

= One World Trade Center =

One World Trade Center (also known as the Freedom Tower , 1 World Trade Center , One WTC and 1 WTC) is the main building of the rebuilt World Trade Center complex in Lower Manhattan , New York City . It is the tallest building in the Western Hemisphere , and the sixth @-@ tallest in the world . The supertall structure has the same name as the North Tower of the original World Trade Center , which was completely destroyed in the terrorist attacks of September 11 , 2001 . The new skyscraper stands on the northwest corner of the 16 @-@ acre (6 @. @ 5 ha) World Trade Center site , on the site of the original 6 World Trade Center . The building is bounded by West Street to the west , Vesey Street to the north , Fulton Street to the south , and Washington Street to the east .

The building 's architect was David Childs , whose firm Skidmore , Owings & Merrill (SOM) also designed the Burj Khalifa and the Willis Tower . The construction of below @-@ ground utility relocations , footings , and foundations for the new building began on April 27 , 2006 . One World Trade Center became the tallest structure in New York City on April 30 , 2012 , when it surpassed the height of the Empire State Building . The tower 's steel structure was topped out on August 30 , 2012 . On May 10 , 2013 , the final component of the skyscraper 's spire was installed , making the building , including its spire , reach a total height of 1 @, @ 776 feet (541 m) . Its height in feet is a deliberate reference to the year when the United States Declaration of Independence was signed . The building opened on November 3 , 2014 .

On March 30 , 2009 , the Port Authority of New York and New Jersey (PANYNJ) confirmed that the building would be officially known by its legal name of " One World Trade Center " , rather than its colloquial name of " Freedom Tower " . The building is 104 standard floors high , but the tower has only 94 actual stories .

The new World Trade Center complex will eventually include five high @-@ rise office buildings built along Greenwich Street , as well as the National September 11 Memorial & Museum , located just south of One World Trade Center where the original Twin Towers stood . The construction of the new building is part of an effort to memorialize and rebuild following the destruction of the original World Trade Center complex .

= = Original building (1970 ? 2001) = =

= = = Construction = = =

The construction of the World Trade Center , of which the Twin Towers (One and Two World Trade Center) were the centerpieces , was conceived as an urban renewal project and spearheaded by David Rockefeller . The project was intended to help revitalize Lower Manhattan . The project was planned by the Port Authority of New York and New Jersey , which hired architect Minoru Yamasaki . Yamasaki came up with the idea of building twin towers . After extensive negotiations , the New Jersey and New York State governments , which supervise the Port Authority , consented to the construction of the World Trade Center at the Radio Row site , located in the lower @-@ west area of Manhattan . To satisfy the New Jersey government , the Port Authority agreed to buy the bankrupt Hudson & Manhattan Railroad (renamed to Port Authority Trans @-@ Hudson) , which transported commuters from New Jersey to Lower Manhattan .

The towers were designed as framed tube structures , giving tenants open floor plans , unobstructed by columns or walls . This design was accomplished by using many closely spaced perimeter columns , providing much of structure 's strength , with the gravity load shared with the core columns . The elevator system , which made use of sky lobbies and a system of express and local elevators , allowed substantial floor space to be used for office purposes by making the structural core smaller . The design and construction of the towers involved many other innovative techniques , such as wind tunnel experiments and the slurry wall for digging the foundation .

Construction of the North Tower (One World Trade Center) began in August 1966 ; extensive use of prefabricated components sped up the construction process . The first tenants moved into the

North Tower in December 1970 . In the 1970s , four other low @-@ level buildings were built as part of the World Trade Center complex . A seventh building was built in the mid @-@ 1980s .

= = = Specifications and operations = = =

After Seven World Trade Center was built in the 1980s , the World Trade Center complex had a total of seven buildings ; however , the most notable ones were the main Twin Towers built in the 1970s ? One World Trade Center was the North Tower , and Two World Trade Center was the South Tower . Each tower was over 1 @,@ 350 feet (410 m) high , and occupied about 1 acre (0 @.@ 40 ha) of the total 16 acres (6 @.@ 5 ha) of the site 's land . During a press conference in 1973 , Yamasaki was asked , " Why two 110 @-@ story buildings ? Why not one 220 @-@ story building ? " His response was , " I didn 't want to lose the human scale . "

When completed in 1972 , One World Trade Center became the tallest building in the world for two years , surpassing the Empire State Building , which had held the record for 40 years . The North Tower was 1 @,@ 368 feet (417 m) tall , and in 1978 , a telecommunications antenna was added to the top of the roof ; by itself , the antenna was 360 feet (110 m) tall . With the 360 @-@ foot (110 m) -tall antenna , the highest point of the North Tower reached 1 @,@ 728 ft (527 m) . The tower held its record for a brief period of time ; Chicago 's Sears Tower , finished in May 1973 , was 1 @,@ 450 feet (440 m) at the rooftop . At 110 floors , the World Trade Center towers had more floors than any other building at that time . This number was not surpassed until the construction of the Burj Khalifa (163 floors) , which opened in 2010 .

Of the 110 stories , eight were set aside as mechanical floors (floors 7 / 8 , 41 / 42 , 75 / 76 , and 108 / 109) , which were four two @-@ floor areas that were spaced up the building in even intervals . All the remaining floors were open for tenants . Each floor of the tower had 40 @,@ 000 square feet (3 @,@ 700 m²) of available space . The North and South tower had 3 @,@ 800 @,@ 000 square feet (350 @,@ 000 m²) of total office space . The entire complex of seven buildings had a combined total of 13 @,@ 400 @,@ 000 square feet (1 @,@ 240 @,@ 000 m²) of office space .

The complex initially failed to attract the expected clientele . During the early years , various governmental organizations became key tenants of the World Trade Center , such as the State of New York . In the 1980s , the city 's perilous financial condition eased , after which an increasing number of private companies ? mostly financial firms related to Wall Street ? became tenants . During the 1990s , approximately 500 companies had offices in the complex , including financial companies such as Morgan Stanley , Aon Corporation , and Salomon Brothers . The basement concourse of the World Trade Center included The Mall at the World Trade Center , and a PATH station . The North Tower became the main corporate headquarters of Cantor Fitzgerald , and it also became the headquarters of the Port Authority of New York and New Jersey .

The tower 's electrical service was supplied by Consolidated Edison (ConEd) at 13 @,@ 800 volts . The electricity passed through the World Trade Center Primary Distribution Center (PDC) , and was then sent up the building 's core to electrical substations located on the mechanical floors . The substations lowered the 13 @,@ 800 primary voltage to 480 / 277 volts , and the voltage was then further lowered to 208 / 120 volts for general power and lighting services . The complex was also served by emergency generators located in the sub @-@ levels of the towers and on the roof of Five World Trade Center .

The 110th floor of One World Trade Center (the North Tower) housed radio and television transmission equipment . The roof of the North Tower contained a vast array of transmission antennas , including the 360 feet (110 m) center antenna mast , rebuilt by Dielectric Inc. to support DTV in 1999 . The center mast contained the television signals for almost all NYC television broadcasters : WCBS @-@ TV 2 , WNBC @-@ TV 4 , WNYW 5 , WABC @-@ TV 7 , WWOR @-@ TV 9 Secaucus , WPIX 11 , WNET 13 Newark , WPXN @-@ TV 31 and WNJU 47 Linden . It also had four NYC FM broadcasters : WPAT @-@ FM 93 @.@ 1 , WNYC 93 @.@ 9 , WKCR 89 @.@ 9 , and WKTU 103 @.@ 5 . Access to the roof was controlled by the WTC Operations Control Center (OCC) , located in the B1 level of the South Tower . After the September 11 attacks of 2001 , the broadcasting equipment for the radio and television stations was moved to the Empire State

Building .

On a typical weekday , a combined total of 50 @, @ 000 people worked in the North and South Towers , with another 200 @, @ 000 passing through as visitors . The complex was so large that it had its own zip code : 10048 . The Windows on the World restaurant , located on top of the North Tower , reported revenues of \$ 37 million in 2000 , making it the highest @-@ grossing restaurant in the United States . The Twin Towers became known worldwide , appearing in movies , television shows , postcards , and other merchandise . The towers came to be seen as a New York City icon , much like the Empire State Building , the Chrysler Building , and the Statue of Liberty .

= = = Incidents = = =

On February 13 , 1975 , a three @-@ alarm fire broke out on the 11th floor of the North Tower . Fire spread through the core of the building to the 9th and 14th floors , as the insulation for telephone cables , located in a utility shaft that ran vertically between floors , had been ignited . Areas most affected by the fire were extinguished almost immediately , and the original fire was put out in a few hours . Most of the damage was on the 11th floor , where the fire was fueled by cabinets filled with paper , alcohol @-@ based fluid for office machines , and other office equipment . Fireproofing protected the steel , and there was no structural damage to the tower . In addition to the fire damage on the 9th and 14th floors , water used to extinguish the fire damaged a few floors below . At the time , the World Trade Center complex had no fire sprinkler systems .

The first terrorist attack on the World Trade Center occurred on February 26 , 1993 , at 12 : 17 p.m. , when a Ryder truck filled with 1 @, @ 500 pounds (680 kg) of explosives , planted by Ramzi Yousef , detonated in the underground garage of the North Tower . The blast resulted in a 100 feet (30 m) hole through five sublevels . The greatest damage was on levels B1 and B2 , with significant structural damage on level B3 . Six people were killed , and more than a thousand were injured , as 50 @, @ 000 workers and visitors were inside the tower at the time . Many people inside the North Tower were forced to walk down darkened stairwells that had no emergency lighting , and some took two hours or more to reach safety .

= = = September 11 attacks = = =

At 8 : 46 a.m. (EDT) on September 11 , 2001 , five hijackers affiliated with al @-@ Qaeda crashed American Airlines Flight 11 into the northern facade of the North Tower . Seventeen minutes later , at 9 : 03 a.m. (EDT) , a second group of terrorists crashed the hijacked United Airlines Flight 175 into the southern facade of the South Tower , striking between the 77th and 85th floors .

By 9 : 59 a.m. (EDT) , the South Tower collapsed after burning for approximately 56 minutes . After burning for 102 minutes , the North Tower collapsed due to structural failure at 10 : 28 a.m. (EDT) When the North Tower collapsed , debris fell on the nearby 7 World Trade Center , damaging it and starting fires . The fires burned for hours , compromising the building 's structural integrity . Seven World Trade Center collapsed at 5 : 21 p.m. (EDT)

Together with a simultaneous attack on the Pentagon in Arlington , Virginia , and a failed plane hijacking that resulted in a plane crash in Shanksville , Pennsylvania , the attacks resulted in the deaths of 2 @, @ 996 people (2 @, @ 507 civilians , 343 firefighters , 72 law enforcement officers , 55 military personnel , and the 19 hijackers) . More than 90 % of the workers and visitors who died in the towers had been at or above the points of impact . In the North Tower , 1 @, @ 355 people at or above the point of impact were trapped , and died of smoke inhalation , fell , jumped from the tower to escape the smoke and flames , or were killed when the building eventually collapsed . One stairwell in the South Tower , Stairwell A , somehow avoided complete destruction , unlike the rest of the building . When Flight 11 hit , all three staircases in the North Tower above the impact zone were destroyed , thus making it impossible for anyone above the impact zone to escape . 107 people below the point of impact also died .

= = Current building = =

== Planning and early development ==

Following the destruction of the original World Trade Center , there was debate regarding the future of the World Trade Center site . There were proposals for its reconstruction almost immediately , and by 2002 , the Lower Manhattan Development Corporation had organized a competition to determine how to use the site . The proposals were part of a larger plan to memorialize the September 11 attacks and rebuild the complex . When the public rejected the first round of designs , a second , more open competition took place in December 2002 , in which a design by Daniel Libeskind was selected as the winner . This design went through many revisions , mainly because of disagreements with developer Larry Silverstein , who held the lease to the World Trade Center site at that time .

There was criticism concerning the limited number of floors that were designated for office space and other amenities in an early plan . Only 82 floors would have been habitable , and the total office space of the rebuilt World Trade Center complex would have been reduced by more than 3 @, @ 000 @, @ 000 square feet (280 @, @ 000 m²) in comparison with the original complex . The floor limit was imposed by Silverstein , who expressed concern that higher floors would be a liability in the event of a future terrorist attack or other incident . Much of the building 's height would have consisted of a large , open @-@ air steel lattice structure on the roof of the tower , containing wind turbines and " sky gardens " . In a subsequent design , the highest occupiable floor became comparable to the original World Trade Center , and the open @-@ air lattice was removed from the plans . In 2002 , former New York Governor George Pataki faced accusations of cronyism for supposedly using his influence to get the winning architect 's design picked as a personal favor for his friend and campaign contributor , Ron Lauder .

A final design for the " Freedom Tower " was formally unveiled on June 28 , 2005 . To address security issues raised by the New York City Police Department , a 187 @-@ foot (57 m) concrete base was added to the design in April of that year . The design originally included plans to clad the base in glass prisms in order to address criticism that the building might have looked uninviting and resembled a " concrete bunker " . However , the prisms were later found to be unworkable , as preliminary testing revealed that the prismatic glass easily shattered into large and dangerous shards . As a result , it was replaced by a simpler facade consisting of stainless steel panels and blast @-@ resistant glass .

Contrasting with Libeskind 's original plan , the tower 's final design tapers octagonally as it rises . Its designers stated that the tower would be a " monolithic glass structure reflecting the sky and topped by a sculpted antenna . " In 2006 , Larry Silverstein commented on a planned completion date : " By 2012 we should have a completely rebuilt World Trade Center , more magnificent , more spectacular than it ever was . " On April 26 , 2006 , the Port Authority of New York and New Jersey approved a conceptual framework that allowed foundation construction to begin . A formal agreement was drafted the following day , the 75th anniversary of the 1931 opening of the Empire State Building . Construction began in May ; a formal groundbreaking ceremony took place when the first construction team arrived .

== Construction and later development ==

The symbolic cornerstone of One World Trade Center was laid in a ceremony on July 4 , 2004 . The stone had an inscription supposedly written by Arthur J. Finkelstein . However , construction was delayed until 2006 due to disputes over money , security , and design . The last major issues were resolved on April 26 , 2006 , when a deal was made between developer Larry Silverstein and the Port Authority of New York and New Jersey , so the cornerstone was temporarily removed from the site on June 23 , 2006 . Soon after , explosives were detonated at the construction site for two months to clear bedrock for the building 's foundation , onto which 400 cubic yards (310 cubic meters) of concrete was poured by November 2007 .

In a December 18 , 2006 , ceremony held in nearby Battery Park City , members of the public were invited to sign the first 30 @-@ foot (9 @.@ 1 m) steel beam installed onto the building 's base . It was welded onto the building 's base on December 19 , 2006 . Foundation and steel installation began shortly afterward , so the tower 's footings and foundation were nearly complete within a year .

In January 2008 , two cranes were moved onto the site . Construction of the tower 's concrete core , which began after the cranes arrived , reached street level by May 17 . However , construction of the base was not finished until two years later , after which construction of the office floors began , and the first glass windows were subsequently installed ; during 2010 , floors were constructed at a rate of about one per week . An advanced " cocoon " scaffolding system was installed to protect workers from falling , and was the first such safety system installed on a steel structure in the city . The tower reached 52 floors and was over 600 feet (180 m) tall by December 2010 . The tower 's steel frame was halfway complete by then , but grew to 82 floors by the tenth anniversary of the September 11 attacks , at which time its concrete flooring had reached 72 floors and the glass cladding had reached 56 floors .

In 2009 , the Port Authority changed the official name of the building from " Freedom Tower " to " One World Trade Center " , stating that this name was the " easiest for people to identify with . " The change came after board members of the Port Authority voted to sign a 21 @-@ year lease deal with Vantone Industrial Co . , a Chinese real estate company , which will become the building 's first commercial tenant . Vantone plans to create the China Center , a trade and cultural facility , covering 191 @,@ 000 square feet on floors 64 through 69 .

Detailed floor plans of the tower were posted on the New York City 's Department of Finance website in May 2011 , resulting in an uproar from the media and citizens of the surrounding area , who warned that the plans could potentially be used for a future terrorist attack .

While under construction , the tower was specially illuminated on several occasions . On the weekend of July 4 , 2011 , it was lit up with the colors of the American flag to commemorate Independence Day , and it was lit up with the same colors on September 11 to mark the 10th anniversary of the September 11 terrorist attacks . On October 27 of that same year , it was illuminated with pink in honor of Breast Cancer Awareness Month . On December 11 , the Port Authority illuminated the tower with multicolored lights to celebrate the holiday season . On February 24 , 2012 , the building was lit up with red in honor of Archbishop of New York Timothy Dolan , who became a cardinal on February 18 . On June 14 , 2012 , it was illuminated with red , white , and blue to honor Flag Day . In August , it was illuminated with red in honor of the Armed Forces . On September 8 , 2012 , it was once again illuminated with red , white , and blue to honor the 11th anniversary of the September 11 attacks . On June 24 , 2013 , the building was again illuminated with red , white , and blue to celebrate the Fourth of July . On November 12 , 2013 , three hundred red , white , and blue lights were lit up .

The tower 's loading dock , however , was not due to be finished in time to move equipment into the completed building , so five temporary loading bays were added at a cost of millions of dollars . The temporary PATH station was not to be removed until its official replacement , the World Trade Center Transportation Hub , was completed , blocking access to the planned loading area . By March 2012 , One World Trade Center 's steel structure had reached 93 floors , growing to 94 floors and 1 @,@ 240 feet (380 m) by the end of the month . However , because the floor numberings were based on standard measurements , the 94th floor was numbered " floor 100 " , because the extra space was occupied by the high @-@ ceilinged 91st floor , which was used for mechanical purposes .

The still @-@ incomplete tower became New York City 's tallest building by roof height in April 2012 , passing the 1 @,@ 250 @-@ foot (380 m) roof height of the Empire State Building . President Barack Obama visited the construction site two months later and wrote , on a steel beam that would be hoisted to the top of the tower , the sentence " We remember , we rebuild , we come back stronger ! " That same month , with the tower 's structure nearing completion , the owners of the building began a public marketing campaign for the building , seeking to attract visitors and tenants .

One World Trade Center 's steel structure topped out at the nominal 104th floor , with a total height of 1 @, @ 368 feet (417 m) , in August 2012 . The tower 's antenna was shipped to New York in November 2012 ; the first section of the antenna was hoisted to the top of the tower on December 12 , 2012 , and was installed on January 15 , 2013 . By March 2013 , two sections of the antenna had been installed . The spire 's completion was scheduled for April 29 , 2013 , but bad weather delayed the delivery of the final pieces . On May 10 , 2013 , the final piece of the spire was lifted to the top of One World Trade Center , bringing the tower to its full height of 1 @, @ 776 feet (541 m) , and making it the fourth @-@ tallest building in the world , as well as the tallest in the city , surpassing the 1 @, @ 454 @-@ foot (443 m) Empire State Building . In subsequent months , the exterior elevator shaft was removed ; the podium glass , interior decorations , and other finishings were being installed ; and installation of concrete flooring and steel fittings was completed .

A report in September 2013 revealed that , at the time of the report , the World Trade Center Association (WTCA) was negotiating with regard to the " World Trade Center " name , as the WTCA had purchased the rights to the name in 1986 . The WTCA sought \$ 500 @, @ 000 worth of free office space in the tower in exchange for the use of " World Trade Center " in the tower 's name and associated souvenirs .

On November 12 , 2013 , the Height Committee of the Chicago @-@ based Council on Tall Buildings and Urban Habitat (CTBUH) made the controversial announcement that One World Trade Center was the tallest building in the United States at 1 @, @ 776 feet , declaring that the mast on top of the building is a spire since it is a permanent part of the building 's architecture . By the same reasoning , the building was also the tallest in the Western Hemisphere .

= = = Opening and post @-@ opening = = =

On November 1 , 2014 , moving trucks started moving items for the tower 's first tenant , magazine publisher Condé Nast , from its old headquarters in Times Square to One World Trade Center . The New York Times noted that the area around the World Trade Center had transitioned from a financial area to one with technology firms , residences , and luxury shops , coincident with the building of the new tower .

The building opened on November 3 , 2014 , and Condé Nast employees moved into spaces spread among 24 floors . Condé Nast occupies floors 20 to 44 , having completed its move in early 2015 . It is expected that the company will attract new tenants to occupy the remaining 40 % of unleased space in the tower , as Condé Nast had revitalized Times Square after moving there in 1999 . Only about 170 of 3 @, @ 400 total employees moved into the new tower on the first day . Future tenants will include Kids Creative , Legends Hospitality , the BMB Group , Servcorp , and GQ .

On November 12 , 2014 , the supporting wire rope cables of a suspended working platform slacked . The cables were manufactured by Tractel , and they were used to hold workers who performed maintenance on the building 's exterior . At the time , the platform was holding a two @-@ man , SEIU @-@ affiliated window washing team . The slack caused the platform to hang almost vertically near the 68th floor of the tower . The workers were rescued by over 100 FDNY firefighters , who used a diamond saw to cut through the glass . After the incident , the workers suffered from a slight case of hypothermia , and were taken to the hospital .

= = = Estimated cost and funding = = =

An estimate in February 2007 placed the initial construction cost of One World Trade Center at about \$ 3 billion , or \$ 1 @, @ 150 per square foot (\$ 12 @, @ 380 per square meter) . However , the tower 's total estimated construction cost had risen to \$ 3 @. @ 9 billion by April 2012 , making it the most expensive building in the world at the time . The tower 's construction was partly funded by approximately \$ 1 billion of insurance money that Silverstein received for his losses in the September 11 attacks . The State of New York provided an additional \$ 250 million , and the Port Authority agreed to give \$ 1 billion , which would be obtained through the sale of bonds . The Port

Authority raised prices for bridge and tunnel tolls to raise funds , with a 56 percent toll increase scheduled between 2011 and 2015 ; however , the proceeds of these increases were not used to pay for the tower 's construction .

= = = Architecture and design = = =

Many of Daniel Libeskind 's original concepts from the 2002 competition were discarded from the tower 's final design . One World Trade Center 's final design consisted of simple symmetries and a more traditional profile , intended to compare with selected elements of the contemporary New York skyline . The tower 's central spire draws from previous buildings , such as the Empire State Building and the Chrysler Building . It also visually resembles the original Twin Towers , rather than being an off @-@ center spire similar to the Statue of Liberty .

The building occupies a 200 @-@ foot (61 m) square , with an area of 40 @, @ 000 square feet (3 @, @ 700 m²) , nearly identical to the footprints of the original Twin Towers . The tower is built upon a 185 @-@ foot (56 m) tall windowless concrete base , designed to protect it from truck bombs and other ground @-@ level attacks . Originally , the base was to be covered in decorative prismatic glass , but a simpler glass @-@ and @-@ steel façade was adopted when the prisms proved unworkable . The current base cladding consists of angled glass fins protruding from stainless steel panels , similar to those on 7 World Trade Center . LED lights behind the panels illuminate the base at night . Cable @-@ net glass façades on all four sides of the building for the higher floors , designed by Schlaich Bergermann , will be consistent with the other buildings in the complex . The façades are 60 feet (18 m) high , and range in width from 30 feet (9 @. @ 1 m) on the east and west sides , 50 feet (15 m) on the north side , and 70 feet (21 m) on the south side . The curtain wall was manufactured and assembled by Benson Industries in Portland , Oregon , using glass made in Minnesota by Viracon .

From the 20th floor upwards , the square edges of the tower 's cubic base are chamfered back , shaping the building into eight tall isosceles triangles , or an elongated square antiprism . Near its middle , the tower forms a perfect octagon , and then culminates in a glass parapet , whose shape is a square oriented 45 degrees from the base . A 408 @-@ foot (124 m) sculpted mast containing the broadcasting antenna ? designed in a collaboration between Skidmore , Owings and Merrill (SOM) , artist Kenneth Snelson (who invented the tensegrity structure) , lighting designers , and engineers ? is secured by a system of cables , and rises from a circular support ring , which contains additional broadcasting and maintenance equipment . At night , an intense beam of light is projected horizontally from the spire and shines over 1 @, @ 000 feet (300 m) above the tower .

David Childs of SOM , the architect of One World Trade Center , said the following regarding the tower 's design :

We really wanted our design to be grounded in something that was very real , not just in sculptural sketches . We explored the infrastructural challenges because the proper solution would have to be compelling , not just beautiful . The design does have great sculptural implications , and we fully understand the iconic importance of the tower , but it also has to be a highly efficient building . The discourse about Freedom Tower has often been limited to the symbolic , formal and aesthetic aspects but we recognize that if this building doesn 't function well , if people don 't want to work and visit there , then we will have failed as architects .

= = = Layout = = =

Just south of the new One World Trade Center is the National September 11 Memorial & Museum , which is located where the original Twin Towers stood . Immediately to the east is World Trade Center Transportation Hub and the new Two World Trade Center site . To the north is Seven World Trade Center , and to the west is Brookfield Place .

One World Trade Center 's top floor is officially designated as floor 104 , despite the fact that the tower only contains 94 actual stories . The building has 86 usable above @-@ ground floors , of which 78 are intended for office purposes (approximately 2 @, @ 600 @, @ 000 square feet (240

@, @ 000 m²)) . The base consists of floors 1 ? 19 , including a 65 @-@ foot @-@ high (20 m) public lobby . The office floors begin at floor 20 , and go up to floor 63 . There is a sky lobby on floor 64 ; office floors resume on floor 65 , and stop at floor 90 . Floors 91 ? 99 and 103 ? 104 are mechanical floors .

The tower has a three @-@ story observation deck , located on floors 100 ? 102 , in addition to existing broadcast and antenna facilities . Similar to in the Empire State Building , visitors will be separated from the tenants , having their own separate entrance next to the museum , descending down to a below @-@ ground security screening area . On the observation deck , the actual viewing space is on the 100th floor , but there will be a food court on the 101st floor and a space for events for the 102nd floor . To show visitors the city , and give them information and stories about New York , an interactive tool called City Pulse is used by Tour Ambassadors . The admission fee will be \$ 32 per person , but admission discounts are available for children and seniors , and the deck will be free for 9 / 11 responders and families of 9 / 11 victims . When it opens , the deck is expected to have about 3 @. @ 5 million visitors per year . Tickets went on sale starting on April 8 . However , the Manhattan District Attorney probed the Port Authority about the firm to which it awarded a contract to operate the deck . It officially opened on May 28 , 2015 , one day ahead of schedule .

There are three eating venues at the top of the building : a café (called One Café) , a bar and " small plates " grill (One Mix) , and a fine dining restaurant (One Dining) . Some have criticized the food prices ; the need of a full observatory ticket purchase to enter ; and their reputations compared to Windows on the World , the top @-@ floor restaurant in the original One World Trade Center . The tenants have access to below @-@ ground parking , storage , and shopping ; access to PATH , New York City Subway trains , and the World Financial Center is also provided at the World Trade Center Transportation Hub , Fulton Street / Fulton Center , Chambers Street , and Cortlandt Street stations . The building allows direct access to West Street , Vesey Street , and Fulton Street at ground level . The building has an approximate underground footprint of 42 @, @ 000 square feet (3 @, @ 900 m²) , of which 55 @, @ 000 square feet (5 @, @ 100 m²) is retail space . A plan to build a restaurant near the top of the tower , similar to the original One World Trade Center 's Windows on the World , was abandoned as logistically impractical . The tower 's window @-@ washing tracks are located on a 16 @-@ square @-@ foot area , which will be designated as floor 110 as a symbolic reference to the 110 floors of the original tower .

===== Design evolution =====

The original design went through significant changes after the Durst Organization joined the Port Authority of New York and New Jersey as the co @-@ developer of the project in 2010 .

The 185 @-@ foot (56 m) tall base corners were originally designed to gently slope upward , and have prismatic glass . The corners were later squared . In addition , the base 's walls are now covered in " hundreds of pairs of 13 @-@ foot vertical glass fins set against horizontal bands of eight @-@ inch @-@ wide stainless @-@ steel slats . "

The spire was originally to be enclosed with a protective radome , described as a " sculptural sheath of interlocking fiberglass panels " . However , the radome @-@ enclosed spire was changed to a plain antenna . Douglas Durst , the chairman of the Durst Organization , stated that the design change would save \$ 20 million . However , the tower 's architect , Skidmore Owings & Merrill , strongly criticized the change . David Childs , the lead designer , said , " Eliminating this integral part of the building 's design and leaving an exposed antenna and equipment is unfortunate ... We stand ready to work with the Port on an alternate design . " After joining the project in 2010 , the Durst Organization had suggested eliminating the radome to reduce costs , but the proposal was rejected by the Port Authority 's then @-@ executive director , Christopher O. Ward . Ward was replaced by Patrick Foye in September 2011 . Foye changed the Port Authority 's position , and the radome was removed from the plans . In 2012 , Douglas Durst gave a statement regarding the final decision : " (the antenna) is going to be mounted on the building over the summer . There 's no way to do anything at this point . "

The large triangular plaza on the west side of One World Trade Center , facing the Hudson River ,

was originally planned to have stainless steel steps descending to the street . However , the steps were changed to a terrace in the final design . The terrace can be accessed through a staircase on Vesey Street . The terrace is paved in granite , and has 12 sweetgum trees , in addition to a block @-@ long planter / bench .

Durst also removed a skylight from the plaza 's plans ; the skylight was designed to allow natural light to enter the below @-@ ground observation deck lobby . The plaza is 5 ft 8 in (1 @. @ 73 m) higher than the adjacent sidewalk .

The Port Authority formally approved all these revisions , and the revisions were first reported by the New York Post . Patrick Foye , the executive director of the Port Authority , said that he thought that the changes were " few and minor " in a telephone interview .

A contract negotiated between the Port Authority and the Durst Organization states that the Durst Organization will receive a \$ 15 million fee and a percentage of " base building changes that result in net economic benefit to the project . " The specifics of the signed contract give Durst 75 percent of the savings , up to \$ 24 million , with further returns going down to 50 percent , 25 percent and 15 percent as the savings increase .

===== Height =====

The top floor of One World Trade Center is 1 @, @ 368 feet (417 m) above ground level , along with a 33 ft 4 in (10 @. @ 16 m) parapet ; this is identical to the roof height of the original One World Trade Center . The tower 's antenna / spire brings it to a pinnacle height of 1 @, @ 776 feet (541 m) , a figure intended to symbolize the year 1776 , when the United States Declaration of Independence was signed . If the antenna is included in the building 's height , as stated by the Council on Tall Buildings and Urban Habitat (CTBUH) , One World Trade Center surpasses the height of Taipei 101 (1 @, @ 671 @-@ foot (509 m)) , is the world 's tallest all @-@ office building , and the fourth @-@ tallest skyscraper in the world , behind the Burj Khalifa , Abraj Al Bait , and Shanghai Tower .

One World Trade Center is the second @-@ tallest freestanding structure in the Western Hemisphere , as the CN Tower in Toronto exceeds One World Trade Center 's pinnacle height by approximately 12 m (39 @. @ 4 ft) . The Chicago Spire , with a planned height of 2 @, @ 000 feet (610 m) , was expected to exceed the height of One World Trade Center , but its construction was canceled due to financial difficulties in 2009 .

After design changes for One World Trade Center 's spire were revealed in May 2012 , there were questions as to whether the 408 @-@ foot (124 m) -tall structure would still qualify as a spire , and thus be included in the building 's height . Since the tower 's spire is not enclosed in a radome as originally planned , it could be classified as a simple antenna , which is not included in a building 's height , according to the CTBUH . Without the antenna , One World Trade Center would be 1 @, @ 368 feet (417 m) tall , making it the fourth @-@ tallest building in the United States , behind the Willis Tower and Trump International Hotel & Tower , both located in Chicago , and 432 Park Avenue in New York . The building is currently the tallest in New York City with the antenna ; however , without the antenna , it was surpassed in 2015 by 432 Park Avenue , which topped out at 1 @, @ 396 feet (426 m) high . One World Trade Center 's developers have disputed the claim that the spire should be reclassified as an antenna following the redesign , with Port Authority spokesman Steve Coleman reiterating that " One World Trade Center will be the tallest building in the Western Hemisphere . " In 2012 , the CTBUH announced that it would wait to make its final decision as to whether or not the redesigned spire would count towards the building 's height . On November 12 , 2013 , the CTBUH announced that One World Trade Center 's spire would count as part of the building 's recognized height , giving it a final height of 1 @, @ 776 feet , and making it the tallest building in the Western Hemisphere .

===== Sustainability =====

Like other buildings in the new World Trade Center complex , One World Trade Center includes

sustainable architecture features . Much of the building 's structure and interior is built from recycled materials , including gypsum boards and ceiling tiles ; around 80 percent of the tower 's waste products are recycled . Although the roof area of any tower is limited , the building implements a rainwater collection and recycling scheme for its cooling systems . The building 's PureCell phosphoric acid fuel cells generate 4 @. @ 8 megawatts (MW) of power , and its waste steam generates electricity . The New York Power Authority selected UTC Power to provide the tower 's fuel cell system , which was one of the largest fuel cell installations in the world once completed . The tower also makes use of off @- @ site hydroelectric and wind power . The windows are made of an ultra @- @ clear glass , which allows maximum sunlight to pass through ; the interior lighting is equipped with dimmers that automatically dim the lights on sunny days , reducing energy costs . Like all of the new facilities at the World Trade Center site , One World Trade Center is heated by steam , with limited oil or natural gas utilities on @- @ site . One World Trade Center is expected to receive a Leadership in Energy and Environmental Design (LEED) Gold Certification , making it one of the most environmentally sustainable skyscrapers in the world .

= = = = Safety and security = = = =

= = = = Security features = = = =

Along with the protection provided by the reinforced concrete base , a number of other safety features were included in the building 's design , so that it would be prepared for a major accident or terrorist attack . Like 7 World Trade Center , the building has 3 @- @ foot (91 cm) thick reinforced concrete walls in all stairwells , elevator shafts , risers , and sprinkler systems . There are also extra @- @ wide , pressurized stairwells , along with a dedicated set of stairwells exclusively for the use of firefighters , and biological and chemical filters throughout the ventilation system . In comparison , the original Twin Towers used a purely steel central core to house utility functions , protected only by lightweight drywall panels .

The building is no longer 25 feet (8 m) away from West Street , as the Twin Towers were ; at its closest point , West Street is 65 feet (20 m) away . The windows facing West Street are equipped with specially tempered blast @- @ resistant plastic , which looks almost like the glass used in the other sides of the building . The Port Authority has stated : " Its structure is designed around a strong , redundant steel moment frame consisting of beams and columns connected by a combination of welding and bolting . Paired with a concrete @- @ core shear wall , the moment frame lends substantial rigidity and redundancy to the overall building structure while providing column @- @ free interior spans for maximum flexibility . "

In addition to optimal safety design , new security measures will be implemented . All vehicles will be screened for radioactive materials and other potentially dangerous objects before they enter the site through the underground road . Four hundred closed @- @ circuit surveillance cameras will be placed in and around the site , with live camera feeds being continuously monitored by the NYPD . A computer system will use video @- @ analytic computer software , designed to detect potential threats , such as unattended bags , and retrieve images based on descriptions of terrorists or other criminal suspects . New York City and Port Authority police will patrol the site .

Once the World Trade Center site is fully completed , the plaza will be completely opened to the public , as the original World Trade Center plaza was . The initial stage of the opening process began on Thursday , May 15 , 2014 , when the " Interim Operating Period " of the National September 11 Memorial ended . During this period , all visitors were required to undergo airport style security screening , as part of the " Interim Operating Period " , which was expected to end on December 31 , 2013 . However , screening did not fully end until the official dedication and opening of the museum on May 21 , 2014 , after which visitors were allowed to use the plaza without needing passes .

= = = = Incidents = = = =

In March 2014 , the tower was scaled by 16 @-@ year @-@ old New Jersey resident Justin Casquejo , who entered the site through a hole in a fence . He was subsequently arrested on trespassing charges . He allegedly dressed like a construction worker , sneaked in , and convinced an elevator operator to lift him to the tower ' s 88th floor , according to news sources . He then used stairways to get to the 104th floor , walked past a sleeping security guard , and climbed up a ladder to get to the antenna , where he took pictures for two hours . The elevator operator was reassigned , and the guard was fired . It was then revealed that officials had failed to install security cameras in the tower , which facilitated Casquejo 's entry to the site .

Less than a week after the trespassing incident , four people ? three male parachutists (one of whom was a construction worker at the site) and their lookout ? were arrested for a BASE jump they conducted on September 30 , 2013 . They had posted a video of the jump online . As a result of these incidents , the Durst Organization 's head of security at One World Trade Center , David Velazquez , resigned on March 28 , 2014 .

= = = = Controversies = = = =

The social center of the previous One World Trade Center included a restaurant on the 107th floor , called Windows on the World , and The Greatest Bar on Earth ; these were tourist attractions in their own right , and a gathering spot for people who worked in the towers . This restaurant also housed one of the most prestigious wine schools in the United States , called " Windows on the World Wine School " , run by wine personality Kevin Zraly . Despite numerous assurances that these attractions would be rebuilt , the Port Authority scrapped plans to rebuild them , which has outraged some observers .

The fortified base of the tower has also been a source of controversy . Some critics , including Deroy Murdock of the National Review , have said that it is alienating and dull , and reflects a sense of fear rather than freedom , leading them to dub the building " the Fear Tower " . Nicolai Ouroussoff , the architecture critic for The New York Times , calls the tower base a " grotesque attempt to disguise its underlying paranoia " .

= = = = Statue in front of the building = = = =

The America 's Response Monument , a life @-@ and @-@ a @-@ half scale bronze statue commemorating the actions of U.S. Special Operations Forces in the first few weeks of the War in Afghanistan , was unveiled to the public during the Veteran 's Day Parade in New York City on November 11 , 2011 . The statue was displayed on a float , which traveled along Fifth Avenue north from 23rd Street to 56th Street . It was dedicated that same day , in a ceremony led by Vice President Joe Biden and Lieutenant @-@ General John Mulholland , commander of U.S. Army Special Operations Command and formerly commander of Task Force Dagger during the initial days of the War in Afghanistan . It was temporarily located in the West Street Lobby inside One World Financial Center in New York City opposite Ground Zero .

It is the first public monument to honor United States special forces ; there is also a monument commemorating the Green Berets on Meadows Memorial Field in Fort Bragg , North Carolina .

On October 19 , 2012 , the monument was rededicated in front of the tower . The inscription at base of the sculpture bears its name , " America 's Response Monument " , and the Latin subtitle De Oppresso Liber . The subtitle , traditionally translated as " to free the oppressed " , is the motto of the Green Berets , who inspired the monument . A piece of steel from the original World Trade Center is embedded in the base .

The statue was dedicated by Lieutenant General John Mulholland , Deputy Commanding General of U.S. Army Special Forces Command . Soldiers representing the United States Army Special Operations Command attended the dedication ceremony . The land on which the monument stands was donated by a private Wall Street firm . The statue cost over \$ 750 @,@ 000 to make , but all the needed money was donated by hundreds of private citizens , including some survivors of the

September 11 attacks .

== Owners and tenants ==

One World Trade Center is principally owned by the Port Authority of New York and New Jersey . Around 5 percent equity of the building was sold to the Durst Organization , a private real estate company , in exchange for an investment of at least \$ 100 million . The Durst Organization assisted in supervising the building 's construction , and manages the building for the Port Authority , having responsibility for leasing , property management , and tenant installations . By September 2012 , around 55 percent of the building 's floor space had been leased , but no new leases were signed for three years until May 2014 ; the amount of space leased had gone up to 62 @. @ 8 percent by November 2014 .

In 2006 , the State of New York agreed to a 15 @-@ year 415 @, @ 000 square feet (38 @, @ 600 m2) lease , with an option to extend the lease 's term and occupy up to 1 @, @ 000 @, @ 000 square feet (90 @, @ 000 m2) . The General Services Administration (GSA) initially agreed to a lease of around 645 @, @ 000 square feet (59 @, @ 900 m2) , and New York State 's Office of General Services (OGS) planned to occupy around 412 @, @ 000 square feet (38 @, @ 300 m2) . However , the GSA ceded most of its floor space to the Port Authority in July 2011 , and the OGS withdrew from the lease contract . In April 2008 , the Port Authority announced that it was seeking a bidder to operate the 18 @, @ 000 sq ft (1 @, @ 700 m2) observation deck on the tower 's 102nd floor ; in 2013 , Legends Hospitality Management agreed to operate the observatory in a 15 @-@ year , \$ 875 million contract .

The building 's first lease , a joint project between the Port Authority and Beijing @-@ based Vantone Industrial , was announced on March 28 , 2009 . A 190 @, @ 810 sq ft (17 @, @ 727 m2) " China Center " , combining business and cultural facilities , is planned between floors 64 and 69 ; it is intended to represent Chinese business and cultural links to the United States , and to serve American companies that wish to conduct business in China . Vantone Industrial 's lease is for 20 years and 9 months . In April 2011 , a new interior design for the China Center was unveiled , featuring a vertical " Folding Garden " , based on a proposal by the Chinese artist Zhou Wei .

On August 3 , 2010 , Condé Nast Publications signed a tentative agreement to move the headquarters and offices for its magazines into One World Trade Center , occupying up to 1 @, @ 000 @, @ 000 square feet (90 @, @ 000 m2) of floor space . On May 17 , 2011 , Condé Nast reached a final agreement with the Port Authority , securing a 25 @-@ year lease with an estimated value of \$ 2 billion . On May 25 , 2011 , Condé Nast finalized the lease contract , obtaining 1 @, @ 008 @, @ 012 square feet (93 @, @ 647 @. @ 4 m2) of office space between floors 20 ? 41 . The lease also includes 30 @, @ 000 square feet (2 @, @ 800 m2) of usable space in the podium and below grade floors , for mail , messenger services , and storage use . On January 17 , 2012 , it was reported that Condé Nast would be leasing an additional 133 @, @ 000 square feet (10 @, @ 000 m2) of space , occupying floors 42 through 44 . Conde Nast moved in on November 3 , 2014 .

However , some leases had failed . In January 2012 , Chadbourne & Parke , a Midtown Manhattan @-@ based law firm , was to sign a 300 @, @ 000 square feet (30 @, @ 000 m2) lease contract , but after negotiations broke down , the deal was abruptly canceled in March .

== Key figures ==

== Developer ==

Larry Silverstein of Silverstein Properties , the leaseholder and developer of the complex , retains control of the surrounding buildings , while the Port Authority has full control of the tower itself . Silverstein signed a 99 @-@ year lease for the World Trade Center site in July 2001 , and remains actively involved in most aspects of the site 's redevelopment process .

Before construction of the new tower began , Silverstein was involved in an insurance dispute

regarding the tower . The terms of the lease agreement signed in 2001 , for which Silverstein paid \$ 14 million , gave Silverstein , as leaseholder , the right and obligation to rebuild the structures if they were destroyed . After the September 11 attacks , there were a series of disputes between Silverstein and insurance companies concerning the insurance policies that covered the original towers ; this resulted in the construction of One World Trade Center being delayed . After a trial resulted , a verdict was given on April 29 , 2004 . The verdict was that ten of the insurers involved in the dispute were subject to the " one occurrence " interpretation , so their liability was limited to the face value of those policies . Three insurers were added to the second trial group . At that time , the jury was unable to reach a verdict on one insurer , Swiss Reinsurance , but it did so several days later on May 3 , 2004 , finding that this company was also subject to the " one occurrence " interpretation . Silverstein appealed the Swiss Reinsurance decision , but the appeal failed on October 19 , 2006 . The second trial resulted in a verdict on December 6 , 2004 . The jury determined that nine insurers were subject to the " two occurrences " interpretation , referring to the fact that two different planes had destroyed the towers during the September 11 attacks . They were therefore liable for a maximum of double the face value of those particular policies (\$ 2 @. @ 2 billion) . The highest potential payout was \$ 4 @. @ 577 billion , for buildings 1 , 2 , 4 , and 5 .

In March 2007 , Silverstein appeared at a rally of construction workers and public officials outside an insurance industry conference . He highlighted what he describes as the failures of insurers Allianz and Royal & Sun Alliance to pay \$ 800 million in claims related to the attacks . Insurers state that an agreement to split payments between Silverstein and the Port Authority is a cause for concern .

== == Key project coordinators == ==

David Childs , one of Silverstein 's favorite architects , joined the project after Silverstein urged him to do so . He developed a design proposal for One World Trade Center , initially collaborating with Daniel Libeskind . In May 2005 , Childs revised the design to address security concerns . He is the architect of the tower , and is responsible for overseeing its day @-@ to @-@ day design and development .

Architect Daniel Libeskind won the invitational competition to develop a plan for the new tower in 2002 . He gave an initial proposal , which he called " Memory Foundations " , for the design of One World Trade Center . His design included aerial gardens , windmills , and off @-@ center spire . Libeskind later denied a request to place the tower in a more rentable location next to the PATH station . He instead placed it another block west , as it would then line up with , and resemble , the Statue of Liberty . Most of Libeskind 's original designs were later scrapped , and other architects were chosen to design the other WTC buildings . However , one element of Libeskind 's initial plan was included in the final design ? the tower 's symbolic height of 1 @, @ 776 feet (541 m) .

Daniel R. Tishman ? along with his father John Tishman , builder of the original World Trade Center ? led the construction team from Tishman Realty & Construction , the selected builder for One World Trade Center .

Douglas and Jody Durst , the co @-@ presidents of the Durst Organization , a real estate development company , won the right to invest at least \$ 100 million in the project on July 7 , 2010 .

In August 2010 , Condé Nast , a long @-@ time Durst tenant , confirmed a tentative deal to move into 1 World Trade Center , and finalized the deal on May 26 , 2011 . The contract negotiated between the Port Authority and the Durst Organization specifies that the Durst Organization will receive a \$ 15 million fee , and a percentage of " base building changes that result in net economic benefit to the project " . The specifics of the signed contract give Durst 75 percent of savings up to \$ 24 million , stepping down to 50 , 25 , and 15 percent as savings increase . Since Durst joined the project , significant changes have been made to the building , including the 185 foot base of the tower , the spire , and the plaza to the west of the building , facing the Hudson River . The Port Authority has approved all the revisions .

== == Port Authority construction workers == ==

A WoodSearch Films short @-@ subject documentary entitled How does it feel to work on One World Trade Center ? was uploaded to YouTube on August 31 , 2010 . It depicted construction workers who were satisfied with the working conditions at the construction site . However , further analysis of the work site showed that dozens of construction @-@ related injuries had occurred at the site during the construction of One World Trade Center , including 34 not reported to the U.S. Occupational Safety and Health Administration . Workers also left post @-@ 9 / 11 @-@ related graffiti at the site , which are supposed to symbolize rebirth and resilience .

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