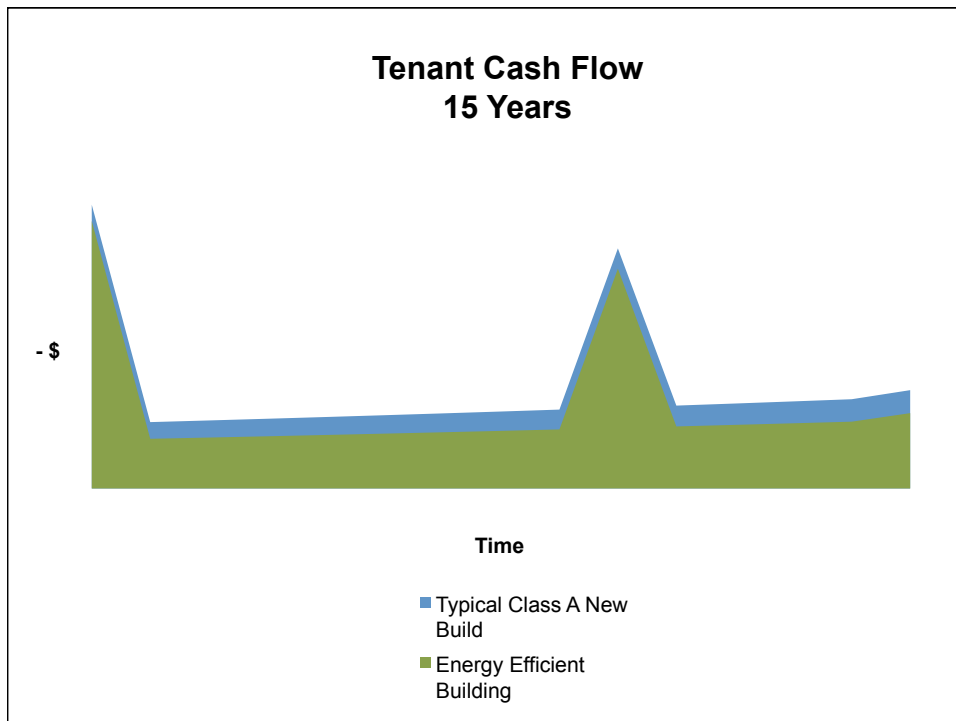
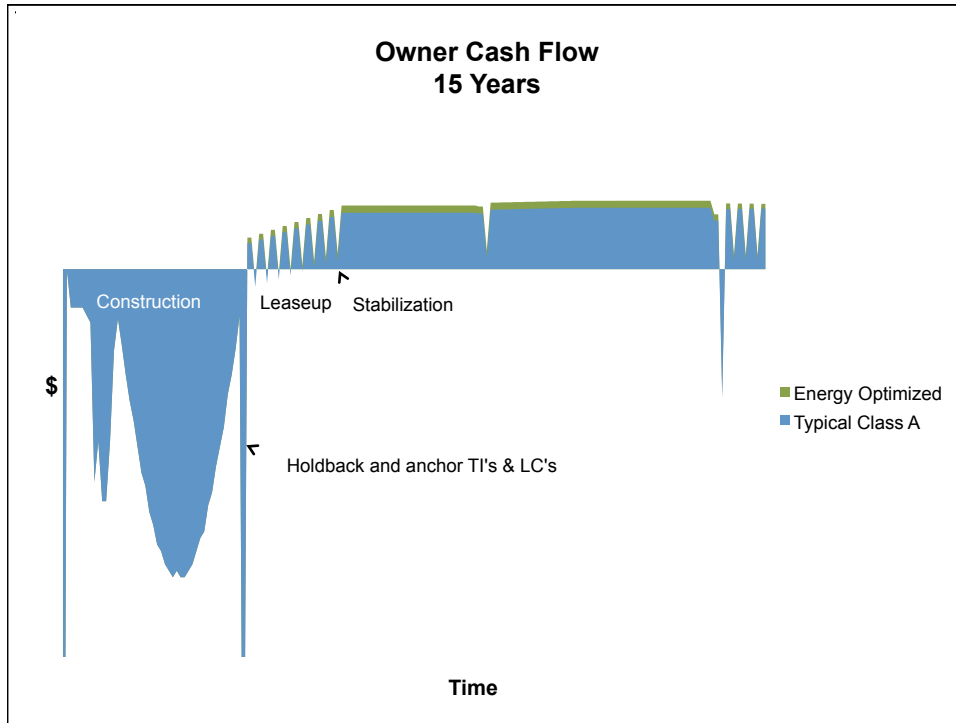


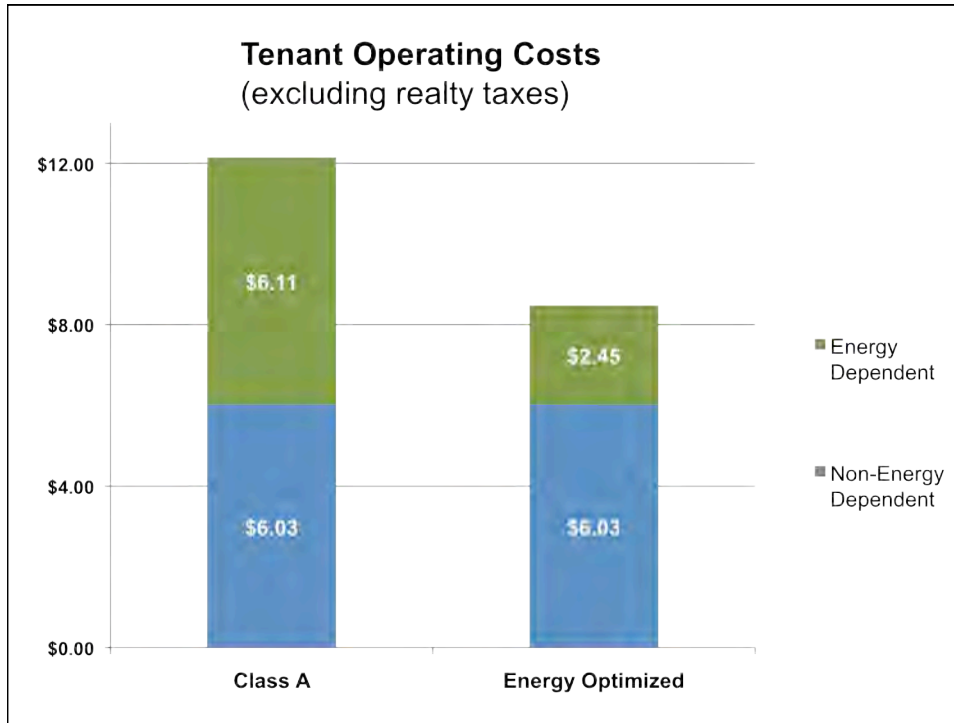
David House Principal – earthdevelopment
David Jansen Partner – Adamson Associates Architects
Mark Johnson Principal – earthdevelopment
Alex Lukachko General Manager – Building Science Corporation

FUTURE PROOFING YOUR BUILDING

Session T305, National Green Building Conference, December 3, 2010

The myth of the ultra green building premium is over. Sustainable buildings can now be delivered with less capital outlay and lower operating costs, resulting in lower gross rents and **higher investment yields.**





NPV Impact of \$1 psf Operating Cost Savings on 400,000 sq. ft. NRA

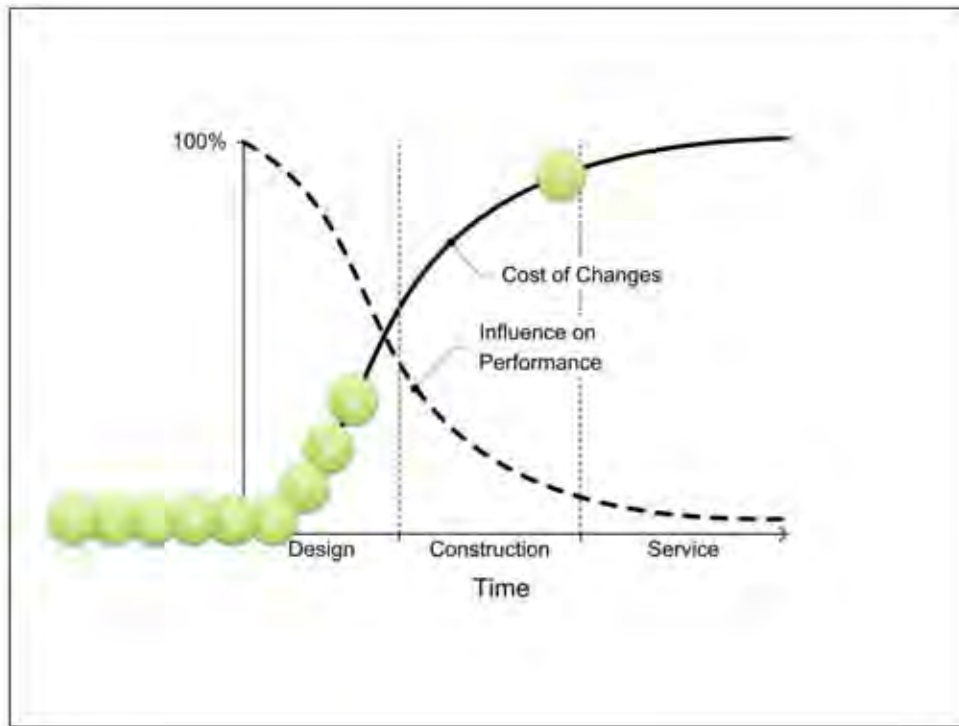
Discount Rate	5.00%	6.00%	7.00%
5 Years	\$1,816,193	\$1,766,240	\$1,718,414
10 Years	\$3,426,226	\$3,259,514	\$3,104,622
15 Years	\$4,853,501	\$4,522,009	\$4,222,845
20 Years	<u>\$6,118,763</u>	\$5,589,390	\$5,124,892

but you can't have
those numbers
without the right
building . . .

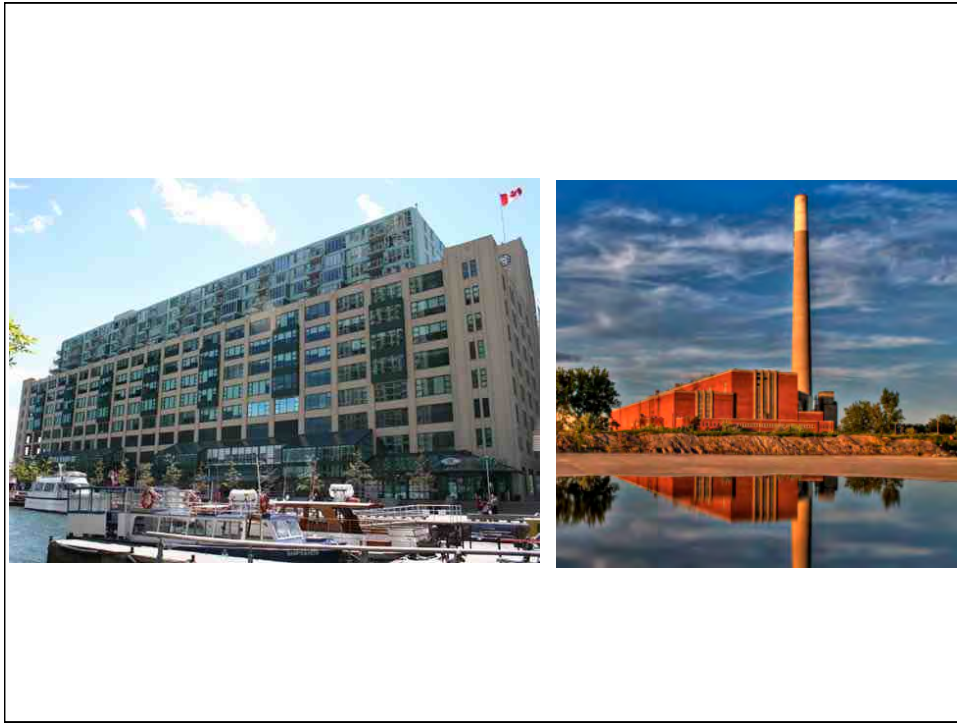




10 FUTURE-PROOFING STEPS (IN ORDER)



1. ASK: DO YOU NEED TO BUILD?



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The image is a collage of three photographs. The top-left photo shows a long, bright interior hallway with a glass skylight and a wooden wall. The top-right photo shows the exterior of a historic building with a central dome, illuminated at night. The bottom photo shows a modern conference room with a long wooden table and chairs, featuring large windows and a high ceiling.

MaRS Discovery District for Medical and Related Sciences, Toronto, Ontario



Transbay Transit Center, San Francisco, California
Design Architect: Pei Cobb Freed & Partners

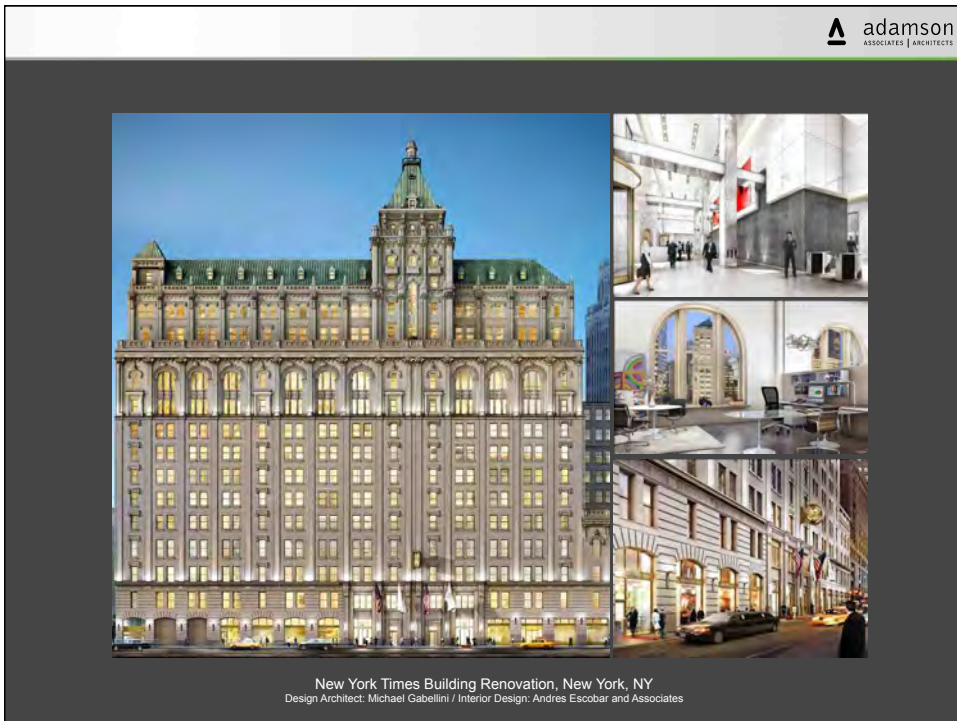
2. SITE SELECTION



Canary Wharf, London, UK
Design Architect: Pelli Clarke Pelli



3. PROGRAMMING





St. Lawrence Market North Building, Toronto, Ontario
Design Architect: Rogers Stirk Harbour + Partners | Architect of Record: Adamson Associates Architects

4. DESIGN FOR THE FUTURE flexible, robust, durable



Toronto Pearson International Airport, Toronto, Ontario
Airport Architects Canada (Skidmore Owings & Merrill International Ltd., Adamson Associates Architects,
Moshe Safdie Associates Ltd.)

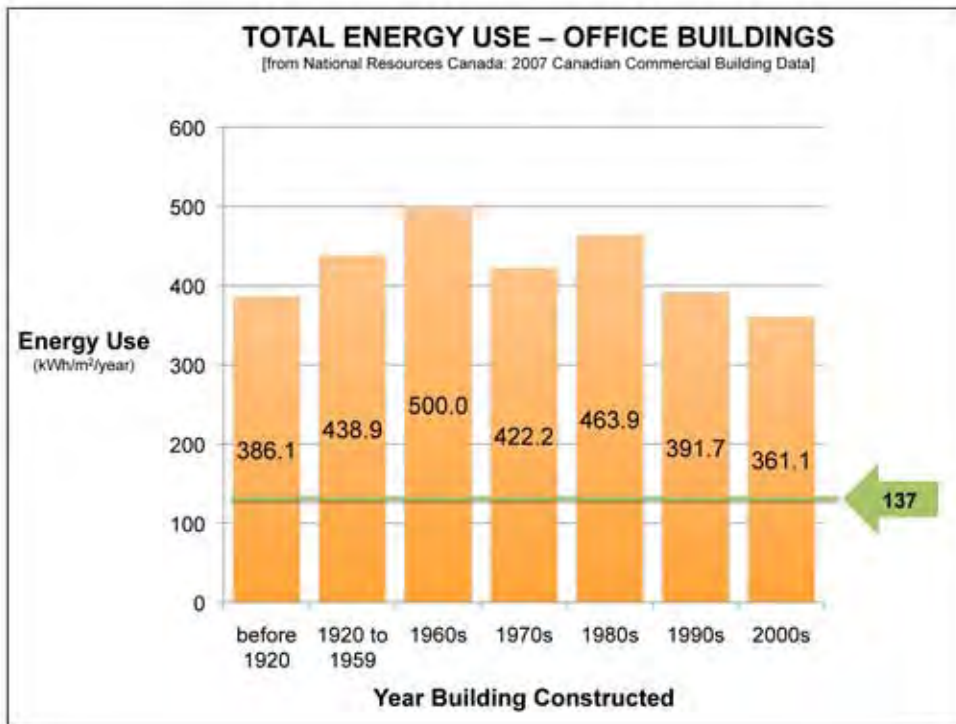


World Trade Center Towers Two, Three & Four, New York, NY
Design Architects: Foster + Partners, Rogers Stirk Harbour + Partners, Maki and Associates

5. SET A SOLID ENERGY TARGET

AVERAGE 394 kWh/m²/yr

[Average total energy use for all office buildings (finance and insurance, real estate and rental and leasing, professional, scientific and technical services, and public administration), from National Resources Canada: 2007 Canadian Commercial Building Data]



AVERAGE 394 kWh/m²/yr

[Average total energy use for all office buildings (finance and insurance; real estate and rental and leasing; professional; scientific and technical services; and public administration), from National Resources Canada: 2007 Canadian Commercial Building Data]

GOOD 200 kWh/m²/yr

BETTER 150 kWh/m²/yr

BEST 100 kWh/m²/yr

6. MASSING AND ORIENTATION

orientation and massing decisions
 set the boundaries for
heating and cooling
daylighting
passive ventilation
durability,
solar energy

E. Gratia, A. De Herde / Energy and Buildings 35 (2003) 473–491

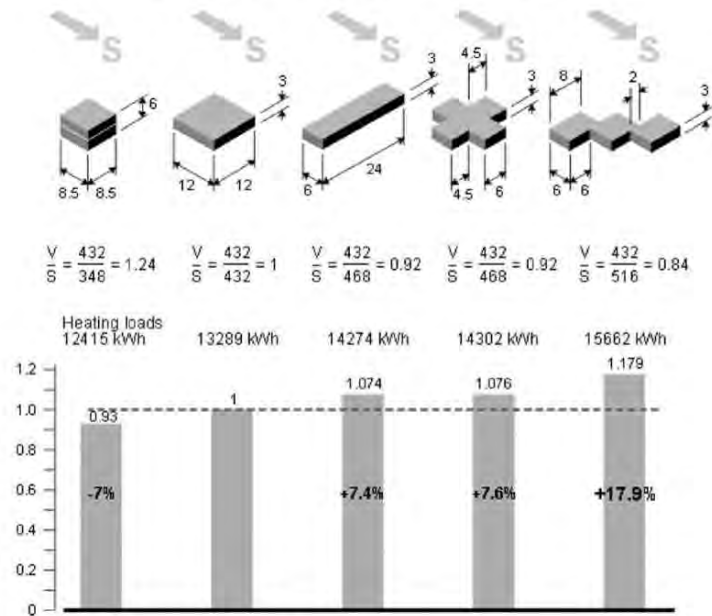


Fig. 4. Impact of the building shape on the heating loads.



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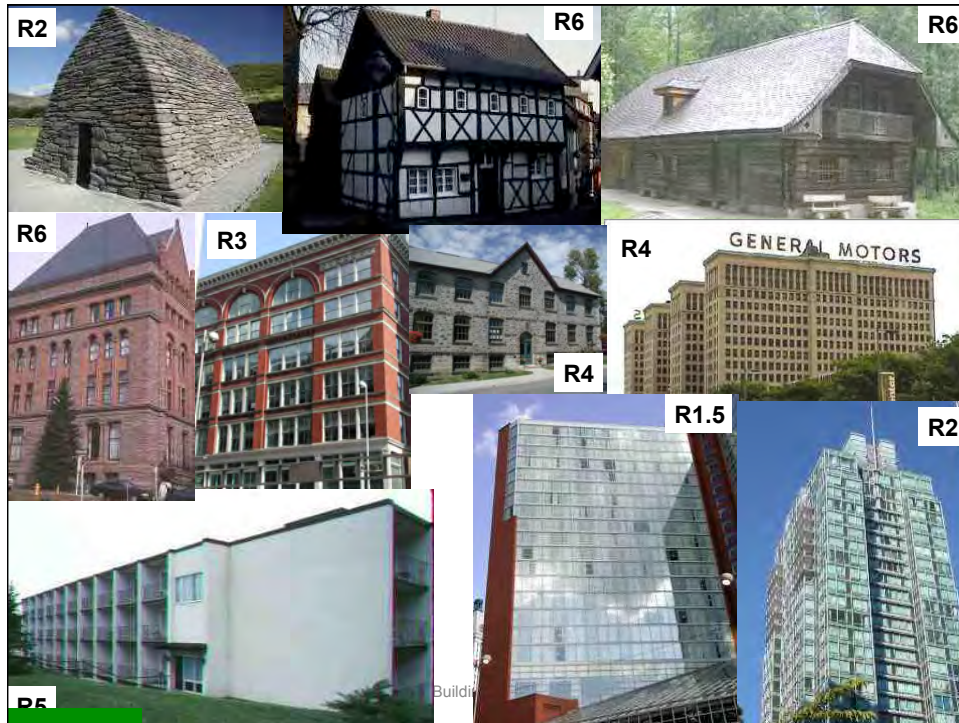
The image is a presentation slide for the Abu Dhabi Media Zone. It features a dark grey background with a white header containing the Adamson Associates logo. The main content is a collage of three images: a night view of three large, curved, illuminated buildings reflecting in water; a close-up night view of a building's facade with green lighting; and a daytime aerial rendering of the entire media zone development, showing a cluster of modern, white, curved buildings and surrounding infrastructure like roads and waterways.

Zone 1 – twofour54 Phase II of the Abu Dhabi Media Zone, Abu Dhabi, UAE
Design Architect: UNStudio

7. LOW ENERGY ENCLOSURES THINK OUTSIDE THE GLASS BOX . . .

“Glazed buildings . . . could become
“pariahs” by 2050 because of their inability
to cope with climate change and dwindling
resources such as power and water, . . .”

By BD news desk, 5 March 2010
<http://www.bdonline.co.uk/news/glass-buildings-are-set-to-become-%E2%80%98pariahs%E2%80%99/3159257.article>



Limit window-to-wall ratio (WWR) to the range of 20-40%, 50% with ultra-performance windows

and

Increase window performance (lowest U-value affordable in cold climates, including frame effects)

and

Increase wall/roof insulation (esp. by controlling thermal bridging) and airtighten the enclosure

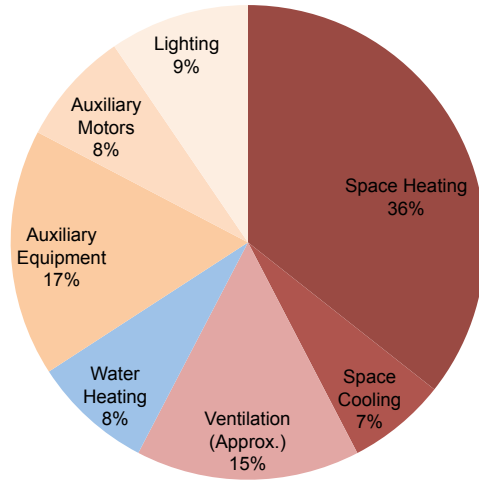


Hearst Headquarters, New York, NY
Design Architect: Foster + Partners

8. EFFICIENT SPACE CONDITIONING

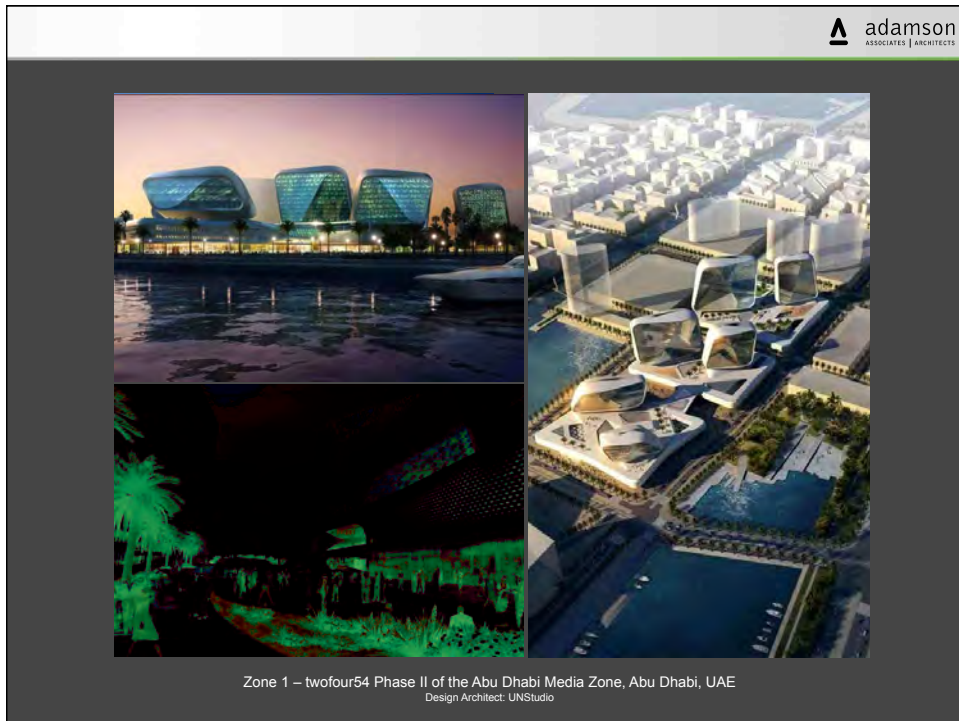
Energy Use by End Use (kWh/m²/yr)

[for all office buildings (finance and insurance; real estate and rental and leasing; professional; scientific and technical services; and public administration), from National Resources Canada: 2007 Canadian Commercial Building Data]



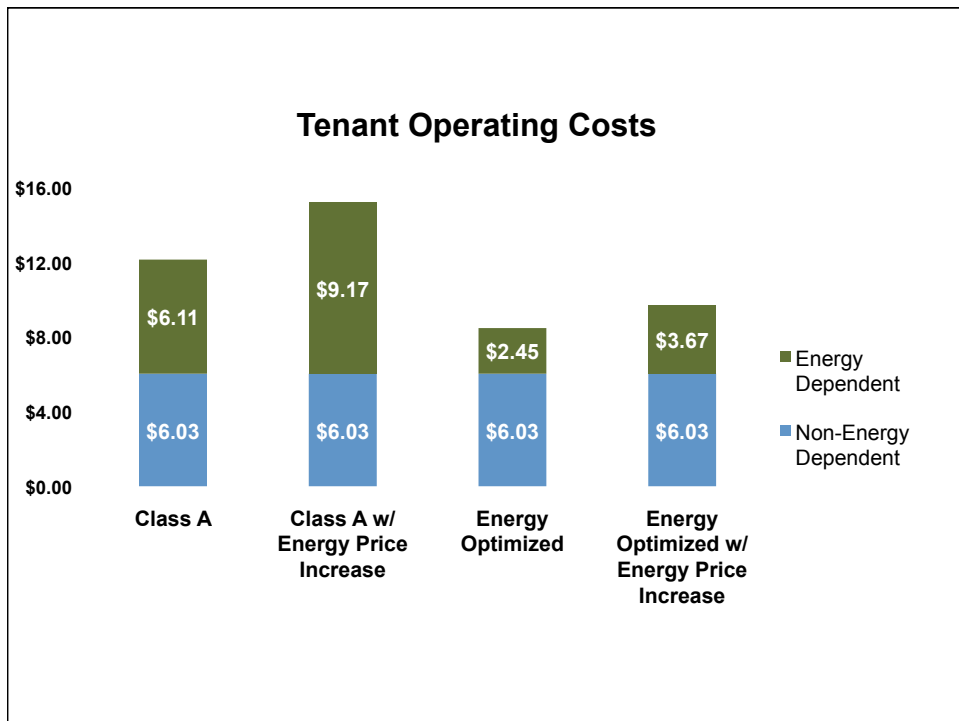
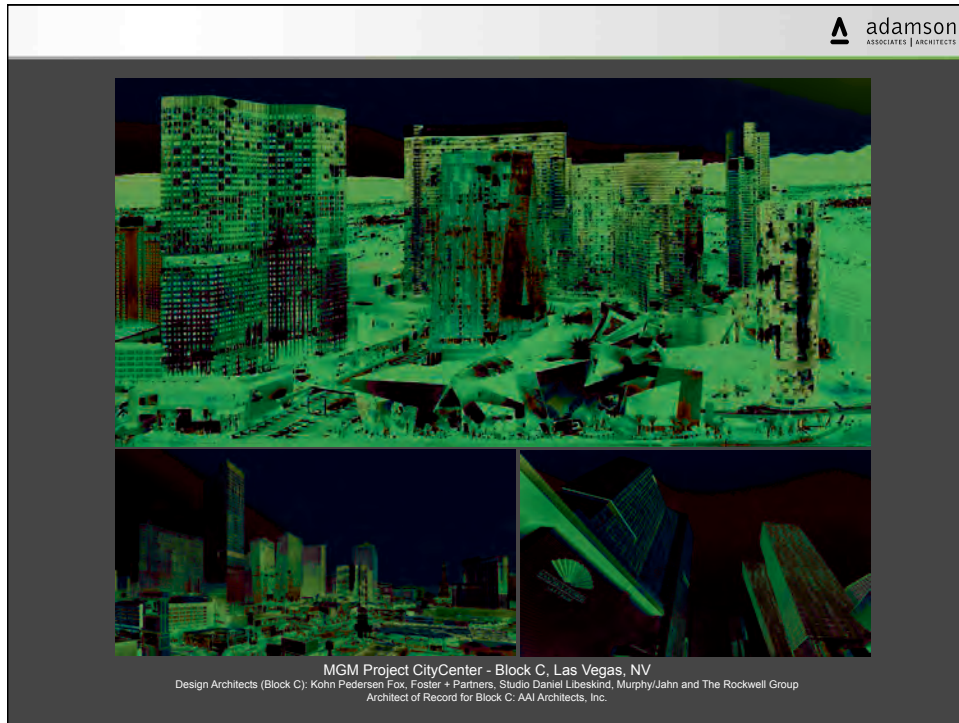
Bank of America, New York, NY
Design Architect: Cook + Fox Architects

9. ON-SITE RENEWABLE ENERGY



10. PLAN FOR OPERATION





but you can't have
those numbers
without the right
building . . .

