



Columbia University

**Rick Cook**

Cook + Fox Architects



**“In our every deliberation,  
we must consider the impact  
of our decisions on the next  
seven generations”**

**The Great Law of the  
Iroquois Confederacy, c. 1142**

“Global Temperatures Could Climb 2 to 3 Degrees Celsius by 2100: The Last Time the Earth Was That Warm, Sea Levels Were 80 Feet Higher Than Today.”

James Hansen of NASA  
May '06 Vanity Fair





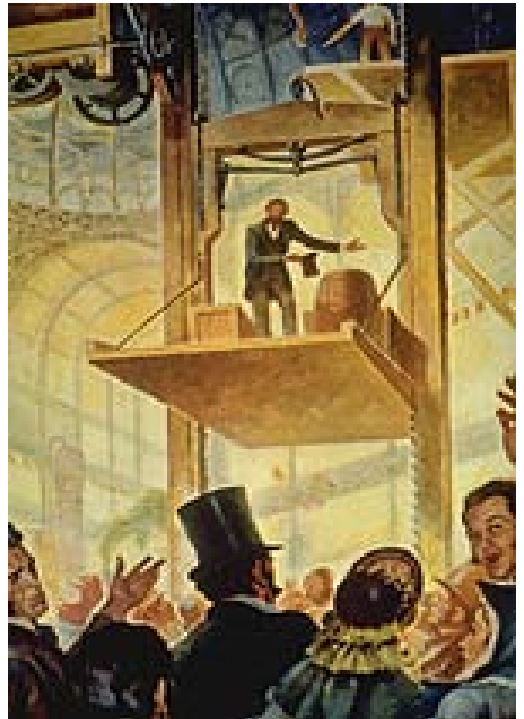
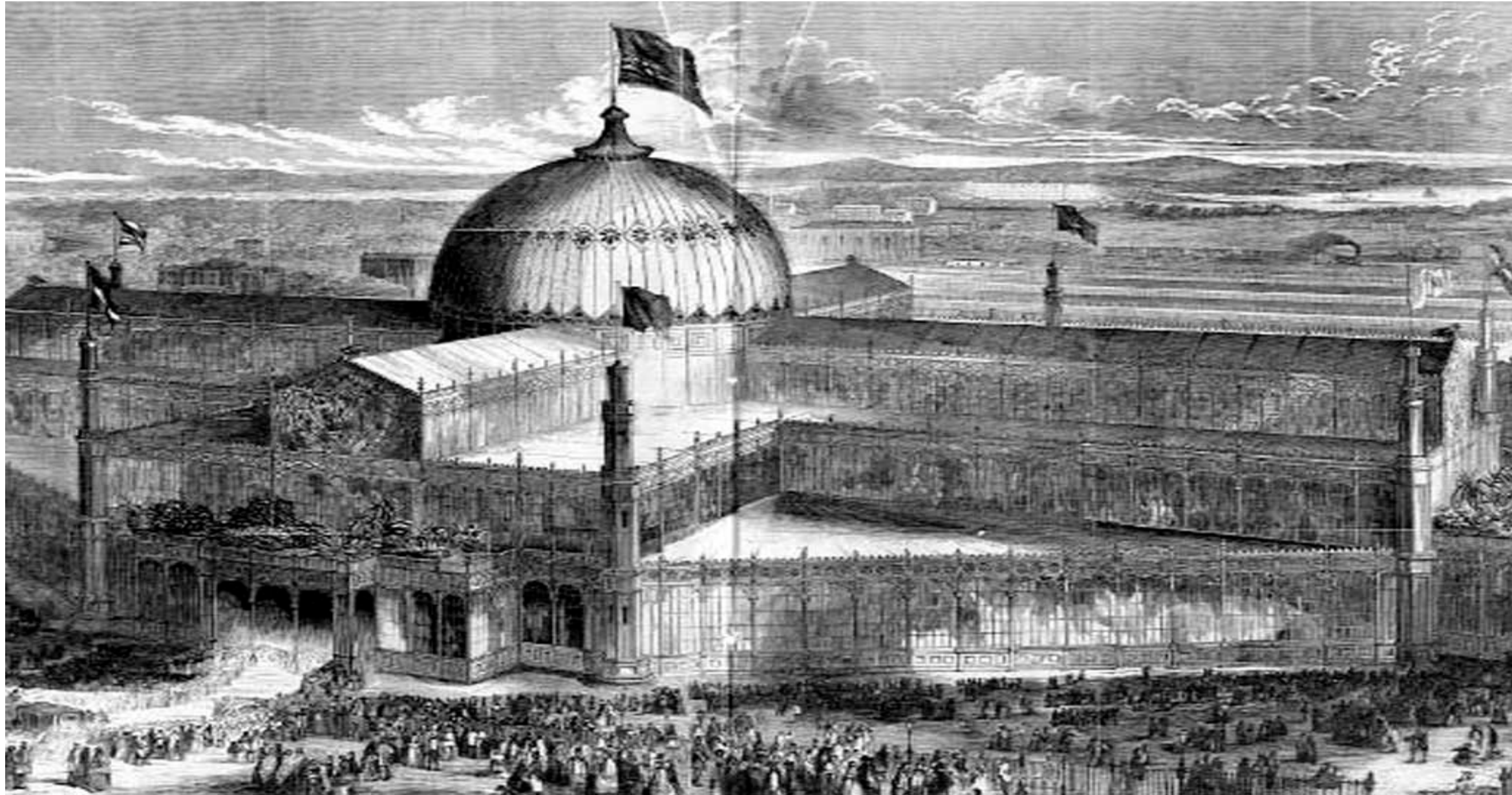
# ONE BRYANT PARK

New York, NY



Crystal Palace

“Beautiful Beyond Description!”



Crystal Palace

**“Gladdening the sun and sky”**





# BANK OF AMERICA TOWER

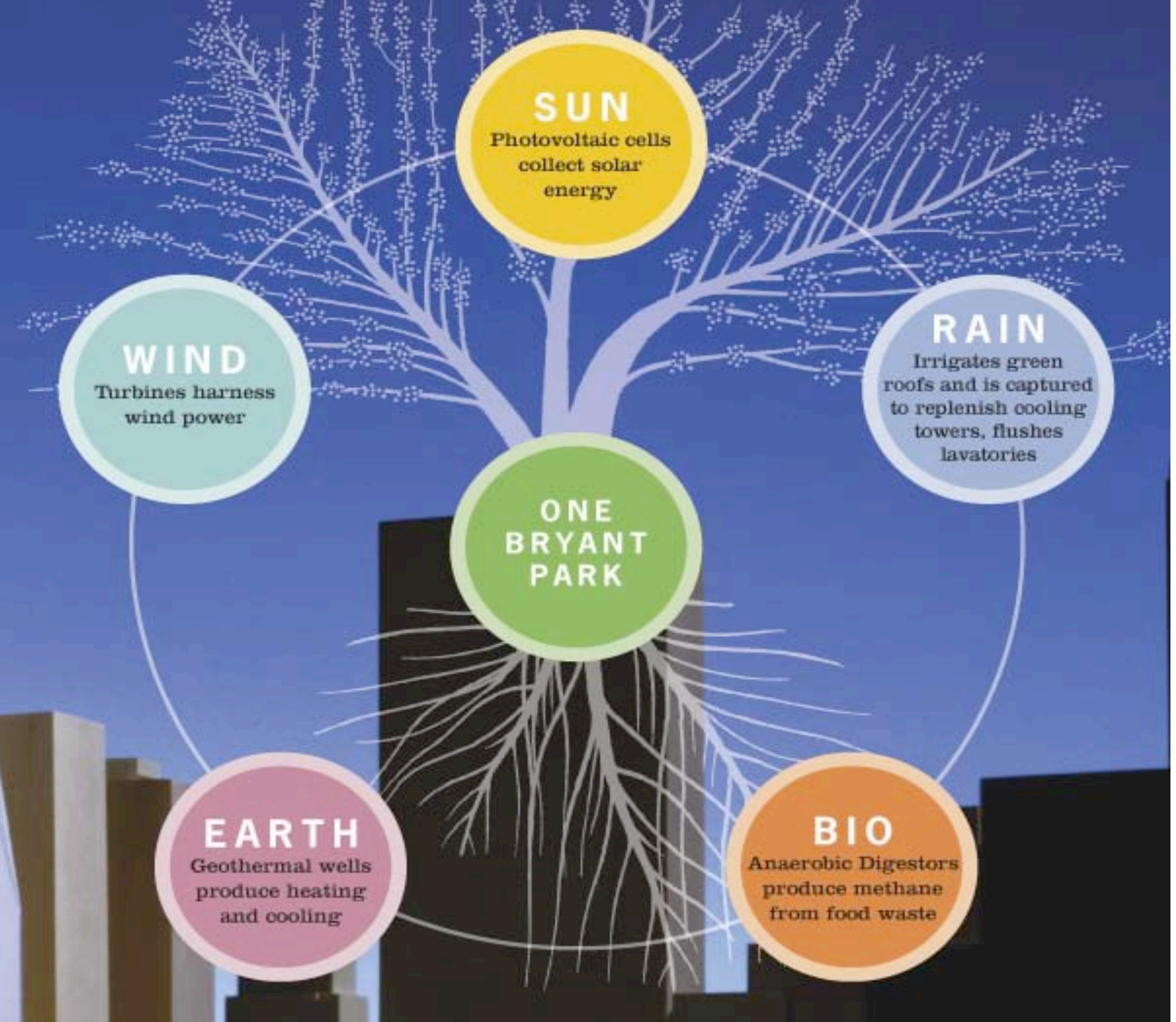


OF AMERICA TOWER

OME BRYANT P







**RESPONSIBLE ENERGY**

**RENEWABLE ENERGY**

energy for  
urban  
commute

### comparison of energy use in commuting

An office building  
in a suburban area  
consumes far more  
fuel and resources  
due to transportation/  
commuting  
energy usage.

Urban transportation  
options are on average  
20 times more efficient  
than car commuting.



Passenger miles to the gallon  
for a rush hour subway car

energy for  
suburban commute



A  
C S  
E 7  
Q 9  
W 3  
R 2  
N 1

Times Square  
Subway Station

One Bryant Park  
will connect two major  
subway stations,  
linking 5 major  
subway lines together  
in the heart  
of Manhattan.

F  
D  
B  
V

42nd Street &  
Avenue of the Americas  
Subway Station

easy come,  
easy go

One Bryant Park will  
tap directly into the  
New York City Subway  
system, one of the  
largest mass transit  
systems in the world.

2 major subway stations  
occupy the same block  
as One Bryant Park.

Grand Central Rail  
Station is only two city  
blocks away.

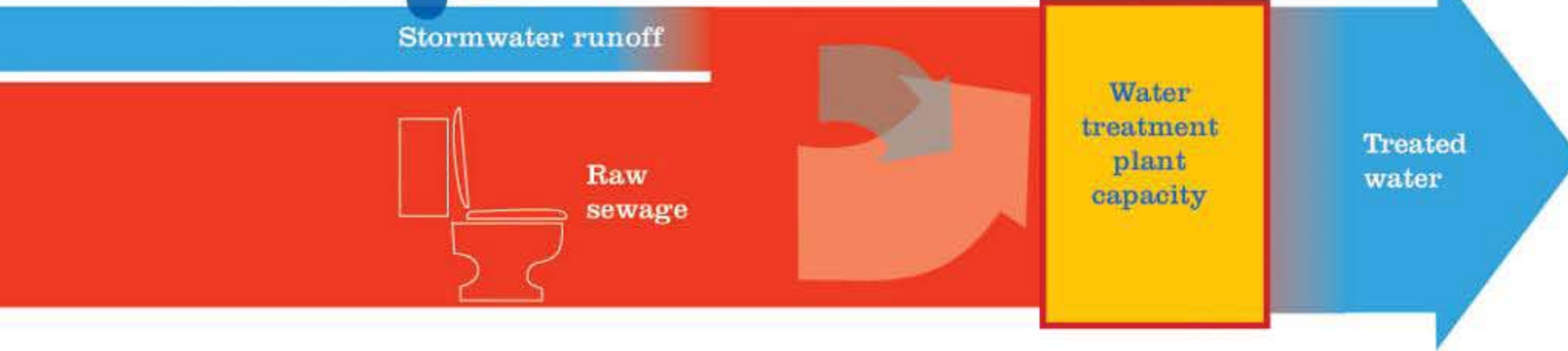
# 1.4 billion riders

use the NYC subway system each year.





## Typical water treatment in NYC



## water woes

Rainwater runoff and raw sewage are piped through the same sewer system and treated in the same water treatment plants.

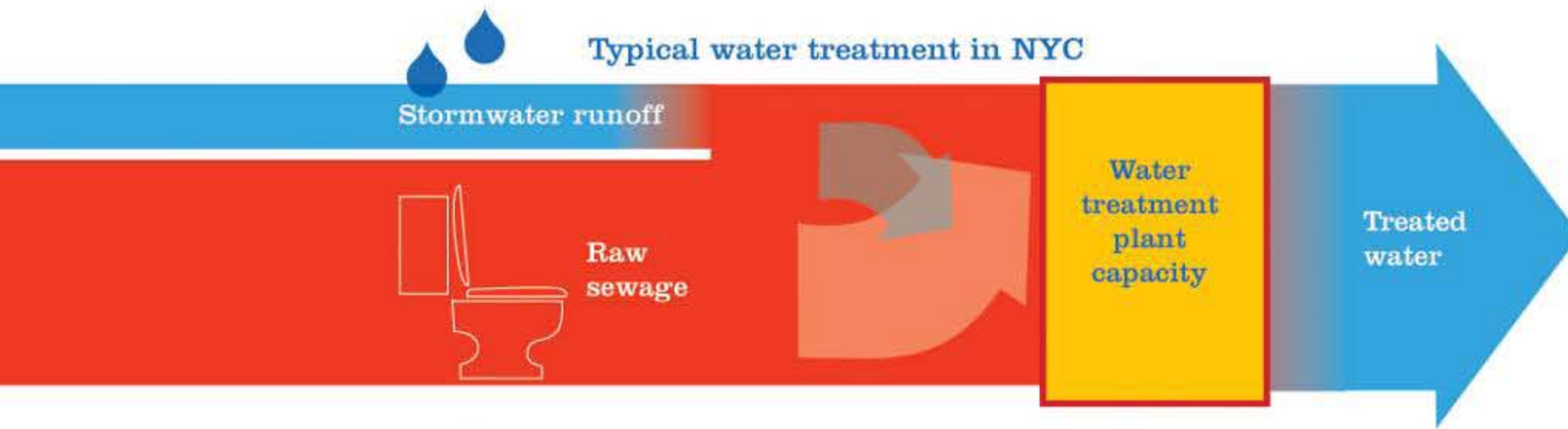
Eliminating stormwater reduces stress on the water treatment system and helps prevent untreated sewage from entering waterways.

In New York City, stormwater = sewage.



Hudson River

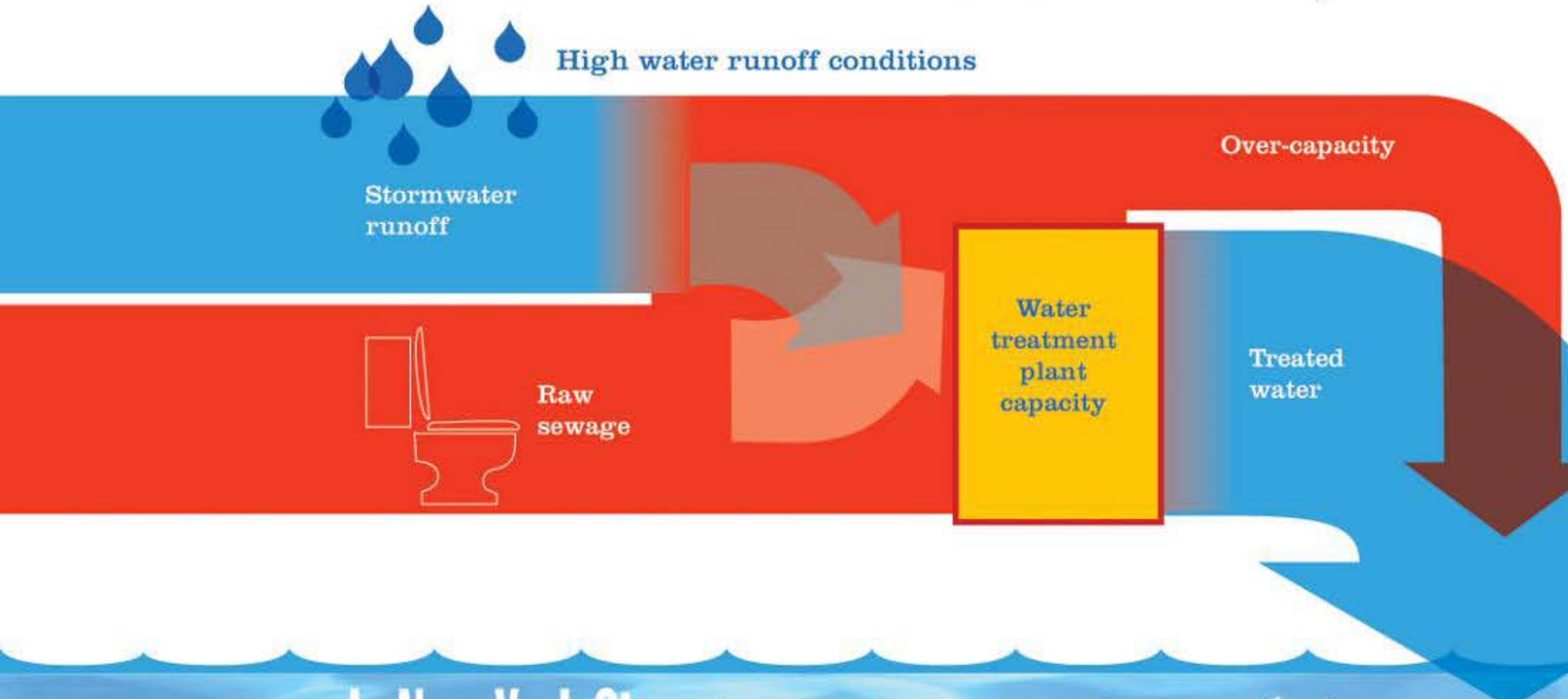




### water woes

Rainwater runoff and raw sewage are piped through the same sewer system and treated in the same water treatment plants.

Eliminating stormwater reduces stress on the water treatment system and helps prevent untreated sewage from entering waterways.



1/10th of an inch of rain makes the sewers overflow

In New York City, stormwater = sewage.



Hudson River

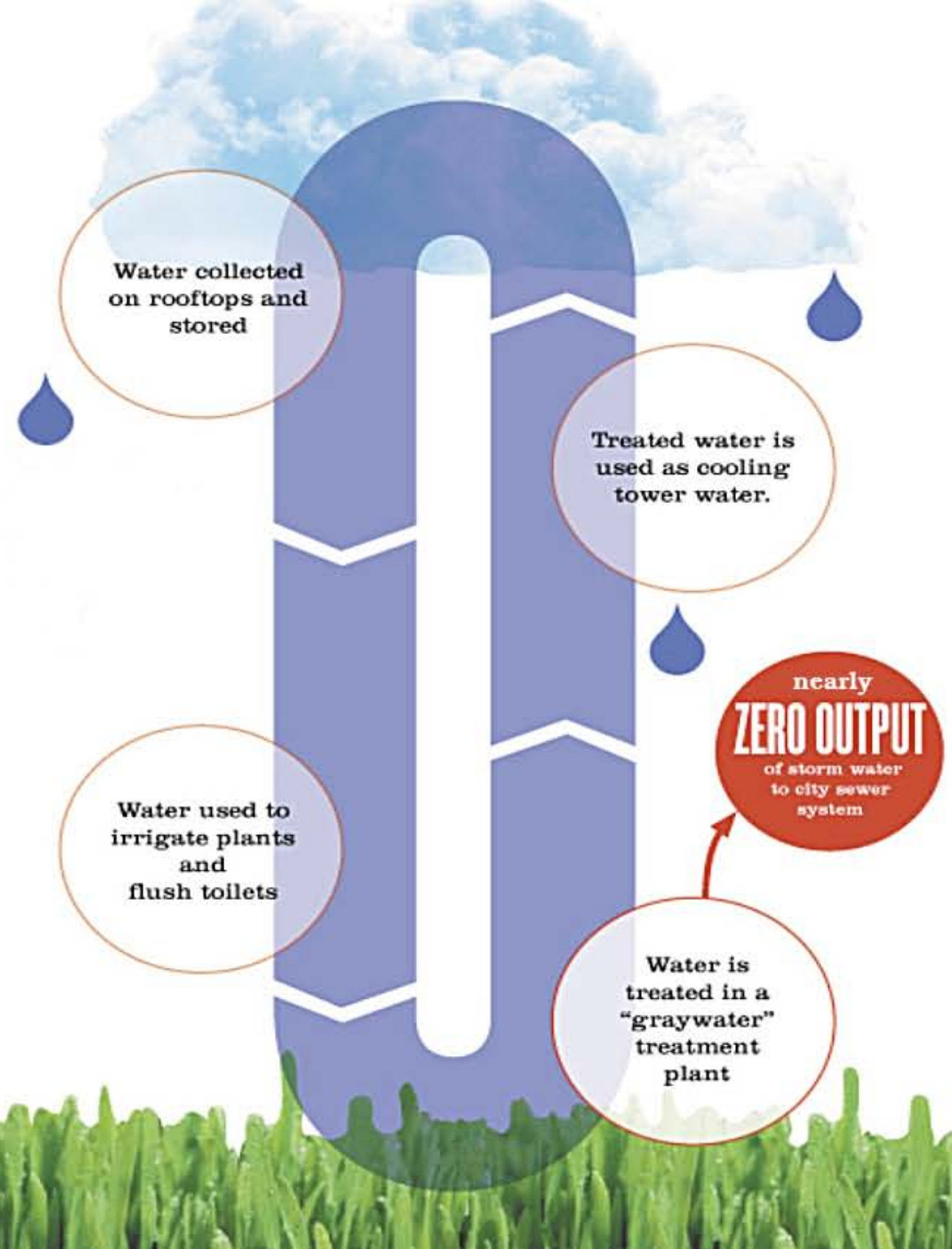
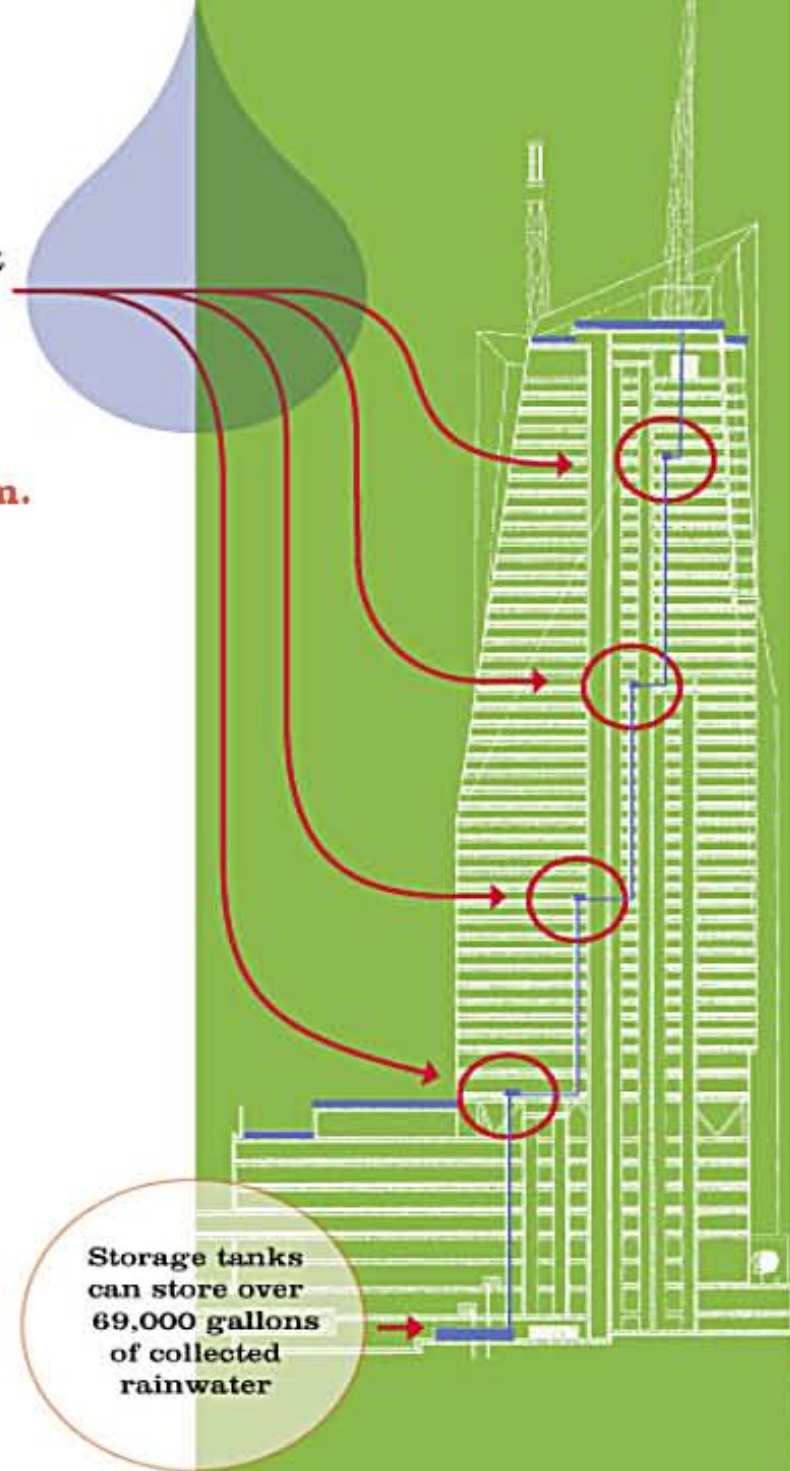
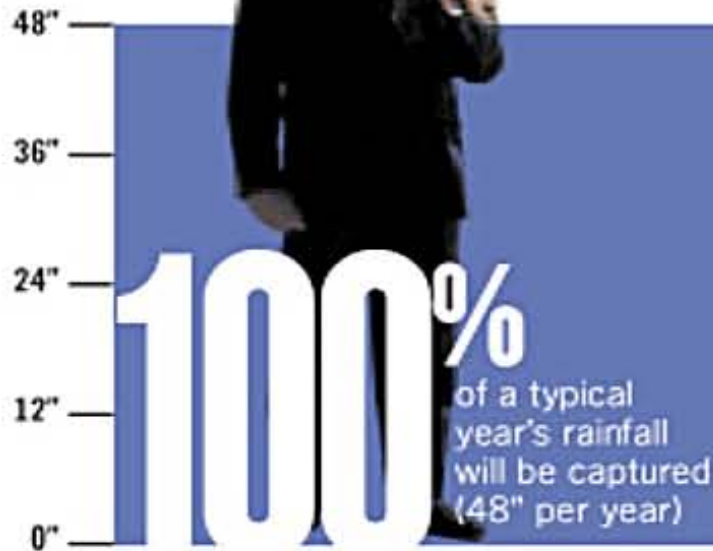


## rain harvest

Rain water is collected on all roof areas.

Water tanks on 4 different levels reduce pumping needs for lavatories.

**Almost zero storm water discharged to the city system.**



passing water

Water consumption will be reduced by more than half.

All lavatories will be water-saving.

All urinals will be waterless.

By using waterless urinals, we save: 1 gallon per flush **x3** flushes a day

**x4000** males **x5** days **x50** weeks


**= 3,000,000** gallons



3 million gallons is over

22 million half-liter bottles of water.

Enough to span end-to-end the 2929 miles from San Diego to New York City.



## leaking energy

Power transmission loses  
7% of power generated.

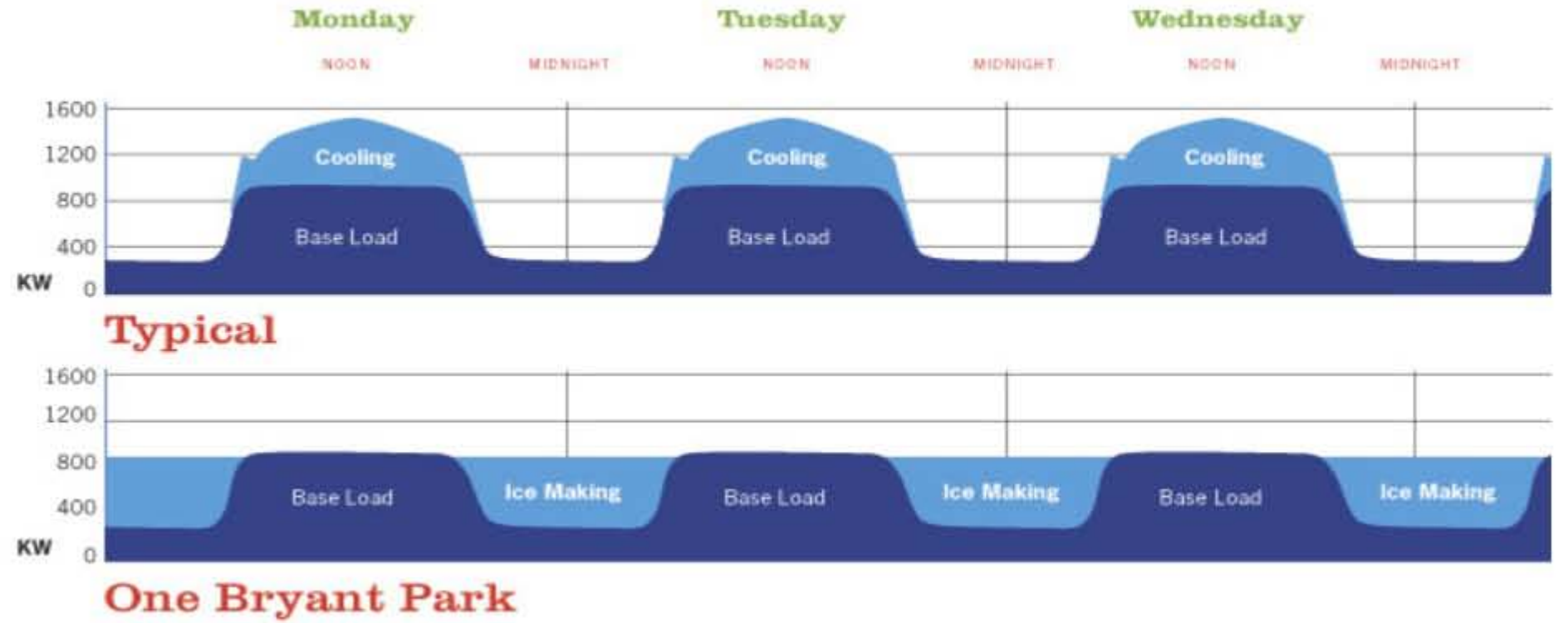
Installation of 1301 fluorescent  
tubes powered only by electric  
fields generated by overhead  
power lines.

Field  
Richard Box,  
Bath, UK 2004

## keeping cool

Making ice at night for daytime cooling reduces stress to the power grid.

Reducing power demand during peak hours decreases the need for “peaker plants.” These plants are the oldest and most polluting plants, used for peak power generation.



90%

of smog is produced by

50%

of power plants





Traditional power generation and delivery



On-site Co-generation

**co-generation**

One Bryant Park has an on-site 4.6 MW co-generation plant.

Co-generation provides 67% of the building's total power consumption on a yearly basis.

Generating our own energy is 300% more efficient than tapping into the traditional power grid.

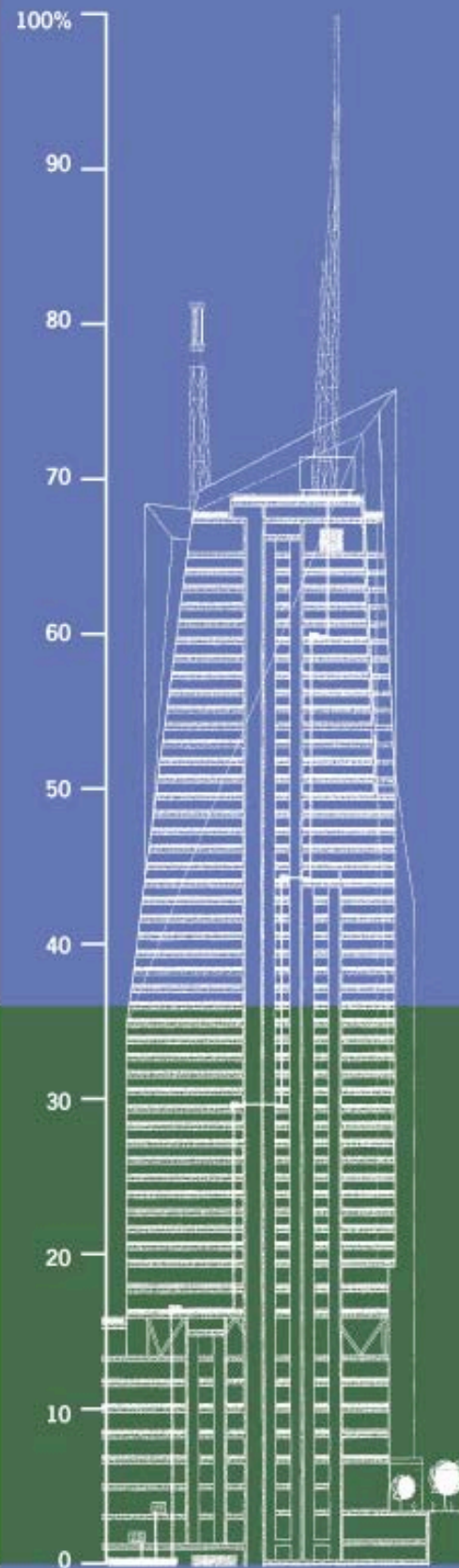
# The Iceman Cometh

44

vast cylindrical  
ice tanks will make over  
a half million pounds of  
ice, on-site, to cool the  
building during peak  
summer heat.

The ice is made  
every night, using  
less expensive  
off-peak power, helping  
distribute demand and  
decreasing pollutions  
at peak times.





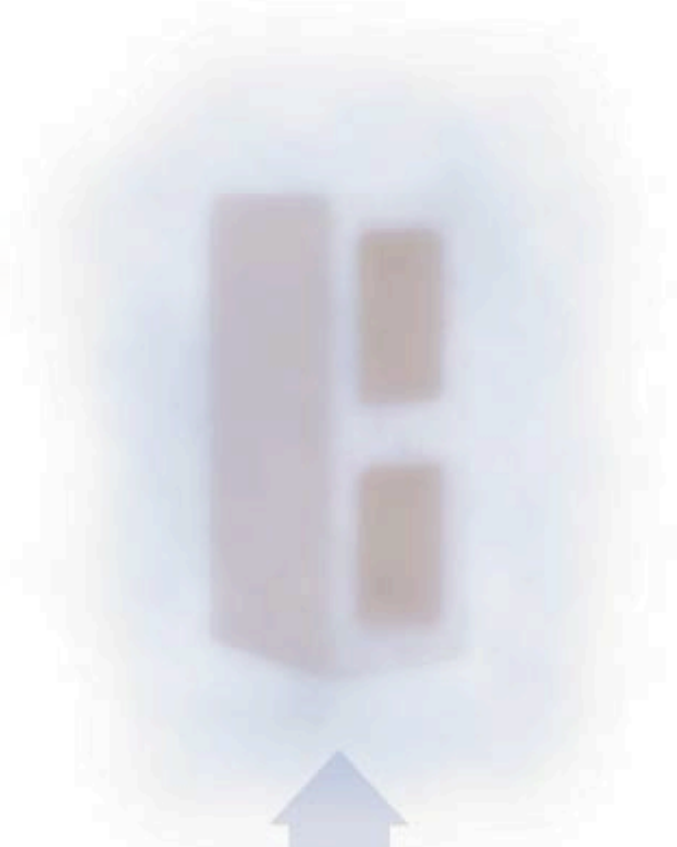
**recycling**

More than 35% of the building will be constructed in recycled materials.

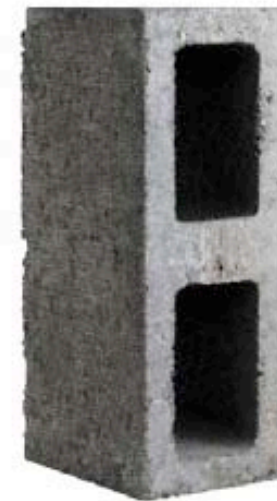
75% of demolition and construction debris will be recycled.

Building's concrete structure uses 45% blast furnace slag.

**35%**  
recycled materials



ONE TON of CO<sub>2</sub> enters the atmosphere for every ONE TON of cement made



**56,250**  
tons of CO<sub>2</sub>

will be saved from entering the atmosphere, by adding 45% blast furnace slag to the cement used at One Bryant Park.

## We are learning by doing

Our goal was to recycle  
75% of our construction  
debris.

But, by keeping our eyes  
open, we have accomplished  
an 91% level.

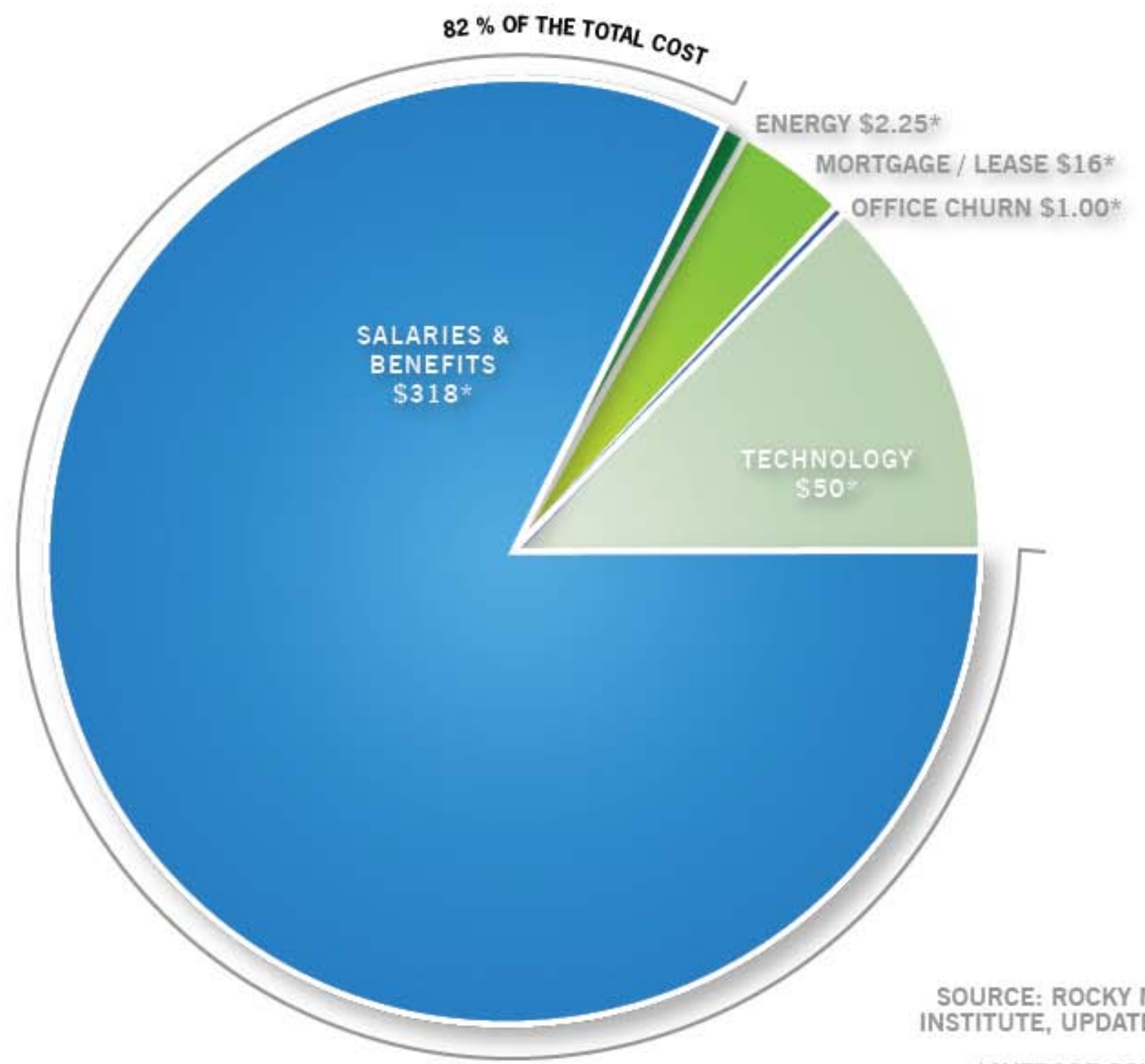
Usually palettes were used  
and then disposed.  
We put them back to  
work... as palettes.

# 91%

construction  
waste recycled



HUMAN RESOURCES  
ACCOUNT FOR  
**82%**  
OF THE AVERAGE  
COMMERCIAL COSTS



SOURCE: ROCKY MOUNTAIN INSTITUTE, UPDATED BY EBN

\*AVERAGE COMMERCIAL COSTS IN \$/SF/YR

## health and productivity

All energy saving features in the building together will save \$3 million a year.

A 1% rise in worker productivity due to improved working environment and health quality would generate \$10 million per year.

A 1% rise in productivity is considered a conservative estimate.



**1% = 5** minutes per work day

**\$3** million for all energy savings per year

**\$10** million return per year for a 1% productivity gain





Air inside building is much cleaner than outside air

Fresh air enters building at minimum 100 feet above grade

fresher air

**Bank of America Tower at One Bryant Park is a 945 feet tall air filter.**

Fresher air means improved health and working environment.

Supply air shaft brings more fresh air than required by code.

100% outside fresh air can be delivered to any four floors at any time

**Exhaust air from building is considerably cleaner than ambient air.**

95%

of the particulates in fresh air are removed as it enters the building, and then is filtered again on a floor by floor basis



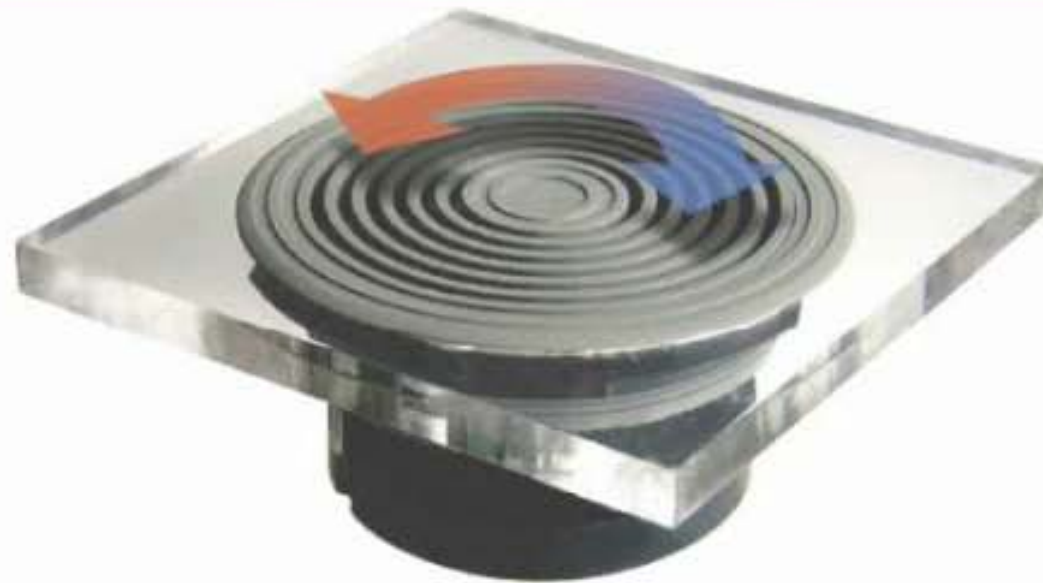
# “I’m too hot!” “I’m too cold”



## individual climate control

Individuals can control the temperature of their personal workspace.

Comfort and control contribute to productivity and well-being.



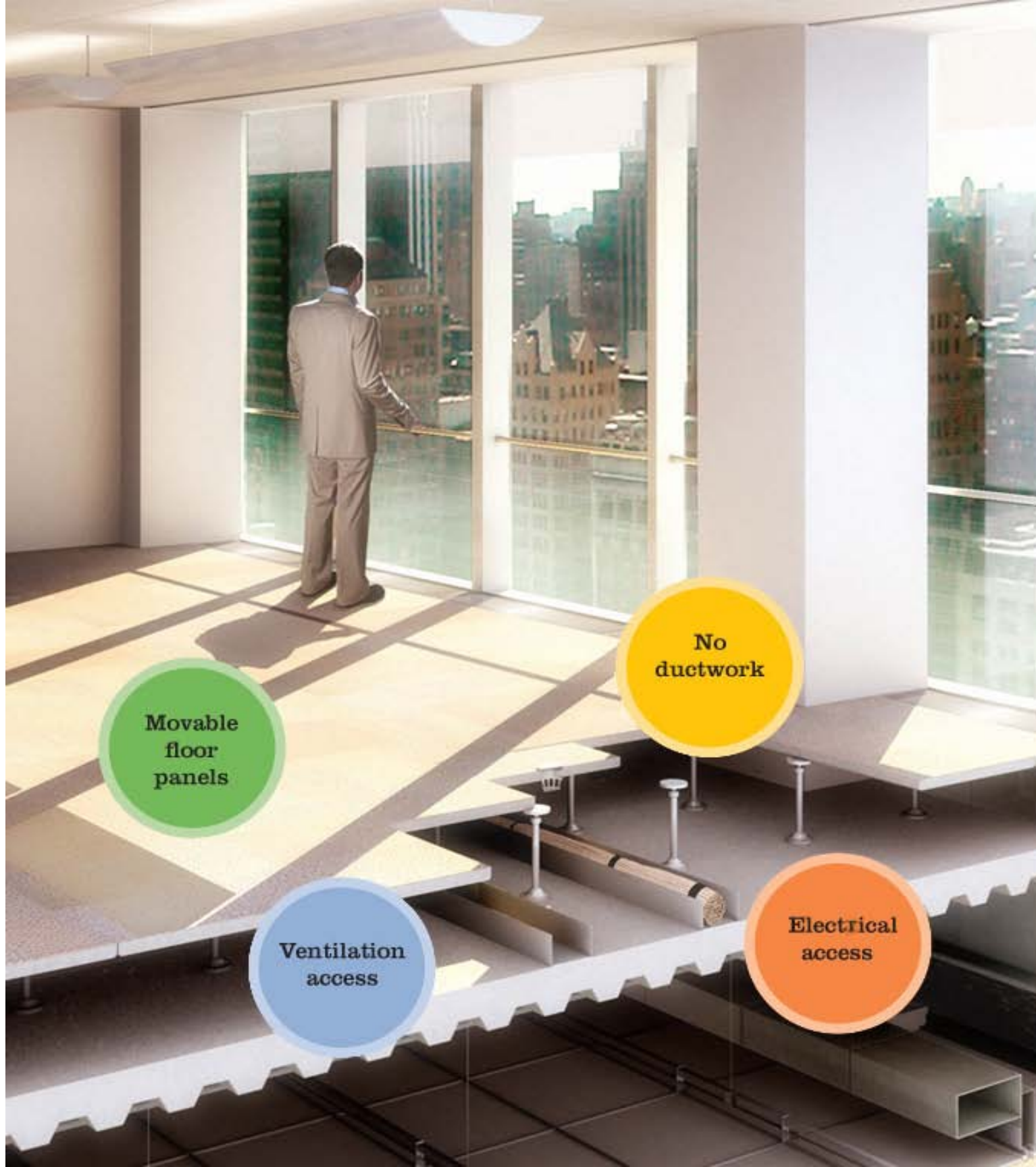
ceiling air out

No  
ductwork  
to change

65°

underfloor air in





## underfloor access

Floor panels are movable, allowing for flexible configuration of electrical outlets, air ventilation, and communication lines.

**This flexibility greatly reduces moving and renovation costs, paying for itself in about one and a half years.**



Typical "churn rate," or yearly tenant turnover rate, in an office building.

16%

Improvement in children's test scores were reported in daylit vs. non-daylit conditions.

25%

of lighting energy is conserved through daylight dimming and selectively shutting off lighting of unused rooms with motion detectors



## daylight access

Floor-to-ceiling windows saturate building in natural light and provide unbelievable views.

Automatic light dimmers reduce energy draw during daylight hours.



One Bryant Park



Traditional office environment













Angkor Hospital for Children  
by  
Friends Without A Border



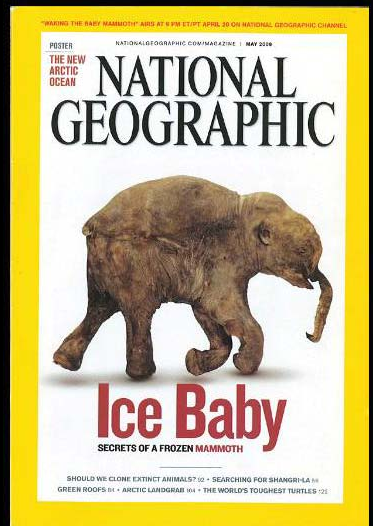
Naga  
Biofuels







Photo by Diane Cook + Len Jenshel



“ Here is where being responsible and attuned to the environment pairs up with spiritual satisfaction.”

Chris Johns, Editor in Chief  
National Geographic, May 2009

