Press Release



June 6, 2007 Mori Building Co., Ltd. Shanghai World Financial Center Co., Ltd.

Anti-wind technology to be installed on the ninetieth above ground floor (395 meters) of "Shanghai World Financial Center" construction ~ Improving comfort by dramatically easing wind swaying problem in a super high-rise ~

Shanghai World Financial Center Co., Ltd, invested by Mori Building Co., Ltd., is ready to install anti-wind tuned mass dampers on the ninetieth floor of the Shanghai World Financial Center. Currently under construction in the Lujiazui Financial and Trade Zone of Pudong New District, Shanghai, the super high-rise construction project will have 101 floors above ground.

The Shanghai World Financial Center is a multi-purpose super high-rise complex housing office, hotel, observatory, conference and commercial spaces. The construction has reached 93 floors above ground at a height of 416 meters. The building's roof is expected to seal this September, with a total height of 492 meter including 101 floors above ground. The whole project will be completed in the spring of 2008.

To improve occupants' comfort in strong wind conditions – particularly in hotel and office spaces – two mass dampers were installed on the ninetieth above ground floor. The mass dampers use sensors to detect any swaying of the building and connects with a computer controlled, 150-ton counterweight suspended within the equipment by wire rope. In this way, the swaying problem of building is kept in control. (See PDF file for detailed information on this equipment).

While mass damper units are a feature of super high-rise buildings around the world, in mainland China, the Shanghai World Financial Center stands at the forefront with the introduction of a tuned mass damper system for commercial buildings.



MORI BUILDING



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[Technical Information]

The operating principle and structure

At the center of this equipment is a librating object, or counterweight, which possessing the same natural period as the building. It limits the building's swaying scope by electronically detecting movements caused by strong wind conditions and moving the counterweight accordingly. The librating counterweight is driven by a motor located at the bottom of this equipment that allows for movement and control in all directions.



Setup Map



(All sources from: Mitsubishi Heavy Industry, Ltd.)



Merits and Advantages

The acceleration rate applied by an intense wind on the building can be reduced by around 40% thanks to this unit. People inside the building will not feel the oscillation of the building even in typhoon conditions. Improving comfort is a vital performance criterion for the Shanghai World Financial Center where the highest floors will cater a luxury hotel.



(All sources from: Mitsubishi Heavy Industry, Ltd.)

Overview on anti seismic unit

Type of Model:	Three stage pendulum active-type ball lead screw driven
Exterior dimension:	9.0 m wide, 9.0 m long, 4.0 m high
Equipment weight:	150t/unit
Number of units fixed:	2
Manufacturer:	Mitsubishi Heavy Industry, Ltd.



[Overview on building]

Name of building:	Shanghai World Financial Center
Location:	Street No. Z4-1, Lujiazui Financial Trade Center Area
Area occupation:	30,000 sq.m
Building floorage:	14,400 sq.m
Gross floor area:	381,600 sq.m
Number of floors:	101 floors above ground, 3 floors under ground
Height of building:	492 m
Construction:	steel concrete structure (SRC), steel structure (S)
Owner:	Shanghai World Financial Center Co., Ltd
Designer and Supervisor:	Level-one Architecture Institute of Mori Building Co., Ltd
Designer of building:	KPF
Construction designer:	LERA
Consultant designer::	Shanghai Modern Architecture Design (Group) Co., Ltd,
	East China Architecture Design and Research Institute Co., Ltd
Constructor:	China Architecture Engineering General Co.,
	Shanghai Construction (Group) General Company Association
Completion date:	Spring in 2008 (to be determined)



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