

# 4 Times Square

New York City

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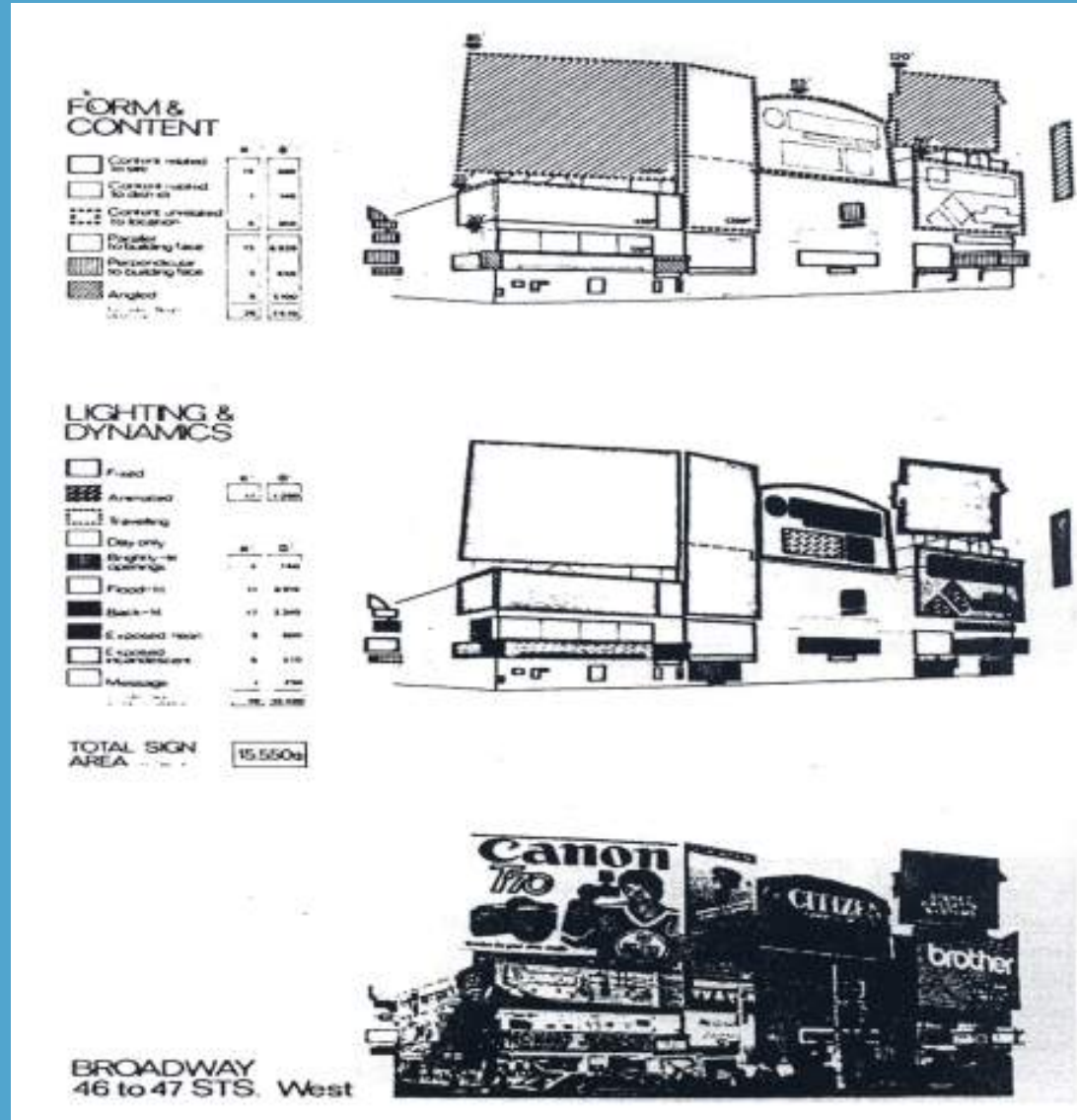
# 42<sup>nd</sup> St. Development Plan

- Aimed to clean up Times Square and surrounding pornography and prostitution district
- Resulted in Philip Johnson and John Burgee Plan in 1984



# 42<sup>nd</sup> St. Development Plan

- Public uproar results in plan's discard and new design guidelines in 1987
- Encourage neon signage, enforce set backs, anchor development with towers at southern end of the bowtie





# The Players

Architect: Fox & Fowle

Developer: Durst  
Corporation

Contractor: Tishman  
Properties

Technical Assistance:  
Rocky Mountain Inst.  
New York State Energy  
Research and Dvlpmt.  
Agency

# DOE-2

- With the help of Rocky Mountain Inst., the NY State Department of Energy Research and Development Agency, the team used DOE-2
- A software program developed by researchers at Lawrence Berkeley Laboratory's Energy and Environment Division in Berkeley
- Determines the most appropriate energy efficient HVAC alternatives by simulating hourly energy performance and energy costs taking into account the local weather conditions.



# Materials

- Non-toxic and biodegradable
- Sustainably harvested wood
- Low-water-use equipment
- Hat truss and concrete core reduce the amount of steel necessary for construction
- 65% of construction debris from the demolition of previous structures was recycled.

# Lighting/ Windows

- High performance fixtures with central controls in public spaces
- LED Exit signs
- Occupancy sensors in all areas including stairwells
- Glazing to provide excellent daylight
- Low-e glass curtain helps keep solar heat out and decrease heat loss in winter

# Cooling and Heating

- Natural gas-powered absorption chillers/heaters located on the roof supply chilled and hot water to cool and heat the building.
- In the cooler there are no CFCs, just an absorber, generator, pump and recuperative heat exchanger

# Equipment

- Variable speed drives on pumps, fans, and motors optimize efficiency and minimize use.
- Floor-by-floor fan units only operate when someone is there
- All mechanical equipment is commissioned to validate its operation at specification

# Air Quality

- Air enters the building at 80 and 700 feet.
- Building circulates 50% more indoor air than required by New York City code.
- Can purge any four floors at once with 100% outside air
- 85% of the air is filtered and monitored
- Dedicated exhaust shaft
- Tenant guidelines for the most benign furnishers and finishes

# Photovoltaics

- Building Integrated PV panels placed on the South and East sides of the top 19 floors on the spandrel in 60 foot wide strips generate 15kW of power.



# Fuel Cells

- Two 200kW cells on the 4th floor
- Natural gas generated power
- 100% of the nighttime electric use with only hot water and CO<sub>2</sub> as products
- Hot water is then used to heat the building in the winter and help heat domestic hot water



# The Big Picture

- “Its much praised energy saving feature are more symbolic than actual.”
- The bottom four floors are covered in bright, energy consuming signage
- Had to deal with competing interests of city, developers and architects, and tenants that they hoped to attract to the building (Built speculatively)
- Can only control tenant space by example

# Sources

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