

Sampath

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Subject: FW: [VRPGemsof94] Fact behind Building Collapse In Shanghai (China)

## **LESSONS LEARNED**



### **Building Collapsed In Shanghai (06/27/2009) (Daqi)**

At around 5:30am on June 27, an unoccupied building still under construction at Lianhuan Road in the Minhang district of Shanghai city toppled over. One worker was killed. According to information, a 70 meter section of the flood prevention wall in nearby Dianpu River and that may have something to do with this building collapse.

But the high-resolution photos are really amazing.

**(China Daily)**

Improper construction methods are believed to be the reason of last Saturday's building collapse in Shanghai, according to a report from the investigation team.. The investigation team's report said that workers dug an underground garage on one side of the building while on the other side earth was heaped up to 10 meters high, which was apparently an error in construction, according to a report on eastday.com, Shanghai's official news website. "Any construction company with common sense would not make such a mistake," said an expert from the investigation team.

Earlier this week, there were also reports saying that cracks on the flood-prevention wall near the building, as well as the special geological condition in the water bank area, may be part of the reason for the collapse. "These factors are not the basic reason of this accident," said the expert.

Nine people linked to the building collapse, including the real estate developer, contractor and the supervisor for the project, have been put "under appropriate control", said the official Xinhua News Agency Sunday evening.

Firm's ignorance led to toppling of Shanghai building, report says By Will Clem and Lillian Zhang. July 4, 2009.

An official investigation into the collapse of an unfinished building in Shanghai has said that the accident was due to the construction company's "ignorance", rather than flaws in the design or building materials. However, the report stopped short of apportioning blame, and has been criticised for failing to address key issues.

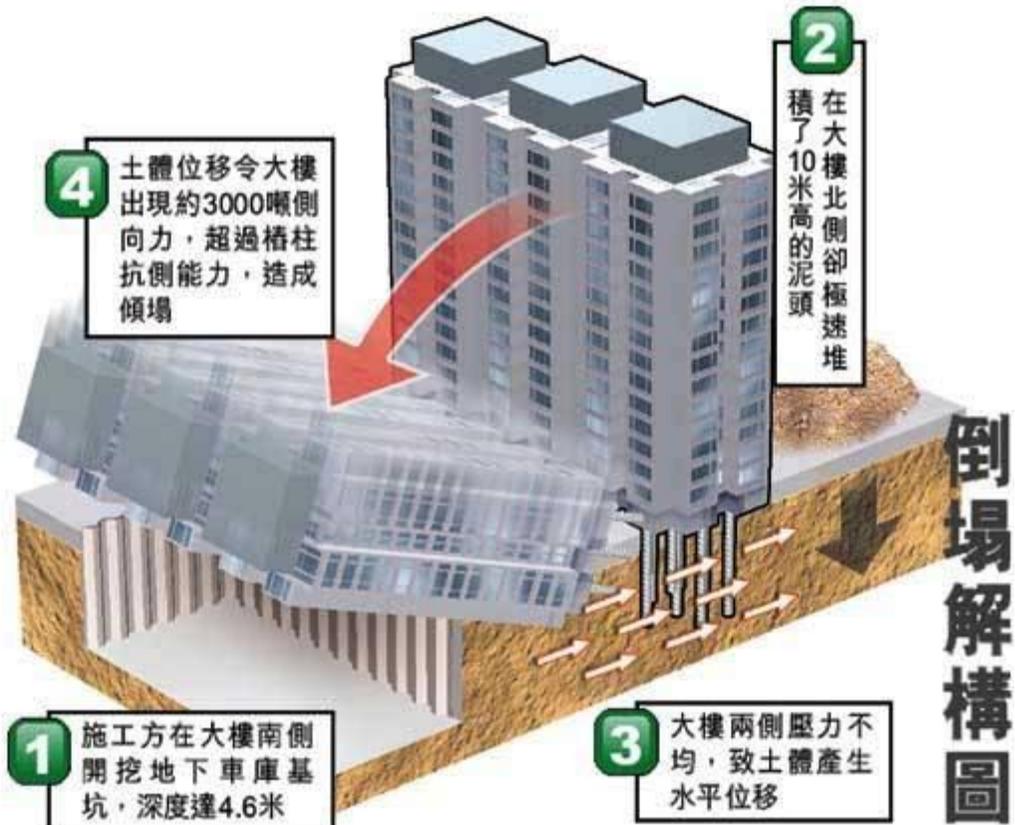
The report said the collapse was caused by earth, excavated to make a 4.6-metre deep pit for an underground car park alongside the building, being piled to depths of up to 10 metres on the other side of the structure. The weight of the pile created a "pressure differential" which led to a shift in the soil structure, eventually weakening the foundations and causing them to fail. This situation "may" have been aggravated by several days of heavy rain leading up to the collapse, but investigators would not say whether this was a crucial factor. The report said the construction company - Shanghai Zhongxin Construction - "did not consider clearly" that the earth pile could have such a devastating effect.

Investigators stopped short of saying whether the company's errors were negligent or easily avoidable. However, they stressed that the building's foundations and construction materials all complied with the city's building regulations.

Huang Rong , director of the Shanghai Urban Construction and Communications Council, said inspections had shown that none of the remaining 10 apartment blocks was in immediate danger.. "The surrounding buildings are now stable," he said. "The safety inspection of these homes will be the second phase of our professional team's work."

Jiang Huancheng , an architect and a lead investigator for the report, said it had been an "enormous shock" to see the site for the first time. "In my 46 years in the industry, I have never seen or heard of this," he said. "To put it simply this was ignorance leading to rashness. We need to take this accident as an important lesson ... and ensure that it does not happen again."

Several days before the release of the report, Wu Hang , Mr Jiang's assistant, accused the construction company of incompetence and lacking "common sense". Mr Wu said the investigation had found there had been no structures to support the walls of the car park pit, and this had been a key factor contributing to the accident.



- (1) An underground garage was being dug on the south side, to a depth of 4.6 meters
- (2) The excavated dirt was being piled up on the north side, to a height of 10 meters
- (3) The building experienced uneven lateral pressure from south and north
- (4) This resulted in a lateral pressure of 3,000 tons, which was greater than why the pilings could tolerate. Thus the building toppled over in the southerly direction.

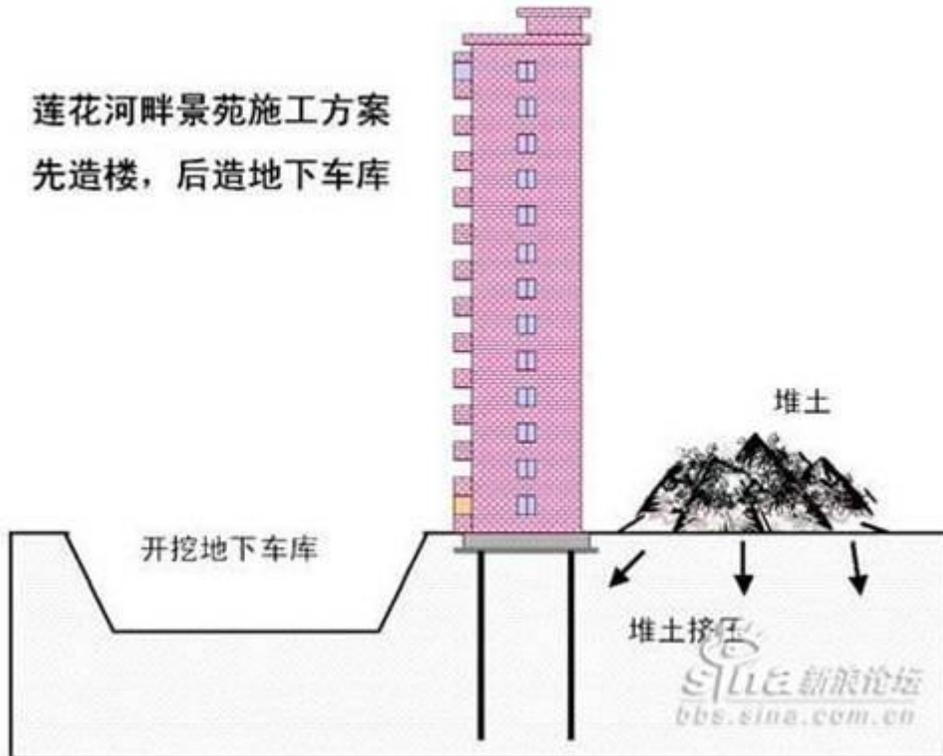
(Sina.com)

美丽的  
莲花河畔景苑大楼  
是怎样倒塌的

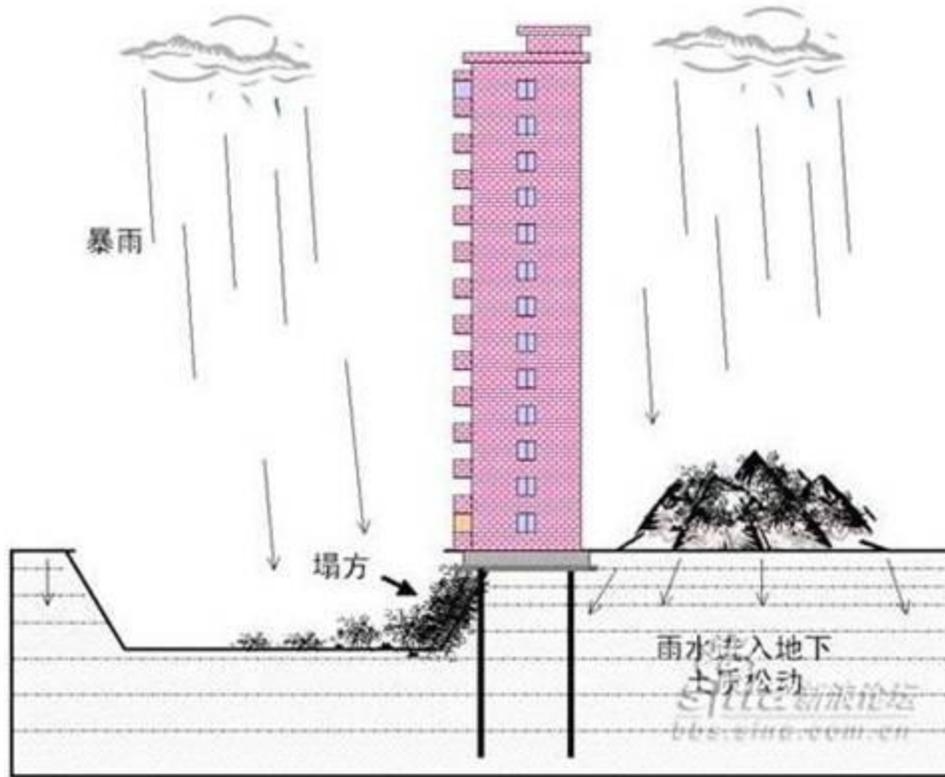


First, the apartment building was constructed

莲花河畔景苑施工方案  
先造楼，后造地下车库



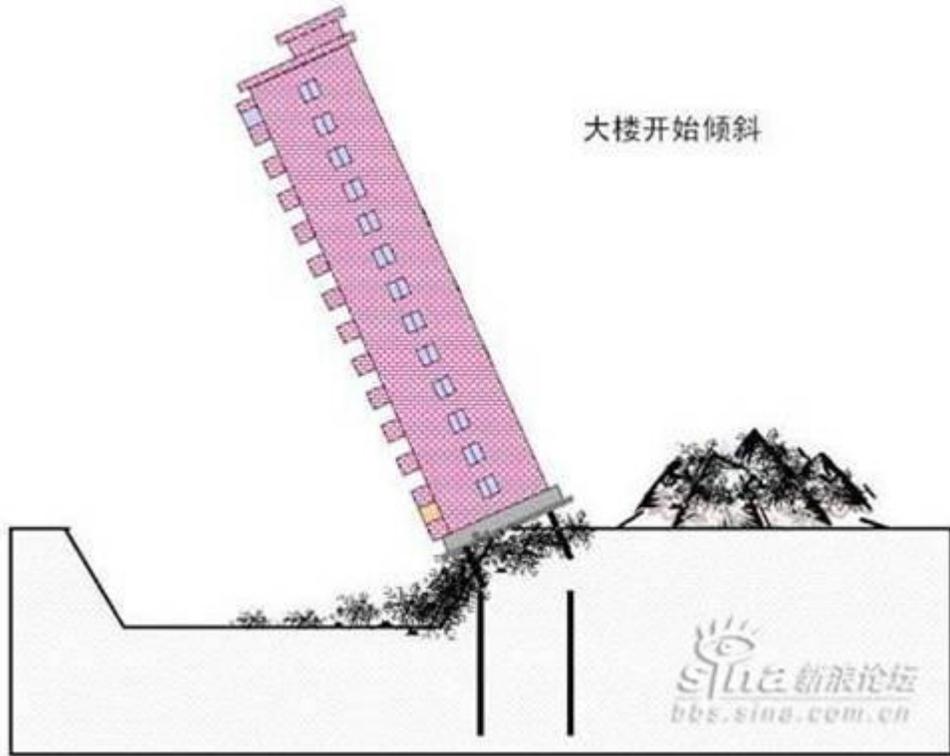
Then the plan called for an underground garage to be dug out.  
The excavated soil was piled up on the other side of the building.



Heavy rains resulted in water seeping into the ground.



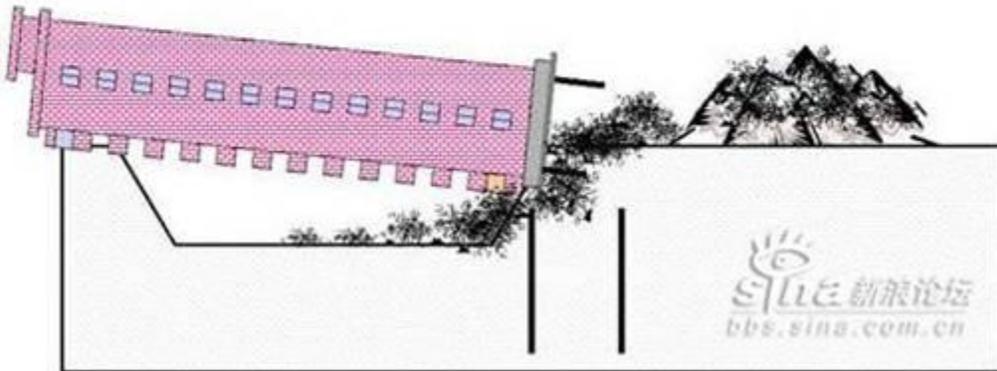
The building began to shift and the concrete pilings were snapped due to the uneven lateral pressures.



大楼开始倾斜

The building began to tilt.

创造世界房屋倒塌奇迹



And thus came the eighth wonder of the world.

























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