

Taiwan Close to Reaching a Lofty Goal: Built of Politics and Pride to ...

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New York Times (1923-Current file); Jan 11, 2004; ProQuest Historical Newspapers: The New York Times

pg. N12

Taiwan Close to Reaching a Lofty Goal

Built of Politics and Pride to Stand Against Quakes and Typhoons

By KEITH BRADSHER

TAIPEI, Taiwan — When the Nationalists retreated here from the mainland at the end of China's civil war in 1949, they did not intend to stay long. The architecture shows it.

Rows of short, dreary concrete buildings line the older streets. Box-like, 10-story glass office buildings with no pizzazz flank avenues in the newer business districts. Typhoons are a frequent threat and earthquakes a constant menace — 2,455 people died in a quake here just over four years ago that destroyed 51,000 homes and damaged an additional 53,000.

Not surprisingly, only a handful of buildings have more than 30 stories — the tallest has 52. But that has not stopped a coalition of local tycoons, politicians, builders and architects from building what is about to become the world's tallest building, a 101-story tower with the shape of an abstract pagoda that soars past previous holders of the title, the Petronas Towers in Malaysia and the Sears Tower in Chicago. (Plans for

the site of the former World Trade Center in Manhattan call for an even taller building, although some argue it may not qualify as tallest because part of it will be more structural framework than habitable building.)

Hydraulic jacks on the roof moved the Taipei building's spire into place in October, and the final windows to finish enclosing the 1,667-foot-high building were installed in early November. The building, Taipei 101, is to open in December. Although it trails the Sears Tower in the height of antennas on top of its roof, it exceeds the Sears building in the height of its uppermost occupied floor and has a higher spire than the Petronas Towers.

As with other very tall buildings in Asia, the construction of this one is as much about politics and pride as commerce. "As the world's highest building, Taipei 101 will attract attention to Taiwan's excellence, and carve 'Taiwan first' in the minds of people around the globe," President Chen Shui-bian said in a written response to a question about the

project.

Mr. Chen was the mayor of Taipei in the spring of 1997 when he began pressing to have a skyscraper built in the new neighborhood he was creating close to City Hall, on the city's eastern outskirts. He called Lin Hong-ming, one of Taiwan's wealthiest construction tycoons, who said he had rounded up the financing for the project in only a couple of days by contacting the leaders of a half dozen of the country's wealthiest families. The cost of the building is \$1.7 billion.

Mr. Chen was a rising star then in the Democratic Progressive Party, which was starting to challenge the Nationalist Party's half-century monopoly on power. Tycoons who had grown rich under the Nationalists had an incentive to seek warm ties with the new party.

The initial plan was for a 66-story skyscraper with two 20-story buildings in front of it. Mr. Lin said the planned tenants for the 20-story buildings, China Trust and the Taiwan Stock Exchange, each wanted to be in the main building, though, so their office space was stacked on top of the original building.

"It was never really our intention to build the tallest building in the world," he said.

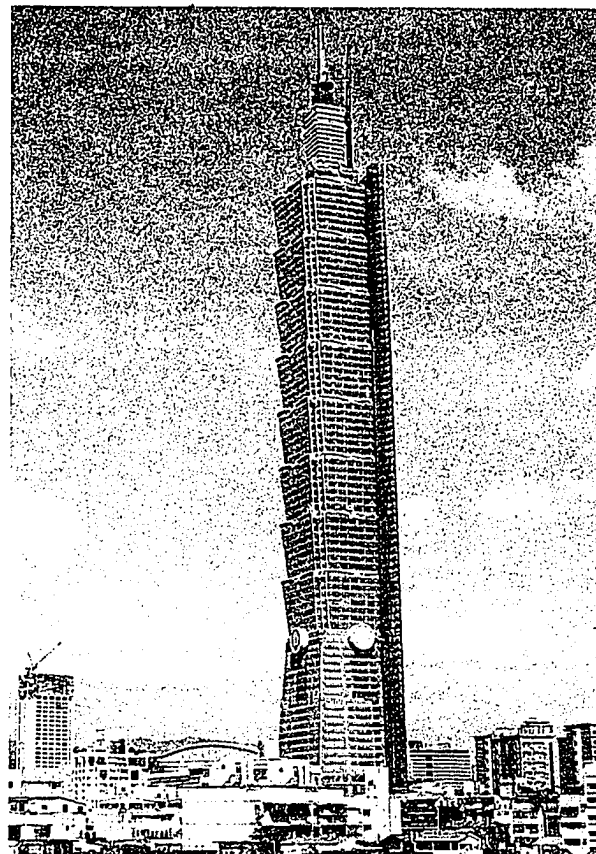
Mr. Chen's election as president in 2000 gave the project extra momentum. The Asian financial crisis in late 1997 and through 1998 did not derail the project, nor did the end of the dot-com boom, although both caused serious economic problems in Taiwan.

Just as the Rockefeller Center was built inexpensively during the Great Depression, hiring workers cheaply, the tycoons here have found construction workers and companies eager to work even at reduced pay on one of the few big projects left.

Mr. Lin describes the building as the most important of his life and has pursued it with single-minded focus. Creditors have seized some of his family's other properties, which have suffered from the general downturn in the local real estate market over the last two years, but the Lin family has not reduced its stake in Taipei 101.

"I am 100 percent devoted to this project," he said in an interview in a barren, unpainted, makeshift office a third of the way up the tower.

Safety has been a big concern, and



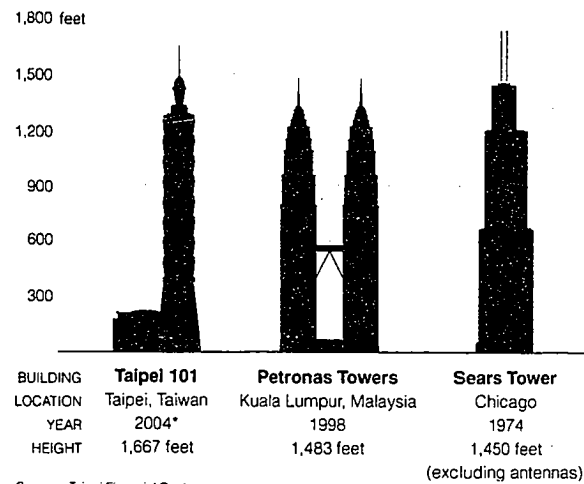
Associated Press

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A visitor captured the shopping mall that is part of the Taipei 101 complex, left, when it opened late last year. The 101-story building is to be the world's tallest when its tower opens in December, reaching past previous titleholders, the Petronas Towers in Malaysia and the Sears Tower in Chicago.

Above the Rest

The Taipei 101 building is nearing completion. When it is finished it will be the tallest building in the world.



Sources: Taipei Financial Center; Trizec Properties; Petronas

*Building is unfinished, but has reached its full height

The New York Times

the Sept. 11 attacks raised fresh worries. C. P. Wang, the architect, said that while computer modeling of such an attack was difficult, the builders had designed Taipei 101 so that it should be able to stand for at least a couple of hours longer than the World Trade Center towers did and might not collapse at all under similar circumstances.

The World Trade Center's structure relied on many slender columns in each floor. Taipei 101 has an immense frame with eight pillars of steel and reinforced concrete, each measuring 11 feet by 8 feet at the base, rising inside the corners of the building.

Even a passenger jet moving at full speed should not be able to break one of the pillars, Mr. Wang said, but if it did, the other pillars should be able to support the building.

To anchor the building against earthquakes, builders drilled down through 200 feet of dirt and then 65

feet into the bedrock. Taipei lies in a bowl between mountains, and the soil is prone to shimming like gelatin in an earthquake, but the bedrock moves less.

For all the precautions, the construction has been dogged by problems. An earthquake in 2002 caused two cranes on Taipei 101 to fall, killing five workers. A small steel panel fell from the top on Nov. 21, bouncing down the side of the building and lightly grazing a passer-by on the street.

On the roof now, the winds are surprisingly strong even on a clear day, as the building is higher than the surrounding hills. For stability during typhoons and other high winds, the building has a 727-ton solid steel ball hanging from eight cables inside the 89th floor.

Not much larger than a minivan, the ball is designed to act as a pendulum, offsetting up to 40 percent of the swaying in the tower's top floors.

Such balls, known as tuned mass dampers, are common in buildings over 70 floors, but are usually in mechanical rooms where visitors do not see them.

Already installed, the ball in Taipei 101 will be painted gold and will be the centerpiece of a bar and restaurant, so that patrons can watch it move. The ball is designed to swing back and forth up to five feet during a severe typhoon. Bumpers will prevent it from swinging any farther and striking barflies.

Mr. Wang said that even though the building was designed to withstand storms seen only once in a century, few people would be around to see the ball swing violently, given corporate and government policies of dismissing workers when a typhoon approaches.

"In the case of a real strong typhoon," he said, "I would recommend people go home."