

# Radio TechCheck

*The Weekly NAB Newsletter for Radio Broadcast Engineers*



## RE-ESTABLISHING ONE WORLD TRADE CENTER AS A MAJOR COMMUNICATIONS HUB IN NYC



One World Trade Center Broadcast Tower pre-9/11

The spire is finally in place; the building has reached 1776 feet and is now the tallest building in North America. Now the process begins to re-establish the communications community atop the building.

Prior to 9/11 television broadcasters in New York City with the exception of Univision (who moved to the Empire State Building in 1991) and WNYE (the station of the NYC Board of Education) all operated atop One World Trade Center. In addition, four of the market's FM stations were in operation there.

Sharing space at 1 WTC with the broadcast facilities were telecommunications facilities including point-to-point microwave, ENG, RPU and two-way radio for broadcasters and non-broadcasters. The entire rooftop was set up to handle whip antennas spaced to avoid near-field coupling, with cable tray and troughs to handle getting the cables back to communications rooms.



**Top of spire being placed atop One World Trade Center, May 10 2013**

The design of the new One World Trade Center will afford us the opportunity to install an array of broadcast antennas on the spire. The exact configuration needs to be determined after the FCC Incentive Auction and subsequent spectrum repack is set. The determination of UHF and VHF antennas depends on many factors including power handling capability so in order to make that determination, we must wait until the repack is settled and we know the assignments of the New York City broadcast market stations.

Instead of a flat rooftop on which to place two-way radio antennas, the configuration at the base of One World Trade Center spire includes three “Communications Rings”. This space will allow us to place many antennas on each level, depending on operation. Satellite down-links, ENG, RPU, point-to-point microwave (fixed and steerable), two-way radio antennas, fixed and steerable cameras, relay links, etc. are just a few of the types of communication equipment that will be atop the building.

The broadcast space will be powered by a shared emergency generator in addition to Con Edison power. It will have building-supplied cooling dedicated to the broadcasters with a means to have direct transmitter and rack cooling as required. Power will be supplied to individual broadcasters with final hookup to their equipment to be performed by their own contractor. The master antennas, combiner mainframes and combiner-to-antenna interconnecting transmission lines are to be provided by Durst Broadcasting LLC.



**Communications Rings being installed at One World Trade Center**

Broadcasters only need to supply their own transmitters, terminal equipment, combiner modules and internal connecting cables. The facility is being designed as a plug and play facility and as such, installation of future stations will require minimal down time due to the installation of individual station combiner modules into the shared combiner system.



**The top of the One World Trade Center spire as it is lifted off the ground.**

A communication room for the commercial users, with building-supplied emergency power and cooling, will be located near the communications rings to allow for short transmission line runs between equipment and antennas. A pathway for transmission lines will be provided and assigned to allow use by all broadcasters and other communications occupants. Other equipment space will be provided by the Port Authority of New York and New Jersey for their related agencies and certain public users, as well as antenna space on the Communications Rings. One World Trade Center is a Joint Venture between the Port Authority of New York and New Jersey and The Durst Organization. The rooftop has been leased by Durst Broadcasting LLC, which will run the broadcast facility on behalf of the partnership, for all broadcasters and communications users. The Durst Organization is also responsible for management, leasing and operations of One World Trade Center.



In addition, The Durst Organization operates the Broadcasting and Communications facility at Four Times Square in midtown Manhattan.

(This week's *TechCheck* was prepared by John Lyons, Assistant Vice President/Director of Broadcast Communications at the Durst Organization. *All photos © 2000, 2011, 2013 John M Lyons*)

**Broadcast and Communications Tower currently in use atop Four Times Square in midtown Manhattan**

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