



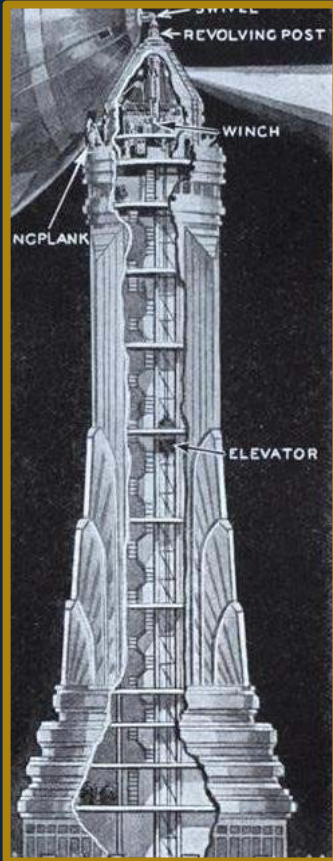
EMPIRE STATE BUILDING
BROADCASTING

Empire State Building Broadcasting



EMPIRE STATE
REALTY TRUST

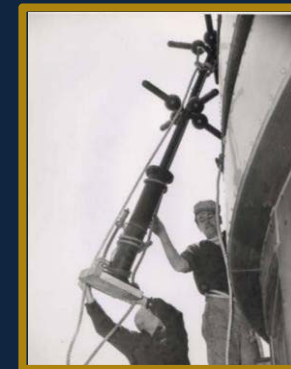
Empire State Building Broadcasting

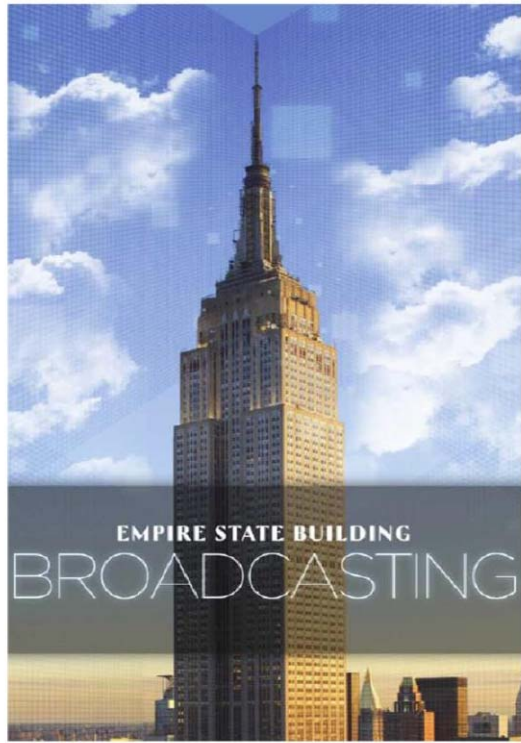


Armstrong Lab In The Empire State Building Demonstrating FM Radio.



1950 RCA Antenna Experimental for 288 MHz TV Transmission.

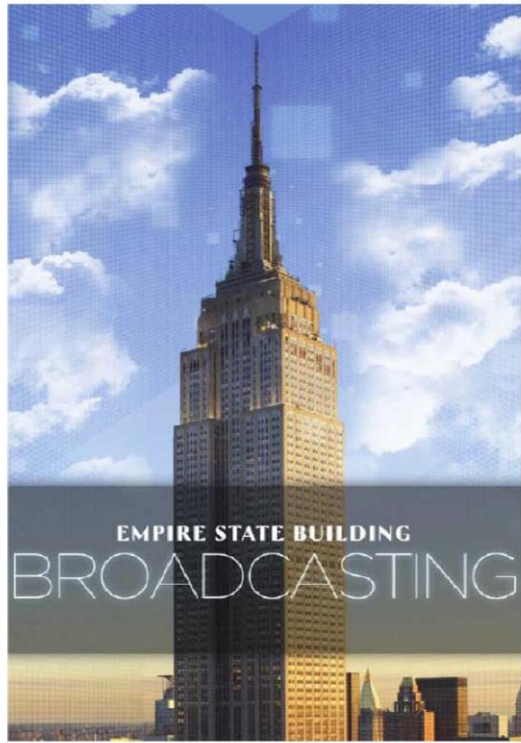




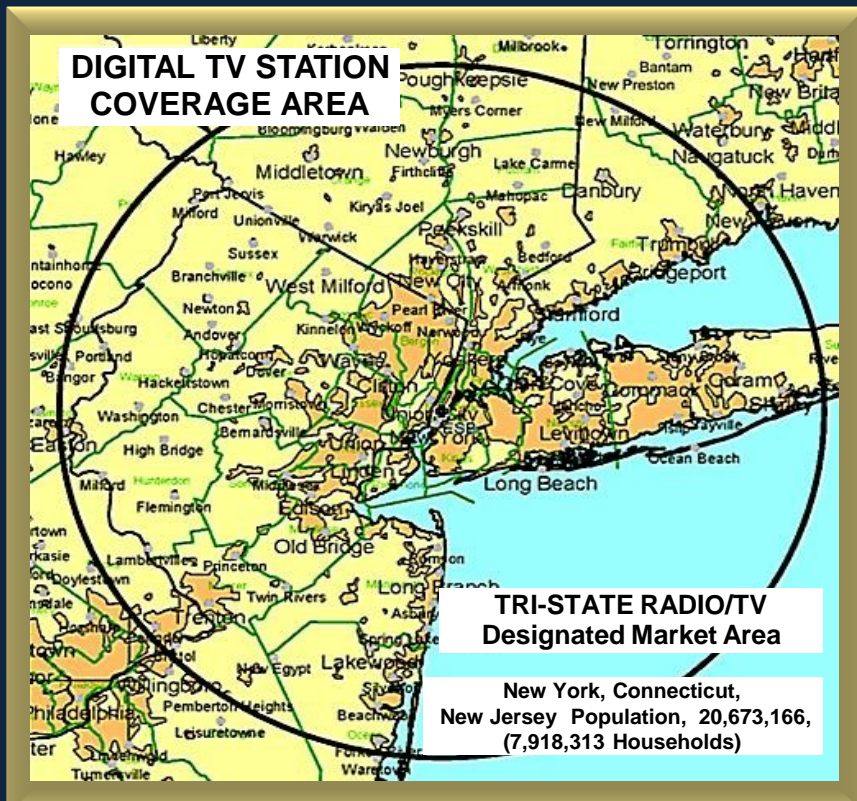
BROADCASTING HISTORY

- ▲ Built in 13 Months 1930-1931
- ▲ Broadcasting Began December 1930 before Building Officially Opened
- ▲ Broadcasting Tower Built 1950
- ▲ First Master FM Combiner Built in 1965 for 16 Stations
- ▲ 1st Empire State Building Broadcaster remains 83 Years Later

Empire State Building Broadcasting



- ▲ Centrally Located in Mid-Town Manhattan
- ▲ 1,454 Height Above Grade
- ▲ Base of Building 50 Feet Above Mean Sea Level
- ▲ 400 Feet of Antenna Aperture Space
- ▲ Many Lower Setbacks
- ▲ Highest Level of Security- Access
- ▲ Modernized Elevators



BROADCASTING COVERAGE AREA

**Base Building Height
Above Mean Sea Level 50 Feet**

**Latitude 40° 44' 54"
Longitude -73° 59' 10"**

FCC Tower Registration # 1007048



BROADCAST TOWER

- ▲ 19 FM Radio Stations
- ▲ 15 TV Stations
- ▲ 8 UHF, 3 VHF, 4 LPTV
- ▲ Removal of Unused Infrastructure
- ▲ Installation of LED Lighting
- ▲ RF Monitoring System
- ▲ Barcoding of Antennae & TX Lines



**TOWER
UPGRADES**



TOWER ABOVE 1250 FEET

- ▲ Infrastructure Removed
- ▲ Tower Prepared for New Antennas
- ▲ Tower Fully Code Compliant
- ▲ Upgraded FAA Warning Lights (LED)
- ▲ Electrical System Replaced
- ▲ Climbing Access Upgraded & Repaired
- ▲ Mooring Mast Waterproofed
- ▲ New Access Hatches Installed

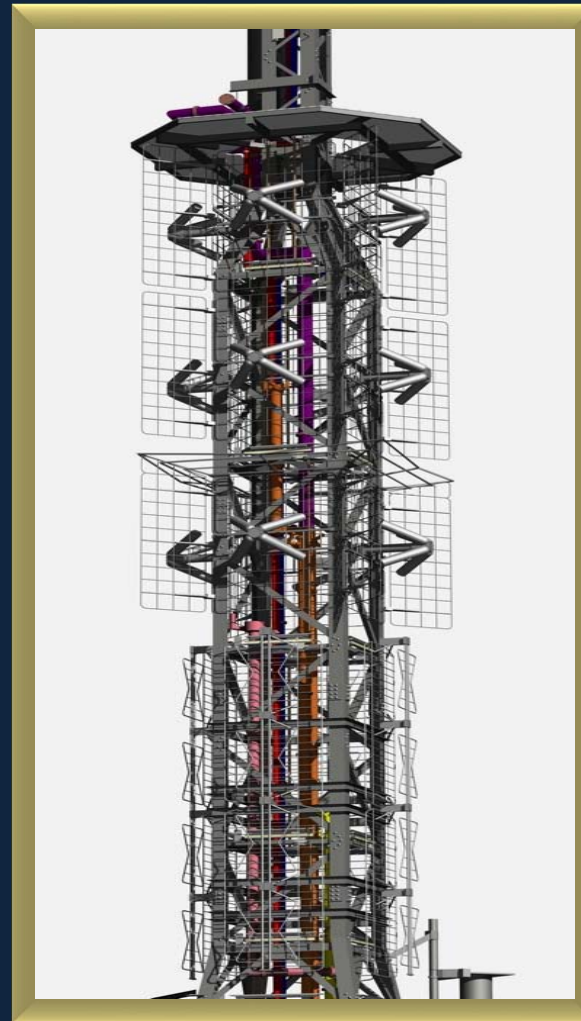
Antenna Master

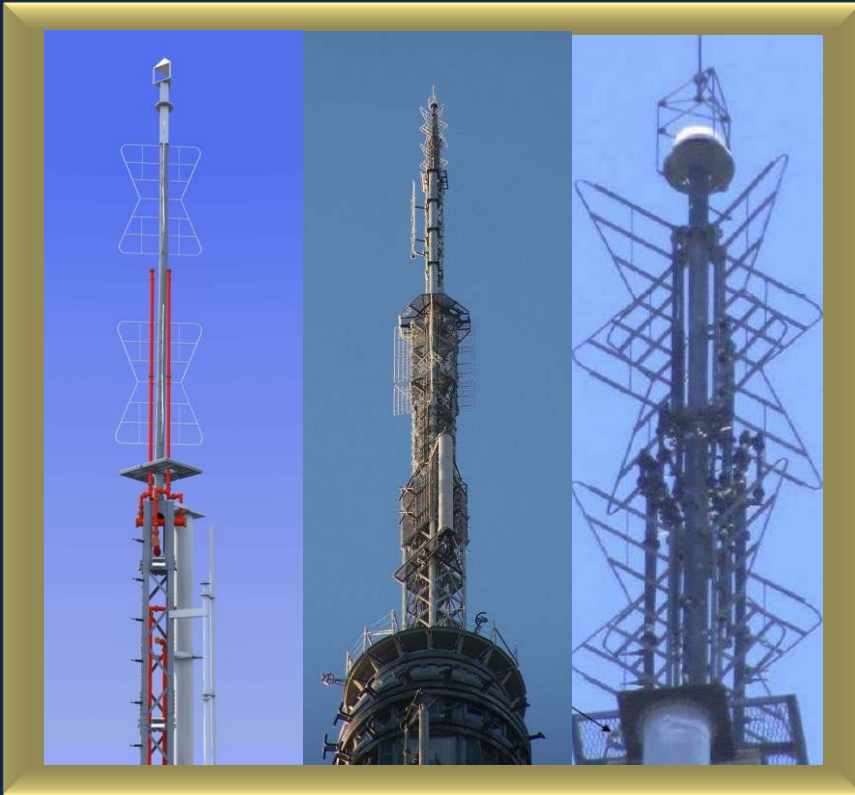
Master FM →

ERI 1084 (4 sided)
Feed Line (2) 6 1/8" rigid

Mini-Master →

(4 sided)
Feed Line 6 1/8" rigid
1 5/8" heliax





ANTENNA MAST TOP

Dielectric TF-3MT Batwing VHF

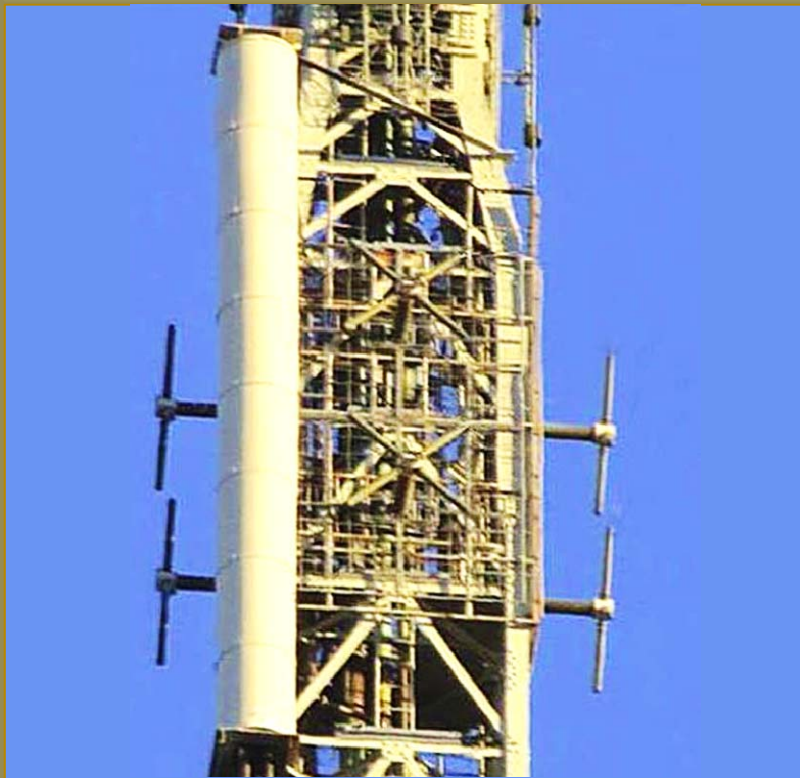
**WNBC/WNYW Channel 4/5
(NBC/FOX)**

Feed Line (2) 3 1/8" Rigid



UNIVISION TV ANTENNAS

**ERI Trasar
Channel 40 / 41**



DTV ANTENNA MINI-MASTER AUX

CBS DTV (Dielectric)
WCBS, WWOR, WNBC,
(NW LEG) Line Feed (2) 6 1/8" Rigid

MINI MASTER (ERI)
AUXILIARY FM
(4 Sided) Line Feed (2) 3 1/8" Rigid

Hi-BAND VHF (Dielectric)
WABC, WPIX, WNET (4 Sided)

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BASE OF TOWER

- ▲ **Vacated to Accommodate New Master FM**
- ▲ **FM Auxiliary Antenna**
- ▲ **New Climbing Aperture**
- ▲ **New RF Shield Isolates Main Antenna from Auxiliary Antenna**

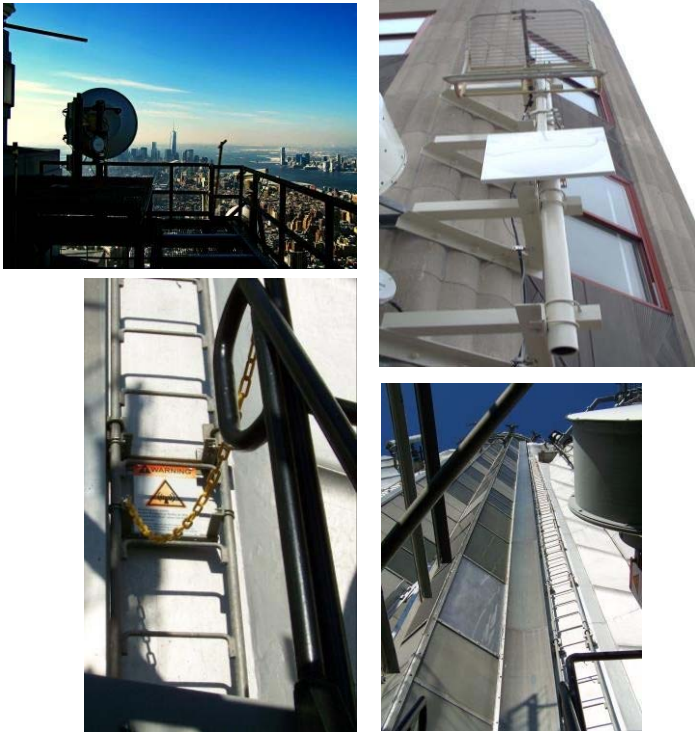
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BROADCAST INFRASTRUCTURE INVENTORY BAR CODING

- ▲ Database of All Antennae & Transmission Lines
- ▲ Labelling with Bar Code Tags
- ▲ Ease of Identification with Handheld Bar Code Reader
- ▲ Facilitates Maintenance Upgrades & Repairs
- ▲ Ease of Management of Shaft Ways & Antenna Space

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TELECOMMUNICATIONS

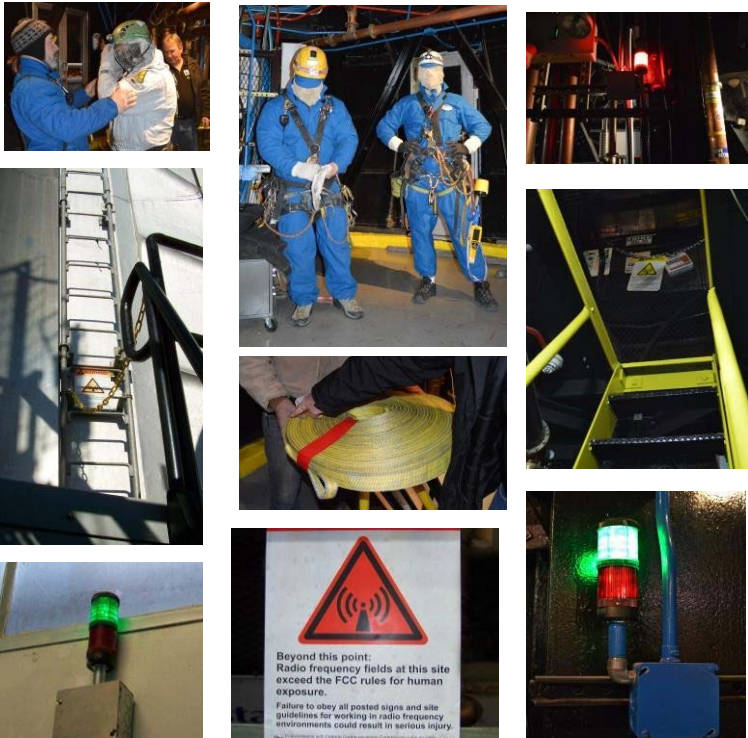
- ▲ Upper Setbacks for STL & Point to Point Communications
- ▲ Redundancy for Fiber Optic Communications Services
- ▲ Unobstructed Line of Sight to Surrounding Area
- ▲ Ease of Installations from many Setbacks



TOWER RECONFIGURATION

- ▲ New Combined Antenna for 8 UHF Stations
- ▲ New Circularly Polarized VHF Antenna
- ▲ New 19 Station Master FM Combiner & Antenna
- ▲ New 19 Station Master FM Auxiliary Antenna
- ▲ New RF Shield to Separate Tower - Main / Aux
- ▲ Shielded Climbing Aperture
- ▲ Continued Broadcasting from ESB during Construction

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BEST PRACTICE

- ▲ Broadcast Operations Procedures Protocol
- ▲ Building Wide RF Monitoring System
 - ▲ RF Controlled Area Access
 - ▲ RF Safety Procedures & Training
- ▲ Detailed Annual Inspection Reporting
- ▲ Building Maintenance & Upgrades
- ▲ Security Access Control

Empire State Building Broadcasting

Thank You!



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