The Bank of America Tower at One Bryant Park is a 55-story building with 2.2 million square feet of office space and a height of 1200 feet to its spire. With the completion of Freedom Tower in downtown Manhattan, it is now the third tallest building in New York. For architectural (9'-6" ceilings) and mechanical (under-floor air circulation) reasons, the typical floor-to-floor height is 14'-6", significantly higher than most office buildings. Consequently, there are fewer floors than might be expected for a building of this height. Although simple in appearance, the structural design was anything but and presented challenges in all of its aspects, from the bottom of the foundation to the tip of its spire. The solutions to these challenges, however, ended up as elegant as its crystalline form would imply. One of the most striking architectural features of One Bryant Park is its faceted shape. Starting at about the 18th Floor and extending all the way to the top of the curtain wall, the four corners of the building begin to slope inward, towards the core, at shallow angles of about seven degrees (on average). Each corner starts its slope at a different floor and each sloping surface is skewed at a different angle (about 20 degrees, on average). The varied sloping surfaces and the curtain wall’s extremely clear coloring give the building the appearance of a very large quartz crystal. Although a steel-framed building, One Bryant Park utilizes reinforced concrete shear walls that encase the steel frame of the vertical transportation core to resist lateral loads. This system, where the steel frame is erected first and followed by the concrete encasement, was developed in the late 1960s and early 1970s but did not achieve widespread use, mainly due to problems coordinating the two trades and the lack of efficient forming systems. Recently, with the desire by building owners for hardened elevator shafts and stairways, this construction methodology is becoming more attractive. The system maintains the speed of erection of all-steel buildings but takes advantage of the stiffness of concrete shear walls. This construction technique presents its own set of design challenges. Environmentally, One Bryant Park is the first high-rise office building in the world to achieve a LEED Platinum rating. This was achieved through many mechanical systems and architectural features but was aided by the high, recycled content of the structural systems as well.

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