



**Mission Geneva - America's Greenest Diplomatic Post**

## **Cooling System Showcases Cutting-Edge U.S. Innovation in Sustainable Technology**

**Magnetic Levitation (MagLev™) Chiller  
First of Its Kind in Europe**

**Geneva,  
April 2, 2009**

With the flip of a switch on Earth Day, April 22, 2009, the United States Mission in Geneva will take another step to consolidate its standing as the U.S. State Department's greenest diplomatic building.

On that date the U.S. Mission -- already home to a major solar electric system -- will bring on-line an innovative air cooled chiller system based on magnetic levitation technology. This large tonnage air cooled Magnetic Levitation (MagLev™) Chiller is the first of its kind in Europe, and represents a major new application of MagLev technology.

The MagLev Chiller is the first sustainable compressor design in the air conditioning industry. It runs on a virtually friction-free compressor, which eliminates heat and reduces energy consumption.

Designed and manufactured by Multistack LLC of Sparta, Wisconsin, the 225-ton air-cooled, magnetic levitation-bearing chiller represents the long-awaited commercial application of a scientific breakthrough in physics and electronics. The mechanical engineering profession has heralded frictionless oil free, motors and compressors based on active magnetic bearings since the 1940s. It is only recently that the emergence of nanosecond fast semiconductors at last provided the fine-tuned electronic control needed to maintain a motor shaft within microscopic tolerances, and opened the way to exciting new applications.

Because the MagLev Chiller's shaft and compressor turbine spins suspended and centered in an electromagnetic field, there is no friction, no wear on surfaces, and no oil contamination of the unit's heat exchange surfaces. The chiller's oil-free design eliminates oil maintenance, its costs, and environmental damage caused by oil use and disposal. In addition, the units at the U.S. Mission in Geneva will be air cooled as opposed to water cooled, eliminating wasteful water consumption, the need for a cooling tower, the need for hazardous biocides and anticorrosion chemicals, and associated sewer costs.

The MagLev Chiller is expected to reduce the energy required to air-condition US Mission's assembly halls, computer rooms, and offices by up to 30 percent. This should in turn reduce the Mission's carbon dioxide

output by over 25 metric tons annually.

The State Department named Geneva its “Flagship Post for Energy and Sustainability” in 2005 when the Mission became the site of the installation of the largest solar energy project ever undertaken by the Department of State overseas. The US Mission boasts a 950 square meter, 118 kW peak power, Photovoltaic installation. This solar electric generating project made Geneva home to the State Department’s first and largest Public/Private Partnership with a public utility. Included in the Geneva Public/Private Partnership are the State Department, the City of Geneva and the Geneva electric utility SIG.

The MagLev project is the fourth significant OBO energy and sustainability investment at the US Mission over the past five years. In addition to the MagLev Chiller and Photovoltaic solar electric power system, “Green” retrofit investments in Geneva include building-wide installation of high efficiency lighting and installation of a low emission, high efficiency, heating boiler.

In 2007, when the U.S. Mission’s chillers were at the end of their 25-year useful life, the US Mission in Geneva was chosen to showcase the new MagLev technology. A focus on applications of magnetic technology among the large scientific community at CERN, the European Organization for Nuclear Research, coupled with the visibility afforded by the United Nations and the many international conferences held in Geneva make the U.S. Mission the ideal location for this demonstration of U.S. sustainable energy technology.

The State Department’s Overseas Buildings Operations (OBO) contracted with Hankins and Anderson, consulting Engineers, of Glen Allen, Virginia for design engineering services and with Martinez International of Parker, Colorado, to construct the installation for the MagLev Chiller. The U.S. Mission in Geneva is only the second location in the world to install a large-tonnage air cooled MagLev Chiller. The first was the U.S. Embassy in Tokyo which inaugurated its chillers on Earth Day 2007.

The U.S. Mission to the United Nations in Geneva is a proud member of the League of Green Embassies, a group of 28 U.S. diplomatic posts around the world committed to reducing their carbon footprint. Current Green League members are in Abu Dhabi, Ankara, Athens, Berlin, Bern, Bratislava, Brussels (Embassy plus EU and NATO), Budapest, Copenhagen, Dublin, Geneva, Helsinki, Kathmandu, Lisbon, London, Luxembourg, Madrid, Oslo, Paris, Rome, Sophia, Stockholm, Tbilisi, Valletta, Vatican City and Zagreb.

The U.S. Mission will formally inaugurate the MagLev Chiller at a special reception for journalists, engineers and scientists, and the diplomatic community on April 21, 2009.

The system will be brought on line early the following morning, Earth Day 2009.

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**For more information please contact:**

Dick Wilbur  
Deputy Public Affairs Counselor  
Office of Public Affairs  
US Mission to the United Nations

WilburRM@state.gov  
(41) 22.749.4359

