from the grid and provide power independently to the WTC São Paulo.”

To date, the generator sets from Cummins Power Generation have been a towering success. “Supplying power 100 percent of the time without any interruptions as well as achieving cost savings during peak hours are two major features the WTC São Paulo can promote,” says Mugnato.

For more information about peaking power systems or other energy solutions, contact your local Cummins Power Generation distributor or visit www.cumminspower.com/energysolutions.

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