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Windsor tower madrid collapse

The Windsor building in Madrid was destroyed by a fire which burned for 17 hours. How do you think the structure performed? The Windsor Tower in Madrid performed well, in that it did not collapse despite the duration of the fire. However, as the building was, as I understand, unoccupied at the time of the fire, its overall performance (eg ensuring safe escape routes and suffi cient escape time for occupants) can only be assumed. What does raise questions is the fact that the fire occurred at all, and that it was apparently able to spread unhindered so rapidly, leading to the conclusion that fire protection of internal materials or detailing were sub-standard. Mike Paul, 52, senior engineer, Stuttgart, Germany If the building had a sprinkler system, the fire would have been extinguished within minutes, instead of 17 hours, and would have saved a tremendous amount of money. Apparently, because the tower was 3m short of the magic 100m 'sprinklers were deemed unnecessary'. A short-sighted decision if ever there was one! It is about time clients and specifiers realised that a sprinkler system is not just some extra that is cut out of the project at an early stage to save money, but an essential part of the building - just as vital as the foundations. Daniel Munday, 45, Chartered Surveyor, Bucks To put it simply, the top parts performed badly and the lower parts performed well. Surely the total gutting of upper stories is an unacceptable failure: of fire warning, protection and response. However, the residual structural support of the lower frame is to be commended. Both present the opportunity to learn engineering and operational lessons. Dudley Swain, 57, performance manager, Exeter Clearly the building performed badly as it failed to withstand fire. Had it been occupied when fire broke out, loss of life would probably have occurred. And to think that we all mocked Towering Inferno. Peter Borrows, 62, Thames Estuary strategy manager, London I think the building stood up pretty well. Giving the occupants 17 hours to evacuate is not bad, but I am more critical of the fire protection system that did not contain the fire within a reasonable period. John D Brownlie, 56, project director, Shrewsbury Better to stand, than to collapse as happened to the Twin Towers in America. I hope we will find out soon what modifications to the design and construction might have preserved it well enough to avoid demolition. Perhaps it could be demolished to below the fire zone and left as a stump? Michael Dommett, 47, civil engineer, London Thank goodness the fire occurred when the building was empty. Hopefully the Spanish authorities will learn serious lessons from this incident and it will help to raise standards. Charles Brewerton, project engineer, Brighton It seems that the tower, under failure-inducing circumstances, attained its primary objective, which was to preserve life. I'm not surprised that, after burning for 17 hours, it has to be demolished. No doubt more lessons will be learned, from all sorts of different points of view. Luc Koefman, 34, Windfarm engineer, Avignon, France For faster navigation, this Iframe is preloading the Wikiwand page for Windsor Tower (Madrid). {{:readMoreArticle.title}} {{bottomLinkPreText}} {{bottomLinkText}} This page is based on a Wikipedia article written by contributors (read/edit). Text is available under the CC BY-SA 4.0 license; additional terms may apply. Images, videos and audio are available under their respective licenses. Thanks for reporting this video! An extension you use may be preventing Wikiwand articles from loading properly. If you're using HTTPS Everywhere or you're unable to access any article on Wikiwand, please consider switching to HTTPS (). An extension you use may be preventing Wikiwand articles from loading properly. If you are using an Ad-Blocker, it might have mistakenly blocked our content. 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Unsourced material may be challenged and removed.Find sources: "Windsor Tower" Madrid - news - newspapers - books - scholar - JSTOR (September 2014) (Learn how and when to remove this template message) Torre WindsorGeneral informationStatusDestroyedTypeOfficeLocationC/Raimundo Fdez. Villaverde 65, Madrid, SpainCoordinates40°26′49″N 3°41′40″W﻿ / ﻿40.44694°N 3.69444°W﻿ / 40.44694; -3.69444Coordinates: 40°26′49″N 3°41′40″W﻿ / ﻿40.44694°N 3.69444°W﻿ / 40.44694; -3.69444Construction started1975Completed1979DestroyedFebruary 12, 2005OwnerAson InmobiliariaHeightRoof166 m (348 ft)Technical detailsFloor count3 below, 29 aboveDesign and constructionArchitectGabinete Alas-Casarego Windsor Tower on February 13, 2005 The Windsor Tower (Spanish: Torre Windsor) was an office building in the financial center of Madrid, Spain. Built in 1979, it was 106 m (348 ft) high and had 32 floors of which 29 were above ground level and 3 below, thus ranking it as the eighth tallest building in Madrid (and 23rd in Spain). The building was gutted by a huge fire on February 12, 2005, and partially collapsed; it has since been demolished. Characteristics of the building The building, located at Calle Raimundo Fernández Villaverde 65, had a total area of 20,000 square metres (220,000 sq ft) and was one of the first modern towers in Madrid. The tower was designed in 1974 by a team of six important Spanish architects and was constructed between 1975 and 1979. Its distinctive appearance was due to its elemental geometry, lacking composite elements. Its façade was completely covered by reflective glass-like panels that mirrored the sky of Madrid, diminishing its visual impact. The structure was divided into two halves by a mechanical floor without windows. It was a very solid building, with a central core of reinforced concrete that resisted the high temperatures of the fire without collapsing. The building did not have a fire sprinkler system. Sprinklers were being retrofitted, but they were not yet operable when the building was destroyed by fire.[1] Disaster Around midnight, on Saturday, February 12, 2005, a fire was detected on the 21st floor of the building. The fire spread quickly throughout the entire building, leading to the collapse of the outermost, steel parts of the upper floors. It took firefighters about 24 hours to extinguish the fire. In the aftermath, seven firefighters were injured, but nobody was killed during the disaster. However, the building was a total loss, which was arguably the worst in Madrid's history. The fire was blamed on an electrical fault.[citation needed] The city council of Madrid covered the cost of demolishing the remains of the building, thought to be some EUR 22 million (USD \$32.5 million). Demolition was completed in August 2005, and a 23-story replacement called Torre Titania was built from 2007 to 2011. See also Skyscraper fire References ^ Standing Committee on Structural Safety, "The Fire at Torre Windsor Office Building, Madrid 2005" External links Wikimedia Commons has media related to Torre Windsor, Madrid. Wikinews has related news: Madrid skyscraper devastated by fire elmundo.es, Arde el Windsor (Windsor burns). Images of the fire. BBC Madrid skyscraper faces collapse BBC News UK Edition, Commuter chaos after Madrid blaze. CNN.com, Madrid alert after skyscraper fire. Borneo Bulletin, Arsonists may be behind Madrid fire. NAMC Worldwide Newsrroom, Horrific Fire at the Windsor Tower in Madrid Spain Shakes the Capital. NEWS24.com, Silhouettes in Madrid inferno. Retrieved from " Authors: Published Online: July 07, 2015 © Institution of Civil Engineers 2009 Key: Open access content Subscribed content Free content Trial content Abstract: Introduction Structural Description Renovation Work Forensic Investigation on the Windsor Fire and Collapse Collapse description and evaluation Conclusions Bibliography Before midnight on the 12 February, 2005, a fire broke out in the 32-storey, 106 m tall Windsor Tower in the commercial and banking centre of Spain's capital Madrid.The building, normally occupied by about 2000 people was fortunately empty when the devastating fire broke out on the 21st floor. The fire quickly spread first upwards and then downwards, resulting in a total burn-out of the tower. Initial deconstruction work City authorities entrusted the construction company Construcciones Ortiz with the deconstruction of the tower, which was initially expected to take 11-12 months. The lack of space around the building was a problem and although inspections had ruled out a total collapse of the building, the risk of partial collapses could not be ignored. The first step after sealing off the surrounding area was to install high cranes around the tower to lift out the steel and concrete that made the structure unstable. Different demolition techniques were used at this stage. Sub-contractor Hidrodem, specialists in hydrodemolition, worked from cages suspended from tower cranes. It was also necessary to cut and remove the twisted remnants of the steel columns, a job that was carried out by another sub-contractor, Madrid-based Perfox, using flame cutting. Entered by Brokk By 22 February the building had been cleared of enough material to bring in the Brokk remotely controlled demolition robots chosen for the floor by floor demolition. Although the Brokks' low weight was an advantage in the weakened structure, the radio control facility was a decisive factor in the choice of equipment, as the operators could control the robot from a safe position while monitoring progress. On average five Brokk machines were constantly in use on the project. These were four Brokk 180s and one Brokk 90, all equipped with Atlas Copco hammers, with an additional 1-2 units brought in as support when needed. Construcciones Ortiz provided two of the machines and a crew of operators and the remaining Brokk machines were supplied and operated by Perfox, a specialized demolition company with several years' experience of using Brokk robots. Working their way from the top down, the Brokk machines cut the concrete columns, walls and floors into manageable pieces for lifting out by the cranes. On reaching the 17th floor, the Brokk operators exchanged the hydraulic hammers for buckets and proceeded with loading the debris from the upper floor's demolition. Once enough space had been created demolition continued to ground level. By mid July two thirds of the Windsor Tower had been removed and demolition was finally completed three months ahead of the original schedule. Not an everyday job The deconstruction of the Windsor Tower was not an ordinary demolition project. Not only did the height and condition of the fire-ravaged tower require considerable expertise, the massive media coverage also generated enormous pressure on all parties involved. Another issue was the wide safety cordon required to gain access to the site. This contributed to the fast demolition and minimised disruption to traffic and surrounding commercial activities. The demolition of the Windsor Tower can serve as a model to carry out a project of this magnitude and complexity. The majority of the machines used at the Windsor project were Brokk 180s. This model weighs just over 2 t with the hammer included and has long tracks and extended outriggers ensuring access and stability on uneven ground. The three-part arm system offers exceptional reach and flexibility and can be equipped with tools normally found on much bigger excavators. www.brokk.com

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