FUTURE IMPACTS ON DESIGN AND THE WORKPLACE
The Market rarely moves in a straight line. Market fluctuations and market extremes are a fact of life. The one certainty is that your portfolio will experience volatility.

Reported by Lord Abbett + Ibbotson Associates, Inc
1951
The UNIVAC I, the first commercial, general-use computer, designed by John Mauchly and J. Presper Eckert. It can retain a maximum of one thousand numbers and is able to add, subtract, multiply, divide, sort, collate, and take square and cube roots.

* It also took the space of a one-car garage.
<table>
<thead>
<tr>
<th>FLOPS</th>
<th>YEAR</th>
<th>System</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>1965</td>
<td>UNIVAC 1</td>
</tr>
<tr>
<td>64</td>
<td>1966</td>
<td>CDC 6600</td>
</tr>
<tr>
<td>76</td>
<td>1976</td>
<td>CRAY 1</td>
</tr>
<tr>
<td>85</td>
<td>1985</td>
<td>CRAY 2</td>
</tr>
<tr>
<td>89</td>
<td>1989</td>
<td>ETA 10-G/8</td>
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<tr>
<td>96</td>
<td>1996</td>
<td>Hitachi SR2201/1024v</td>
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<tr>
<td>97</td>
<td>1997</td>
<td>Intel ASCI Red/9152</td>
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<tr>
<td>02</td>
<td>2002</td>
<td>Earth Simulator</td>
</tr>
<tr>
<td>07</td>
<td>2007</td>
<td>BlueGene/L</td>
</tr>
<tr>
<td>08</td>
<td>2008</td>
<td>IBM Roadrunner</td>
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</tbody>
</table>

Computation Milestones: Floating point Operations per Second

Source: M. Dietrich & U. Zimoch
Computation speeds have increased exponentially and the space needs dropped almost as dramatically; leading to productivity gains and entirely new ways of working. Research by the Work Design Collaborative indicates a 1.4 return on investment for every dollar spent on new technology.
By the year 2000, the EPA estimated that 44,000 buildings were demolished every year. About 25-33% of the waste in landfills were from construction and renovation - 57% of that being from commercial buildings.
In 2007, over 1.2 million tons of material was diverted from landfills in the metropolitan Seattle area. That’s 82.4% of all construction waste.

That’s 82.4% of all construction waste.

Source: King County Solid Waste Division
Generational Character Shifts

- Baby Boomers: Hierarchy
- Gen X: Individualist
- Millennials: Collaborators
what matters
The most important real estate issue facing my business in the coming 12-18 months is:

53% reported Reducing occupancy costs with about the same locations

34% reported Expanding the number of locations

13% reported Reducing the number or size of our locations

Reported by Galaxy Partners
A sale-leaseback deal can improve the organization's debt-to-equity ratio and reduce depreciation and interest costs, all of which have a positive impact on a firm's balance sheet.

Use capital for higher rate of internal return (15%-30%) compared to 7%-12% for real estate holding.

Source: Bain & Company
Control of the property – lease (expense) or own (capital)

Facility use, life span to occupy the facility, improvements, and financial considerations

Typically own strategic assets - R&D, headquarters and strategic manufacturing Facilities

Leased properties tend to be distribution facilities and the bulk of office space

Gain flexibility (downsizing, expanding, relocating) while maintaining control of the facility

Source: Bain & Company
people matters
Changing Lifestyles

Baby Boomers (1946-1964)
- TV Generation
- Typewriters
- Telephones
- Memos

Gen X (1965-1982)
- Video Games
- PC
- Email
- CDs

- World Wide Web
- Cell Phones/iPods
- IM
- Online Communities

Source: CoreNet Global
Meeting space currently averages **17 sf / person**

Moving to more group space & remote work

Reduced Area

Remote Work
interaction & collaboration are redefining the workplace.

Workspring
Chicago, Illinois
A worker’s ability to be mobile requires a company to move through five distinct stages, moving up the curve requires conscious planning and decision making, and partnerships.

Source: CoreNet Global
“WE DO NOT INHERIT THE EARTH FROM OUR ANCESTORS; WE BORROW IT FROM OUR CHILDREN”
OPTIMISTIC
RESILIENT
VISIONARY
TRANSFORMATIVE
sustainability
environmental drivers

Green Lease
Due Diligence
Building Energy Usage
01 Green Lease
02 Connecting with Nature
03 Adaptable Design
04 Energy Efficient Office Equipment
05 Energy Efficient HVAC
06 Energy Efficient Lighting
07 Employee Well Being
08 Healthy Building Materials
09 Regional Resources
10 Construction Waste Management

greenlease

overview
benefits
strategies
checklist

Quick Fact
In the average office building, energy costs approximately $7.29 per square foot, per year. That’s 16% of the total operating costs.

city green building
<table>
<thead>
<tr>
<th>Existing Green Ratings</th>
<th>Transportation</th>
<th>Energy Use</th>
<th>Water Use</th>
<th>Building Management</th>
<th>Daylight &amp; Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the building or will it be LEED certified (Platinum, Gold, or Silver)?</td>
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<tr>
<td>Is the building Energy Star rated? If so, document score.</td>
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<tr>
<td>Score:</td>
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<td>By selecting office space that is conveniently located to public transportation as well as providing alternative transportation options, your Company can reduce the impacts and costs associated with employee commutes.</td>
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<td>Does or will the building be within a 1/4 mile of major bus lines?</td>
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<td>Does or will the building have secure bike storage available to tenants and employees?</td>
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<td>Does or will the building provide showers, change facilities and lockers for cyclists?</td>
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<td>Does or will the facility provide special charging stations for alternatively fueled cars? Or do Zipcars reside in the building?</td>
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<td>Does or will the building use ENERGY STAR products?</td>
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<td>Does or will the building have separate metering of tenants and employees?</td>
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<td>Does or will the landlord provide the ability to purchase renewable energy?</td>
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<tr>
<td>Does or will the landlord monitor and report base building energy use?</td>
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<tr>
<td>Does the building's HVAC systems need to be commissioned and serviced?</td>
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<td>Does or will the building have standardized daylighting controls or occupancy sensors utilized or standardized in the building?</td>
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<td>Annual Purchased Energy (kBtu/sqft); EUI:</td>
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<td>Score:</td>
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Energy usage disclosure – coming soon to legislation near you?

CBECs
Energy Star
ASHRAE
EU Building Labeling
Green building no longer a premium. Proven savings in operating costs. Holistic approach yields best value.

3.5% lower vacancy
13% higher rents

roi validation
green building

0% to 4% more than conventional

0% - 1% typical green premium
GSA’s sustainably designed green buildings have 26% lower energy use compared to the National Average.
Healthier buildings reduce sick time and increase productivity.

Natural light, good ventilation, and less toxic materials ensure happier, healthier workers.
Database of State Incentives for Renewables & Efficiency
www.dsire.com

Utility Rebate Programs

Advanced Energy Office

rebates incentives
Policy makers are collaborating with designers to assist with removing barriers to provide an easier path towards innovative design strategies.
refocus
It’s not just 2009 – things have been tough for awhile. This chart diagrams the growth of $100,000 invested in the S&P 500 index, considering:

- Internet bubble bursts
- 9/11
- Wall Street scandals
- War in Afghanistan, Iraq
- Subprime mortgages
- High energy prices

Source: Lord Abbett
drivers of change

Culture
Expanding demographics and interests.

Performance
Adopt new technologies and ways of working.

Finance
More criteria for investment.
WORK STYLES
high mobility is high status

OFFICE SPACE
a community place

BUILDINGS
flexible kit of parts

CITIES
new life for old buildings

GOVERNMENT
code follows function
“Greening Buildings and Communities: Costs and Benefits”, Good Energies 2009


“Do Green Buildings Make Dollars and Sense?” University of San Diego and CB Richard Ellis, November 2009
questions