**New One World Trade Center**

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*"Freedom Tower" redirects here. For other uses, see* [*Freedom Tower (disambiguation)*](https://en.wikipedia.org/wiki/Freedom_Tower_(disambiguation))*.*

*This article is about the supertall skyscraper in* [*New York City*](https://en.wikipedia.org/wiki/New_York_City)*. For the building complex destroyed in the* [*September 11 attacks*](https://en.wikipedia.org/wiki/September_11_attacks)*, see* [*World Trade Center*](https://en.wikipedia.org/wiki/World_Trade_Center)*. For the building in* [*Long Beach, California*](https://en.wikipedia.org/wiki/Long_Beach,_California)*, see* [*One World Trade Center (Long Beach)*](https://en.wikipedia.org/wiki/One_World_Trade_Center_(Long_Beach))*.*

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| |  |  | | --- | --- | | **One World Trade Center** | | | Rendering of the completed tower, May 2012. | | | **Alternative names** | * 1 WTC * Freedom Tower | | **General information** | | | **Status** | Under construction | | **Type** | Office, observation, communication | | **Architectural style** | [Contemporary modern](https://en.wikipedia.org/wiki/Modern_architecture) | | **Location** | [New York](https://en.wikipedia.org/wiki/New_York_City), [NY](https://en.wikipedia.org/wiki/New_York_State), [USA](https://en.wikipedia.org/wiki/United_States) | | [**Coordinates**](https://en.wikipedia.org/wiki/Geographic_coordinate_system) | [40°42′46.8″N 74°0′48.6″W﻿ / ﻿40.713000°N 74.013500°W﻿ / 40.713000; -74.013500](http://toolserver.org/~geohack/geohack.php?pagename=One_World_Trade_Center&params=40_42_46.8_N_74_0_48.6_W_type:landmark)[Coordinates](https://en.wikipedia.org/wiki/Geographic_coordinate_system): [40°42′46.8″N 74°0′48.6″W﻿ / ﻿40.713000°N 74.013500°W﻿ / 40.713000; -74.013500](http://toolserver.org/~geohack/geohack.php?pagename=One_World_Trade_Center&params=40_42_46.8_N_74_0_48.6_W_type:landmark) | | **Construction started** | April 27, 2006 | | **Estimated completion** | Topped out (steel structure): August 30, 2012 Completion of antenna: March 2013 | | **Opening** | Late 2013 | | **Cost** | $3.8 billion (January 2012 estimate) | | **Height** | | | **Architectural** | 1,776 ft (541.32 m) | | **Tip** | 1,792 ft (546.20 m) | | **Roof** | 1,368 ft (417 m) | | **Top floor** | 1,268 ft (386 m) | | **Observatory** | 1,268 feet (386.49 m) | | **Technical details** | | | **Floor count** | 104 (+5 basement floors) | | **Floor area** | 3,501,274 sq ft (325,279 m2) | | **Lifts/elevators** | 71 | | **Design and construction** | | | **Architect** | [David Childs](https://en.wikipedia.org/wiki/David_Childs) ([Skidmore, Owings & Merrill](https://en.wikipedia.org/wiki/Skidmore,_Owings_%26_Merrill)) | | **Developer** | [Port Authority of New York and New Jersey](https://en.wikipedia.org/wiki/Port_Authority_of_New_York_and_New_Jersey) | | **Structural engineer** | [WSP Cantor Seinuk](https://en.wikipedia.org/wiki/WSP_Group) | | **Main contractor** | [Tishman Construction](https://en.wikipedia.org/wiki/Tishman_Construction) | | **References** | | |  | | |
| |  | | --- | | **Planned rebuilding of the World Trade Center** | | **Towers** | | **One World Trade Center** (Tower 1) | | [Two World Trade Center](https://en.wikipedia.org/wiki/Two_World_Trade_Center) (Tower 2) | | [Three World Trade Center](https://en.wikipedia.org/wiki/Three_World_Trade_Center) (Tower 3) | | [Four World Trade Center](https://en.wikipedia.org/wiki/Four_World_Trade_Center) (Tower 4) | | [Five World Trade Center](https://en.wikipedia.org/wiki/Five_World_Trade_Center) (Tower 5) | | [Seven World Trade Center](https://en.wikipedia.org/wiki/Seven_World_Trade_Center) (Tower 7) | | **Memorial and museum** | | [National September 11 Memorial & Museum](https://en.wikipedia.org/wiki/National_September_11_Memorial_%26_Museum) | | **Transit** | | [Transportation Hub](https://en.wikipedia.org/wiki/World_Trade_Center_(PATH_station)) | |

**One World Trade Center**, abbreviated as **1 WTC** and sometimes called by its previous name **Freedom Tower**, is the lead building of the [new World Trade Center](https://en.wikipedia.org/wiki/World_Trade_Center#New_buildings) complex in [Lower Manhattan](https://en.wikipedia.org/wiki/Lower_Manhattan), [New York City](https://en.wikipedia.org/wiki/New_York_City). The 104-story supertall skyscraper is being constructed in the northwest corner of the 16-acre [World Trade Center site](https://en.wikipedia.org/wiki/World_Trade_Center_site), occupying the location where the original 8-story [6 World Trade Center](https://en.wikipedia.org/wiki/6_World_Trade_Center) once stood. The building is bounded to the west by West Street, to the north by Vesey Street, to the south by Fulton Street, and to the east by Washington Street. Construction on below-ground utility relocations, footings, and foundations for the building began on April 27, 2006. The tower's steel structure [topped-out](https://en.wikipedia.org/wiki/Topping-out) on August 30, 2012, and work is currently underway on its spire.

At the time of its completion in late 2013, One World Trade Center will be the tallest building in the [Western Hemisphere](https://en.wikipedia.org/wiki/Western_Hemisphere) and the [third-tallest building in the world](https://en.wikipedia.org/wiki/List_of_tallest_buildings_in_the_world) by pinnacle height, with its spire reaching a symbolic 1,776 feet (541.3 m) in reference to the year of [American independence](https://en.wikipedia.org/wiki/United_States_Declaration_of_Independence). It has been the tallest building in New York City since April 30, 2012. On March 30, 2009, the [Port Authority of New York and New Jersey](https://en.wikipedia.org/wiki/Port_Authority_of_New_York_and_New_Jersey) confirmed that the building would be known by its legal name of One World Trade Center, rather than the colloquial name, Freedom Tower. The new World Trade Center complex will also feature three other high-rise office buildings, located along Greenwich Street, and the [National September 11 Memorial & Museum](https://en.wikipedia.org/wiki/National_September_11_Memorial_%26_Museum), located just south of One World Trade Center, where the Twin Towers once stood. The construction is part of an effort to memorialize and rebuild following the destruction of the original [World Trade Center](https://en.wikipedia.org/wiki/World_Trade_Center) complex during the [terror attacks of September 11, 2001](https://en.wikipedia.org/wiki/September_11_attacks).

**History**

Following the destruction of the original World Trade Center on September 11, 2001, there was much debate regarding the future of the World Trade Center site. Proposals began almost immediately, and by 2003, the [Lower Manhattan Development Corporation](https://en.wikipedia.org/wiki/Lower_Manhattan_Development_Corporation) organized a competition to determine how to use the site. Public rejection of the first round of designs, the "Preliminary Design Concepts," led to a second, more open competition in December 2002, in which a design by [Daniel Libeskind](https://en.wikipedia.org/wiki/Daniel_Libeskind) was selected. This went through many revisions, largely because of disagreements with developer [Larry Silverstein](https://en.wikipedia.org/wiki/Larry_Silverstein), who held the lease to the World Trade Center site on September 11, 2001.

Criticism was leveled at 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 overall office space of the entire rebuilt World Trade Center 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 above the roof of the tower, containing wind turbines and "sky gardens." In a subsequent design, the highest space that could be occupied became comparable to the original World Trade Center, and the open-air lattice was removed from the plans. In 2002, former [New York Governor](https://en.wikipedia.org/wiki/Governor_of_New_York) [George Pataki](https://en.wikipedia.org/wiki/George_Pataki) faced accusations of [cronyism](https://en.wikipedia.org/wiki/Cronyism) for supposedly using his influence to get the winning architect's bid picked as a personal favor for his friend and campaign contributor, Ron Lauder.

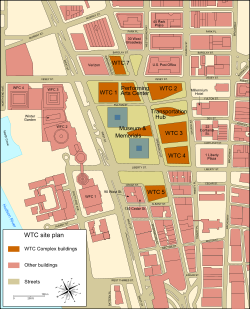
A final design for the "Freedom Tower" was formally unveiled on June 28, 2005. To satisfy security issues raised by the [New York City Police Department](https://en.wikipedia.org/wiki/New_York_City_Police_Department), a 187-foot (57 m) concrete base was added in April of that year. The design originally included plans to clad the base in glass prisms to address criticism that it looked uninviting and resembled a "concrete bunker." However, this later proved 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." Larry Silverstein commented in 2006 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 enabled foundation construction to begin, and a formal agreement was drafted on the following day, the 75th anniversary of the 1931 opening of the [Empire State Building](https://en.wikipedia.org/wiki/Empire_State_Building). The tower's construction began in May with a formal ceremony that took place when the first construction team arrived. The building's [topping out](https://en.wikipedia.org/wiki/Topping_out) occurred on August 31, 2012, and it is expected to be completed in late 2013.

In 2009, the Port Authority changed the official title of the building from "Freedom Tower" to "One World Trade Center," stating that this name was the "easiest for people to identify with." In May 2011, detailed floor plans of the tower were displayed on New York City's Department of Finance website, 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. In April 2012, with the tower's structure nearing completion, the owners of 1 WTC began a public marketing campaign for the building, seeking to draw in visitors and additional tenants.

**Construction history**

Main article: [Construction of One World Trade Center](https://en.wikipedia.org/wiki/Construction_of_One_World_Trade_Center)



Preliminary site plans for the World Trade Center's reconstruction.

The symbolic cornerstone of One World Trade Center was laid in a ceremony on July 4, 2004, but further construction work was stalled until 2006 due to acrimonious disputes over money, security and design. The last major issues were resolved on April 26, 2006, when a deal was struck between developer [Larry Silverstein](https://en.wikipedia.org/wiki/Larry_Silverstein) and the Port Authority of New York and New Jersey. For two months during the summer of 2006, explosives were detonated at the World Trade Center construction site, testing the use of charges to clear [bedrock](https://en.wikipedia.org/wiki/Bedrock) for the building's foundations. On November 18, 2006, 400 cubic yards (310 cubic meters) of concrete were poured onto the foundations, carried by as many as 40 trucks. On December 17, 2006, a ceremony was held in [Battery Park City](https://en.wikipedia.org/wiki/Battery_Park_City), with members of the public invited to sign a 30-foot (9.1 m) steel beam. This beam, the first to be installed, was welded onto the building's base on December 19, 2006. Afterwards, construction of the foundation and further steel installation commenced, and by the end of 2007, the tower’s footings and foundations were nearly complete.

In January 2008, two construction cranes were moved onto the construction site. The tower's concrete core began rising in the first months of 2008, and had reached street level by May 17. Construction of the base continued through 2009 and was completed by January 2010. That same month, construction of the office floors began, then afterwards the installation of the first glass windows. In May 2010, the Port Authority stated that they were building nearly one floor of the tower per week, and it was projected that 1 WTC would reach 55 stories by the end of 2010. An advanced "cocoon" scaffolding system was installed to protect workers from falling, marking the first time that such a safety system had been installed on a steel structure in the city.



1 WTC under construction, as seen from a helicopter on April 30, 2012.

On December 16, 2010, the Port Authority announced that the tower's construction had reached the 52nd floor, rising to over 600 feet (180 m) and marking the halfway point for the tower's steel frame. By September 11, 2011, ten years after the destruction of the original World Trade Center, the tower's steel had reached the 82nd floor, while its concrete flooring had reached the 72nd floor, and glass cladding had reached the 56th floor.

While under construction, the tower was specially illuminated on several occasions. On the weekend of July 4, 2011, it was lit up in the colors of the [American flag](https://en.wikipedia.org/wiki/Flag_of_the_United_States) to commemorate [Independence Day](https://en.wikipedia.org/wiki/Independence_Day_(United_States)), and it was lit up in the same colors on September 10 to mark the 10th anniversary of the September 11 terrorist attacks. On October 27, it was illuminated in pink in honor of [Breast Cancer Awareness Month](https://en.wikipedia.org/wiki/Breast_Cancer_Awareness_Month). On December 11, the Port Authority illuminated the tower in multicolored lights to celebrate the [holiday season](https://en.wikipedia.org/wiki/Holiday_season). On February 24, 2012, the building was lit up in red in honor of [Archbishop of New York](https://en.wikipedia.org/wiki/Roman_Catholic_Archdiocese_of_New_York) [Timothy Dolan](https://en.wikipedia.org/wiki/Timothy_Dolan), who became a [cardinal](https://en.wikipedia.org/wiki/Cardinal_(Catholicism)) on February 18. On June 14, 2012, it was illuminated in red, white, and blue to honor [Flag Day](https://en.wikipedia.org/wiki/Flag_Day_(United_States)). In August, it was illuminated in red in honor of the Armed Forces. On September 8, 2012, it was again illuminated in red, white, and blue to honor the 11th anniversary of the September 11 attacks.



One World Trade Center under construction on February 12, 2013.

On January 31, 2012, the Port Authority stated that the tower's loading dock would not be finished in time to move equipment into the completed building, and that five temporary loading bays would be added instead, at a cost of "millions". The temporary Trans Hudson station will not be removed until its replacement is completed, preventing access to the planned loading area. By March 2012, One World Trade Center's steel had reached the 93rd floor, and on March 30, the 100th floor was reached at a height of 1,240 feet (380 m). Though this floor was numbered as floor 100, it was in fact the 94th floor constructed – the intervening space was occupied by the high-ceilinged mechanical floors 91–93. The incomplete tower became New York City's tallest building by roof height, superseding the 1,250-foot (380 m) roof height of the Empire State Building, on April 30, 2012. However, the Empire State Building's total spire height of 1,454 feet (443 m) will remain unsurpassed until One World Trade Center's antenna is installed in 2013.

On June 2, 2012, a fire broke out on the 89th floor of the tower, but was extinguished by New York firefighters before causing any injuries or serious structural damage. However, firefighting efforts were delayed because the tower's emergency [standpipes](https://en.wikipedia.org/wiki/Standpipe_(firefighting)) were found to be dry. On June 14, 2012, [President](https://en.wikipedia.org/wiki/President_of_the_United_States) [Barack Obama](https://en.wikipedia.org/wiki/Barack_Obama) visited the construction site and signed a steel beam that would be hoisted to the top of the tower. Obama wrote, "We remember, we rebuild, we come back stronger!"

In August 2012, One World Trade Center's steel officially topped out at the nominal 105th floor, at a total height of 1,368 feet. As of March 8, 2013, the tower's concrete construction is largely complete, and its glass panels are being installed in sections between the 90th and 100th floors. Installation of the podium's lower glass curtain wall has also begun. Roof and parapet steel are being finalized, along with the subsections of the 408-foot (124 m) spire. The tower's antenna was shipped to New York in November 2012; the first antenna section was hoisted to the top of the tower on December 12, 2012, and installed on January 15, 2013. As of March 2013, two sections of the antenna have been installed. Completion of the spire is expected to be completed in summer 2013, pending weather conditions. After the completion of the antenna, cladding on the base of the tower will begin. The completion of this will make the tower soon ready for occupancy. Interior completion will make the building complete by late 2013 or early 2014.

**Estimated cost and funding**

A February 2007 estimate put the initial construction cost of One World Trade Center at about US$3 billion, or $1,150 per square foot ($12,380 per square meter). However, by January 2012 the tower's estimated cost had risen to $3.8 billion, making it the most expensive single building in the world at the time. The tower's construction was partly funded with approximately $1 billion of insurance money recouped by Silverstein in connection with the September 11 attacks. The State of New York provided $250 million toward construction costs, and the Port Authority agreed to finance a further $1 billion through the sale of [bonds](https://en.wikipedia.org/wiki/Bond_(finance)). A series of bridge and tunnel toll hikes were also implemented by the Port Authority to raise funds, with a 56% toll increase scheduled between 2011 and 2015; however, the proceeds of these toll hikes were not ultimately used to pay for the tower's construction.

**Architecture and design**

Many of Daniel Libeskind's concepts from the 2002 competition were later discarded from the tower's design. One World Trade Center's final design consisted of simple symmetries and a more traditional profile, intended to bear comparison with selected elements of the contemporary New York skyline. The tower's central spire draws from precedents such as the [Empire State Building](https://en.wikipedia.org/wiki/Empire_State_Building) and the [Chrysler Building](https://en.wikipedia.org/wiki/Chrysler_Building), and is also visually reminiscent of the [North Tower](https://en.wikipedia.org/wiki/List_of_tenants_in_One_World_Trade_Center) of the original [World Trade Center](https://en.wikipedia.org/wiki/World_Trade_Center), rather than being an off-center spire intended to echo the [Statue of Liberty](https://en.wikipedia.org/wiki/Statue_of_Liberty).

The building's footprint is 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 rises from a 185-foot (56 m) windowless concrete base, designed to protect it against [truck bombs](https://en.wikipedia.org/wiki/Truck_bomb) and other ground-level terror threats. Originally, the base was intended to be clad in decorative [prismatic](https://en.wikipedia.org/wiki/Prism_(optics)) glass, but a simpler glass-and-steel façade was adopted when this proved unworkable. The current base cladding design consists of angled glass fins protruding from stainless steel panels, similar to those on [7 World Trade Center](https://en.wikipedia.org/wiki/7_World_Trade_Center). [LED](https://en.wikipedia.org/wiki/Light-emitting_diode) lights behind the panels will 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. They measure 60 feet (18 m) high and range in width from 30 feet (9.1 m) on the east and west sides (for access to the observation deck) to 50 feet (15 m) on the north side, and 70 feet (21 m) on the south for primary tenant access. The curtain wall was manufactured and assembled in [Portland, Oregon](https://en.wikipedia.org/wiki/Portland,_Oregon), by Benson Industries, using glass made in [Minnesota](https://en.wikipedia.org/wiki/Minnesota) by Viracon.

From the 20th floor upwards, the square edges of the tower's cubic base are [chamfered](https://en.wikipedia.org/wiki/Chamfered) back, transforming the building's shape into eight tall [isosceles triangles](https://en.wikipedia.org/wiki/Isosceles_triangle), or an elongated [square antiprism](https://en.wikipedia.org/wiki/Square_antiprism). Near its middle, the tower forms a perfect octagon in-plan, and then culminates in a glass [parapet](https://en.wikipedia.org/wiki/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 [SOM](https://en.wikipedia.org/wiki/Skidmore,_Owings_and_Merrill), artist [Kenneth Snelson](https://en.wikipedia.org/wiki/Kenneth_Snelson) (who invented the [tensegrity](https://en.wikipedia.org/wiki/Tensegrity) structure), lighting designers and engineers – is secured by a system of cables, and rises from a circular support ring which will contain additional broadcasting and maintenance equipment. At night, an intense beam of light will be projected above the spire, being visible over 1,000 feet (300 m) into the air above the tower.

[David Childs](https://en.wikipedia.org/wiki/David_Childs) of [Skidmore, Owings and Merrill](https://en.wikipedia.org/wiki/Skidmore,_Owings_and_Merrill), the architect of One World Trade Center, said the following regarding the tower's design:

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| **“** | 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**

One World Trade Center's top floor will be designated as 104. The building will have 74 usable above-ground floors, of which 69 will be assigned as office space (approximately 2,600,000 square feet or 240,000 square meters). The base will occupy floors 1–19, including a 65-ft-high (20 m) public lobby. The office stories will begin at floor 20, and run through floor 63. There will be a [sky lobby](https://en.wikipedia.org/wiki/Sky_lobby) on floor 64, and then office floors will resume between floors 65–90. Meanwhile, floors 91–99 and 103–104 will be designated as mechanical space. The design also includes a three-story observation deck located on floors 100–102, as well as broadcast and antenna facilities, all supported by both above and below-ground mechanical infrastructure for the building and its adjacent public spaces. Below-ground tenant parking and storage, shopping, and access to the [PATH](https://en.wikipedia.org/wiki/Port_Authority_Trans-Hudson) and [subway](https://en.wikipedia.org/wiki/New_York_City_Subway) trains and the [World Financial Center](https://en.wikipedia.org/wiki/World_Financial_Center) are also provided. There will be approximately 55,000 square feet (5,100 m2) of below-grade retail space. A plan to build a restaurant near the top of the tower was abandoned as logistically too difficult. The window washing tracks are located on a 16-square-foot area which will be denoted as floor 110, in a symbolic reference to the 110 stories of the original Twin Towers.

**Sustainability**

Like the other buildings of the rebuilt World Trade center complex, One World Trade Center includes a number of [sustainable architecture](https://en.wikipedia.org/wiki/Sustainable_architecture) features. Much of the building's structure is made from post-industrial recycled materials, and about 80% of its waste products are also being recycled. Although the roof area of any tower is comparatively limited, the building will implement a rainwater collection and recycling scheme for its cooling systems. The building's [PureCell](https://en.wikipedia.org/wiki/PureCell_System) [phosphoric acid fuel cells](https://en.wikipedia.org/wiki/Phosphoric_acid_fuel_cell) will generate 4.8 million watts of power, and waste steam will also help generate electricity. The New York Power Authority selected [UTC Power](https://en.wikipedia.org/wiki/UTC_Power) to provide the tower's fuel cell system, which will rank as one of the largest installations of fuel cells in the world once complete. The tower will also make use of off-site [hydroelectric](https://en.wikipedia.org/wiki/Hydroelectricity) and [wind power](https://en.wikipedia.org/wiki/Wind_power). The windows are made of an ultra-clear glass which allows maximum daylight to pass through, while interior lighting is equipped with dimmers that automatically lower the lights on sunny days, thereby reducing energy costs. Like all of the new facilities at the World Trade Center site, One World Trade Center will be [heated by steam](https://en.wikipedia.org/wiki/New_York_City_steam_system), with limited oil or natural gas utilities located on-site.

One World Trade Center is expected to receive a [Leadership in Energy and Environmental Design](https://en.wikipedia.org/wiki/Leadership_in_Energy_and_Environmental_Design) (LEED) Gold Certification, making it one of the most environmentally sustainable buildings of its size in the world.

**Safety and security**

Along with the protection offered by the reinforced concrete base, a number of other safety features were included in the building's design, in order to better prepare it for a major accident or terrorist attack. These features include 3-foot (91 cm) thick reinforced concrete walls for all stairwells, elevator shafts, risers, and sprinkler systems; extra-wide, [pressurized](https://en.wikipedia.org/wiki/Pressurisation_ductwork) stairwells; a dedicated set of stairwells exclusively for the use of firefighters; and biological and chemical filters throughout its ventilation system. 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 on the side of the building facing in this direction are equipped with specially tempered blast-resistant plastic, which looks nearly the same as the glass used in the other sides of the building. The 70 elevators and nine escalators for One World Trade Center will be provided by [ThyssenKrupp](https://en.wikipedia.org/wiki/ThyssenKrupp), with steel counterweights supplied by Concord Steel. 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 optimum safety design, new security measures will also be implemented. All vehicles will be screened before they enter the site via the underground roadway, including for [radioactive](https://en.wikipedia.org/wiki/Radioactive) materials. Visitors to the [National September 11 Memorial](https://en.wikipedia.org/wiki/National_September_11_Memorial) currently undergo airport-style screening as part of the "Interim Operating Period", which is expected to end on December 31, 2013. 400 [closed-circuit surveillance cameras](https://en.wikipedia.org/wiki/Closed-circuit_television_camera) will be placed in and around the site, with live camera feeds being monitored around the clock by the NYPD. A computer system will use [video-analytic computer software](https://en.wikipedia.org/wiki/Machine_vision) designed to detect potential threats such as unattended bags and retrieve images based on descriptions of terror 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 opened entirely to the public, as was the original World Trade Center plaza.

The fortified base of the tower has been a source of controversy. A number of critics (notably Deroy Murdock of the [*National Review*](https://en.wikipedia.org/wiki/National_Review)) have suggested that it is alienating and dull, and reflects a sense of fear rather than freedom, leading them to dub the project "the Fear Tower". Nicolai Ouroussoff, the architecture critic for the [*New York Times*](https://en.wikipedia.org/wiki/New_York_Times), calls the tower base decorations a "grotesque attempt to disguise its underlying paranoia".

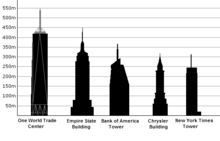
**Design evolution**

The original design went through significant changes after the [Durst Organization](https://en.wikipedia.org/wiki/Durst_Organization) joined the Port Authority of New York and New Jersey in 2010 as the codeveloper of the project.

* **The 185-foot (56 m) base** of the tower, the corners of which were originally designed to slope gently upward, was later squared off. In addition, instead of being clad in panels of prismatic glass, its walls will be covered in "hundreds of pairs of 13-foot vertical glass fins set against horizontal bands of eight-inch-wide stainless-steel slats."
* **The spire**, originally intended to be enclosed with a protective [random](https://en.wikipedia.org/wiki/Radome) described as a "sculptural sheath of interlocking fiberglass panels", will instead remain an antenna. As such, the height of the tower may be officially reduced by the [Council on Tall Buildings and Urban Habitat](https://en.wikipedia.org/wiki/Council_on_Tall_Buildings_and_Urban_Habitat) from a symbolic 1,776 feet to the 1,368-foot roof height. 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 move. David Childs, the lead designer, stated: "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 coming onto the project in 2010, the Durst Organization had proposed eliminating the redone to save costs, but was rejected by the Port Authority's previous executive director, Chris Ward. His September 2011 replacement, Patrick Foye, later changed the Port Authority's position. The decision is final, as stated by Douglas Durst: "(the antenna) is going to be mounted on the building over the summer. There's no way to do anything at this point."
* **The plaza to the west** of the building facing the [Hudson River](https://en.wikipedia.org/wiki/Hudson_River), which is at an elevation to Vesey Street to the north and West Street to the west, was planned to have stainless steel steps reaching down to the streets. Instead it will be a terrace, set apart by a block long landscaped planter. Durst also removed a skylight set into the plaza which was designed to allow natural light into the observation deck lobby below ground.

The Port Authority formally approved all these revisions. Patrick Foye, the executive director of the Port Authority, stated: “I think they’ve been few and minor.” Douglas Durst said: "We didn’t make the changes to save money...The changes were made in order to construct the building.” The contract negotiated between the Port Authority and the Durst Organization specifies that the Durst Organization 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, and further returns stepping down thereafter (to 50 percent, 25 percent and 15 percent as

**Height**



Height comparison of major skyscrapers in New York City, with One World Trade Center shown at far left.

The roof of the top floor of One World Trade Center is 1,368 feet (417 m) tall, including a 33 ft 4 in (10.16 m) [parapet](https://en.wikipedia.org/wiki/Parapet); this is identical to the roof height of the North Tower of the original World Trade Center. The building's antenna/spire complex will bring One World Trade Center to a pinnacle height of 1,776 feet (541 m), a figure symbolic of the 1776 [United States Declaration of Independence](https://en.wikipedia.org/wiki/United_States_Declaration_of_Independence). If the antenna is included in the building's official height, as defined by the [Council on Tall Buildings and Urban Habitat](https://en.wikipedia.org/wiki/Council_on_Tall_Buildings_and_Urban_Habitat) (CTBUH), One World Trade Center will surpass the 1,671-foot (509 m) height of [Taipei 101](https://en.wikipedia.org/wiki/Taipei_101) to become the world's tallest all-office building. Additionally, the tower would become the tallest building in the Western Hemisphere, surpassing the [Willis Tower](https://en.wikipedia.org/wiki/Willis_Tower) (formerly known as the Sears Tower) in [Chicago](https://en.wikipedia.org/wiki/Chicago). However, its roof height will still be 83 feet (25 m) shorter than the Willis Tower. At the time of its completion, One World Trade Center would be the third-tallest skyscraper in the world, behind the [Burj Khalifa](https://en.wikipedia.org/wiki/Burj_Khalifa) and the [Abraj Al Bait](https://en.wikipedia.org/wiki/Abraj_Al_Bait). One World Trade Center will also become the 6th-tallest [freestanding structure in the world](https://en.wikipedia.org/wiki/List_of_tallest_freestanding_structures_in_the_world). The [Chicago Spire](https://en.wikipedia.org/wiki/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 in 2009 due to financial difficulties.

After the changes in the design of One World Trade Center's spire were revealed in May 2012, questions have been raised as to whether the 408-foot (124 m) structure will still qualify as a spire and thus be included in the building's official architectural height. As the building's spire will no longer be enclosed in a random as originally planned, it may instead be classified as a simple antenna which, according to the CTBUH, is not included in a building's official height. Without the inclusion of the antenna mast, One World Trade Center's official height would be its roof height of 1,368 feet (417 m), making it the [third-tallest building in the United States](https://en.wikipedia.org/wiki/List_of_tallest_buildings_in_the_United_States), behind the Willis Tower and [Trump International Hotel & Tower](https://en.wikipedia.org/wiki/Trump_International_Hotel_and_Tower_(Chicago)), both located in Chicago. Additionally, while the building would become the tallest in New York City upon completion, it would be surpassed in 2015 by the under-construction [432 Park Avenue](https://en.wikipedia.org/wiki/432_Park_Avenue), which is expected to rise to a height of 1,398 feet (426 m). 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.” The CTBUH has announced that it will wait to make its final decision as to whether or not the redesigned spire will count towards the building's official height until after One World Trade Center's completion in 2013.

**Owners and tenants**

One World Trade Center is owned principally by the Port Authority of New York and New Jersey. Around 5% equity of the building was sold to the Durst Organization, a private real estate company, in exchange for an investment of at least US$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% of the building's floor space had been leased.

**Government tenants**

In 2006, the State of New York agreed to a 15-year lease of 415,000 square feet (38,600 m2) of space inside 1 WTC, with an option to extend the term of the lease and occupy up to 1,000,000 square feet (90,000 m2). The [General Services Administration](https://en.wikipedia.org/wiki/General_Services_Administration) (GSA) initially agreed to lease approximately 645,000 square feet (59,900 m2) of space, and New York State's Office of General Services (OGS) planned to lease approximately 412,000 square feet (38,300 m2) of space. However, in July 2011, the GSA ceded most of its leased floor space to the Port Authority, and the OGS withdrew from the lease agreement. In April 2008, the Port Authority announced that it was seeking a bidder to operate an 18,000 sq ft (1,700 m2) observation deck on the tower's 102nd floor.

**Vantone China Center**

The building's first lease was announced on March 28, 2009, as a joint project between the Port Authority and Beijing-based Vantone Industrial Co. A 190,810 sq ft (17,727 m2) "China Center", combining business and cultural facilities, is to be located between floors 64 and 69, 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 an initial proposal by the Chinese artist Zhou Wei.

**[**[**edit**](https://en.wikipedia.org/w/index.php?title=One_World_Trade_Center&action=edit&section=13)**] Condé Nast**

On August 3, 2010, [Condé Nast Publications](https://en.wikipedia.org/wiki/Cond%C3%A9_Nast_Publications) signed a tentative agreement to move the headquarters and offices of 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 an 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 agreement, leasing 1,008,012 square feet (93,647.4 m2) of office space on floors 20–41 of the tower. The lease also covers 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 42–44 of the tower.

**Proposed tenants**

On January 27, 2012, it was announced that [Chadbourne & Parke](https://en.wikipedia.org/wiki/Chadbourne_%26_Parke), a [Midtown Manhattan](https://en.wikipedia.org/wiki/Midtown_Manhattan) law firm, would be signing a lease to around 300,000 square feet (30,000 m2) of space in One World Trade Center. However, negotiations broke down and the deal failed abruptly in March 2012.

**Key figures**

**Larry Silverstein**

[Larry Silverstein](https://en.wikipedia.org/wiki/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.



[Daniel Libeskind](https://en.wikipedia.org/wiki/Daniel_Libeskind) won the 2002 competition to develop a master plan for the World Trade Center's redevelopment.

**David Childs**

[David Childs](https://en.wikipedia.org/wiki/David_Childs), one of Silverstein's favorite architects, joined the project at the urging of Silverstein and developed a proposal for 1 WTC, initially in collaboration with Daniel Libeskind. The tower's design was revised by Childs in May 2005 to address security concerns. He is the project architect of the tower, and is responsible for overseeing its day-to-day design development from inception to completion.

**Daniel Libeskind**

Architect [Daniel Libeskind](https://en.wikipedia.org/wiki/Daniel_Libeskind) won the invitational competition to develop a plan for the World Trade Center's redevelopment in 2002. He included an initial proposal, "Memory Foundations", for the design of 1 WTC, a building with aerial gardens and windmills with an off-center spire. Libeskind later denied a request to place the tower in a more rentable location next to the PATH station and instead placed it a block west, because in profile it would line up with, and resemble, the [Statue of Liberty](https://en.wikipedia.org/wiki/Statue_of_Liberty). Most of Libeskind's designs were later scrapped, and other architects were chosen to construct the other WTC buildings. Nonetheless, one element of Libeskind's initial plan was reflected in the final design – the tower's symbolic height of 1,776 feet (541 m).

**Daniel Tishman**

Daniel R. Tishman – along with his father John Tishman, builder of the original World Trade Center – led the construction management effort for [Tishman Realty & Construction](https://en.wikipedia.org/wiki/Tishman_Realty_%26_Construction), the selected builder for 1 WTC.

**Douglas and Jody Durst**

Douglas and Jody Durst, the co-presidents of the [Durst Organization](https://en.wikipedia.org/wiki/Durst_Organization), a real estate development company, won the right to invest at least $100 million in the project on July 7, 2010. The Durst Organization is a family-owned company that specializes in the development, managing, leasing, and operation of sustainable commercial construction space. Condé Nast, a long-time Durst tenant, also confirmed a tentative deal to move into 1 World Trade Center in August 2010, and finalized the deal on May 26, 2011.

**Port Authority construction workers**

A Wood Search Films short-subject documentary was uploaded to [YouTube](https://en.wikipedia.org/wiki/YouTube) on August 31, 2010, entitled *How does it feel to work on One World Trade Center?*. Nearly all of the construction workers interviewed praised the unity and work ethic of the new World Trade Center's construction team. Others spoke of the importance they believed the construction of the tower had to the people of the United States. A deputy foreman, George Collins, said, "All the men are working in conjunction to put this building up. They all know how important this is to the country – and to show the world what us Americans can do – and get this done, union and proud." Another deputy foreman, Scott Williams, commented, "[The] camaraderie of the crew is very good."

**Special Operation Forces memorial**

On October 19, 2012, a life-and-a-half scale bronze monument commemorating U.S. Special Operations Forces in the first few weeks of the [War in Afghanistan](https://en.wikipedia.org/wiki/War_in_Afghanistan_(2001%E2%80%93present)) was rededicated in front of the building. The base of the statue bears the sculpture's title, “[America’s Response Monument](https://en.wikipedia.org/wiki/America%E2%80%99s_Response_Monument).” The statue is sub-titled [*De Oppresso Liber*](https://en.wikipedia.org/wiki/De_Oppresso_Liber), which is [Latin](https://en.wikipedia.org/wiki/Latin) for ‘to liberate the oppressed’, the motto of the [Green Berets](https://en.wikipedia.org/wiki/Green_Berets). A piece of steel from the [World Trade Center](https://en.wikipedia.org/wiki/World_Trade_Center) is embedded in the base.

The monument is dedicated to the actions of the servicemen and women of America’s Special Operations who responded to the [9/11 attacks](https://en.wikipedia.org/wiki/September_11_attacks), including the Special Operations forces who were able to help remove the Taliban from power in a few weeks, an operation that had been expected to take months or even years. The statue was dedicated by General [John Mulholland](https://en.wikipedia.org/wiki/John_F._Mulholland,_Jr.), [Lieutenant general](https://en.wikipedia.org/wiki/Lieutenant_general_(United_States)) and Deputy Commanding General of [U.S. Army Special Forces Command](https://en.wikipedia.org/wiki/United_States_Army_Special_Operations_Command). In an uncommon move, the bronze statue was positioned facing so the soldier atop the horse is keeping a watchful eye as he looks back over his shoulder at the World Trade Center and its tenants. Soldiers representing the United States Army [Special Operations Command](https://en.wikipedia.org/wiki/Special_Operations_Command) attended the ceremony.

The statue is the first publicly accessible monument to special forces. The land for the monument was donated by a private Wall Street firm. The statue's entire cost of over $750,000 was paid by hundreds of private citizens.

**See also**

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|  | [***New York City portal***](https://en.wikipedia.org/wiki/Portal:New_York_City) |
|  | [***Architecture portal***](https://en.wikipedia.org/wiki/Portal:Architecture) |

* [Buildings and architecture of New York City](https://en.wikipedia.org/wiki/Buildings_and_architecture_of_New_York_City)
* [List of tallest buildings in New York City](https://en.wikipedia.org/wiki/List_of_tallest_buildings_in_New_York_City)
* [List of buildings with 100 floors or more](https://en.wikipedia.org/wiki/List_of_buildings_with_100_floors_or_more)
* [List of tallest buildings in the world](https://en.wikipedia.org/wiki/List_of_tallest_buildings_in_the_world)
* [List of tenants in One World Trade Center](https://en.wikipedia.org/wiki/List_of_tenants_in_One_World_Trade_Center) – Lists the tenants of the original 1 WTC, or North Tower, prior to the September 11 attacks
* [One World Trade Center in popular culture](https://en.wikipedia.org/wiki/One_World_Trade_Center_in_popular_culture)
* [Tallest buildings in the United States](https://en.wikipedia.org/wiki/Tallest_buildings_in_the_United_States)

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