

A talented team of demolition experts "blow down" Fort Worth's Landmark Tower.

By R. G. Pickard -- Texas Contractor, 4/17/2006

Originally built between 1952 and 1957 for the Continental National Bank, the 380-foot tall, 30-story Landmark Tower was Fort Worth's tallest building until 1974. Vacant since 1990 and partially damaged by a tornado in March 2000, the Landmark Tower was purchased by XTO Energy at a foreclosure sale in January 2004. XTO Energy decided to demolish it after previous owners, who tried to convert it to residential use, found the \$62-million expense of renovations and upgrades prohibitive. XTO Energy subsequently began soliciting bids for the demolition in 2004.

The Landmark Tower demolition was contracted to Midwest Wrecking Co. of Texas, Inc., based in Fort Worth. Midwest Wrecking Co. of Texas began general demolition work in November 2005; however, this was not the first time they had worked on the Landmark Tower. Before XTO Energy purchased the building, Midwest Wrecking Co. of Texas was contracted shortly after the tornado to remove the old Continental National Bank rotating clock from the top of the Landmark Tower as well as the 90-foot-long Houston Street Skybridge.

Brian Choate, owner of Midwest Wrecking Co. of Texas, said, "The Land mark Tower was the tallest building imploded in Texas, and the second tallest building ever imploded in the world."

The implosion was designed so that the building would fall into the two-level basement and into trenches dug on the north and west sides of the structure.

"The demolition of large buildings is a bit of a specialty market," Choate said. "Most of the work involved is typical demolitions work; however, blasters are needed to design the implosive layout."

Houston-based D.H. Griffin of Texas, Inc., was contracted for the pre-implosion preparation, including the required falsework. All structural supports, columns, clear stands, and transfer beams had to be isolated and it was necessary to avoid overloading any individual column to prevent tilting during implosion. False columns and wood cribbing were installed in the first floor of the two-level basement to improve structural integrity and direct the movement of the building because the existing columns were asymmetrical.

John F. Angelina, President of D.H. Griffin of Texas, Inc., said, "the Landmark Tower was an excellent project. It was one of the tallest buildings ever imploded and an extremely talented team was put together to do the demolition."

To pull the walls in and properly direct the collapse during implosion, 98 steel cables were used. This required several thousand lineal feet of steel cable ranging in size from 3/4-inch to 1-3/8 inch. The first floor of the Landmark Tower was surrounded by steel cables and nets to contain glass and aluminum. Steel cables were put in place on the first, second, third, fourth, sixth, eighth, 10th, and 12th floors to assist in the direction of fall. Demolition Dynamics Co., of Franklin, Tennessee, prepared the actual explosive work.

"Proper direction of energy is required to efficiently implode a building," explained Steve Pettigrew of Demolition Dynamics. "We try to do it with the minimum amount of explosive material required. Five days before the scheduled implosion, we did test shots with small explosive charges to judge the reaction of the structure. Test shot results don't alter the lay pattern of the explosives in the building, but rather are used to determine the proper ratio of explosive charge weight to the mass of the structural elements of the building. When doing test shots we want to undershoot the charge just so that we can see a crack in the structure. The cracks help us to determine the planes of weakness and create a plane of relief for proper rotation at the time of implosion."

The explosive charges used to bring down the Landmark Tower weighed only 364 pounds, consisting of 198 pounds of 60-percent nitroglycerine-based gel in 1-1/4 inch sticks, and 166 pounds of RDX (a C-4 derivative). The explosives were supplied by Buckley Powder Company.

To break structural steel, 369 linear shaped armor-piercing charges were required. Concrete columns were broken with the larger charges of RDX ranging from 2 ounces to 12 ounces at a density of 600 grains to 4,000 grains per lineal foot.

All of the charges were detonated with a non-electric system, and each charge position had trump lines and multiple detonators to ensure reliability. The detonation period was set for a total of six seconds, with 120 different sequenced and delayed detonations of 8 milliseconds or greater.

Before the implosion, a total area of approximately 15 city blocks was cordoned off and evacuated. The buffer area extended for a distance of two blocks on the north and south sides, and one block on the east and west sides of the Landmark Tower. There were, however, several occupied buildings in the safety perimeter, which were outside of the immediate problem area. A command post and a VIP viewing area were set up on the south side.

In spite of heavy rains and foul weather, the Landmark Tower was imploded at 7:40 a.m. on Saturday, March 18, 2006, with a local boy scout being given the honor of pressing the button to begin the detonation sequence. The total time required for the building collapse was only 13 seconds from the first blast until the structure hit the ground.

Midwest Wrecking estimates that cleanup of the debris will require approximately three months. The basement will then be backfilled.

XTO Energy initially plans to use the location for employee parking, and in the future may use the site for a new high-rise building, which will become XTO Energy's corporate headquarters.