

Innovative Sustainability Strategies

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Global Warming meets the 2010 Olympics



2010



Kraftstoffverbrauch	
kombiniert:	8,6 l/100 km
innerorts:	12,5 l/100 km
aufserorts:	6,4 l/100 km

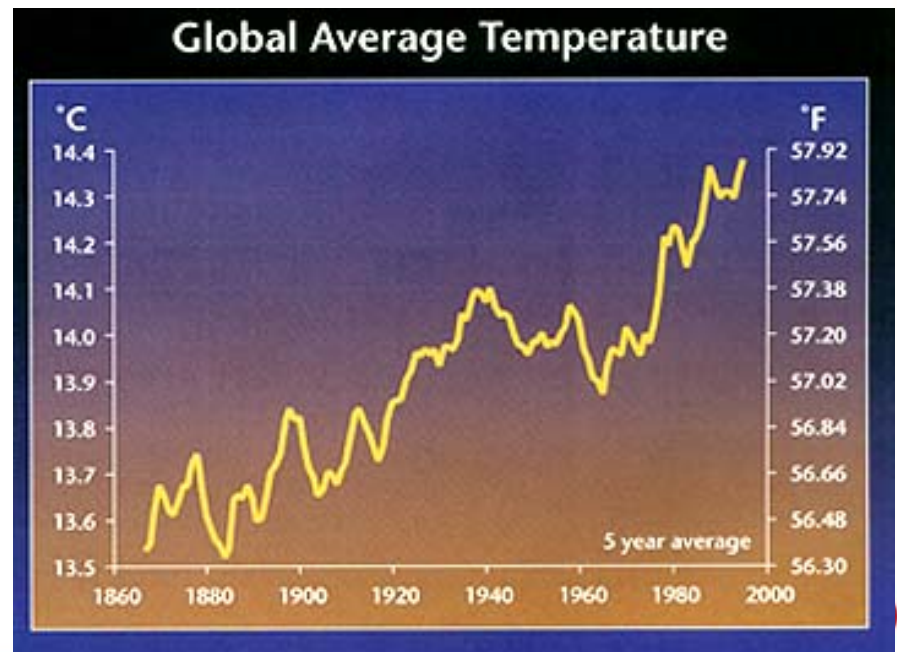
CO ₂ -Emissionen	
kombiniert:	201 g/km

Die angegebenen Werte wurden nach den vorgeschriebenen Messverfahren (JEL 80/120/TWC in der gegenwärtig gültigen Fassung) ermittelt. Die Angaben beziehen sich nicht auf ein einzelnes Fahrzeug und sind nicht Bestandteil des Angebots, sondern dienen allein Vergleichszwecken zwischen den verschiedenen Fahrzeugtypen.

Die CO₂-Emissionen eines Fahrzeugs hängen nicht nur von der effizienten Ausnutzung der Kraftstoffmenge ab, sondern werden auch vom Fahrverhalten und dem Zustand des Fahrzeugs abhangig. Ein niedriger CO₂-Wert ist das fur die Erderwarmung ausschlaggebende Kriterium.

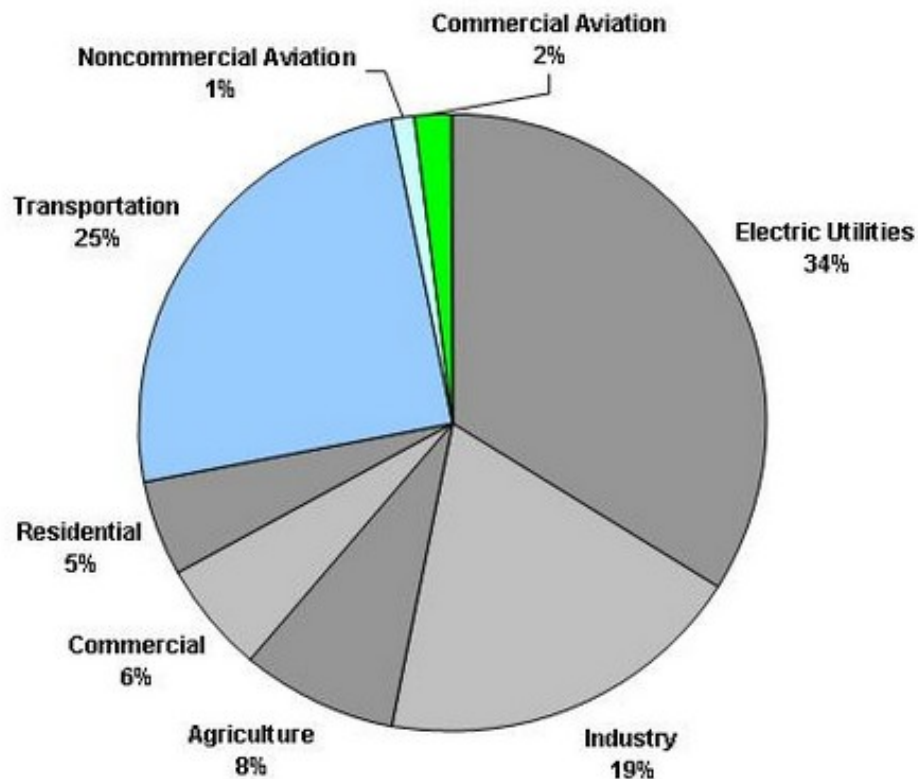
Die Angaben zu den CO₂-Emissionen eines Fahrzeugs hangen nicht nur von der effizienten Ausnutzung der Kraftstoffmenge ab, sondern werden auch vom Fahrverhalten und dem Zustand des Fahrzeugs abhangig. Ein niedriger CO₂-Wert ist das fur die Erderwarmung ausschlaggebende Kriterium.

Environmental Context



One way of looking at GHG Contribution

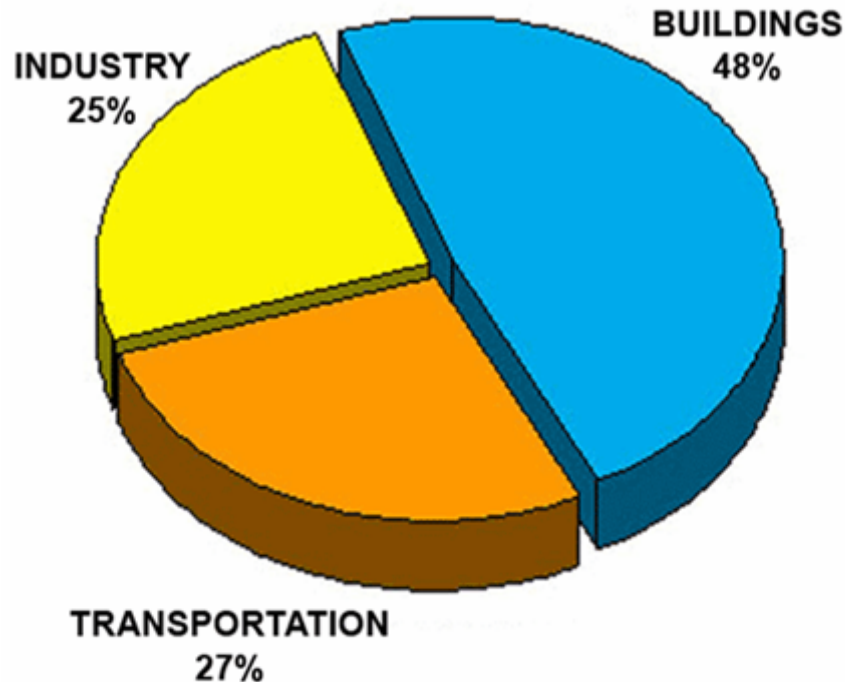
US Aviation GHG Emissions – 2% of total



Source: U.S. EPA Data 2005



Another way of looking at GHG Contribution



US ENERGY CONSUMPTION

Source: www.2030challenge.org – Year 2000

Economic Context

INSIDE THIS WEEK: A 14-PAGE SPECIAL REPORT ON MOBILE TELECOMS

The Economist

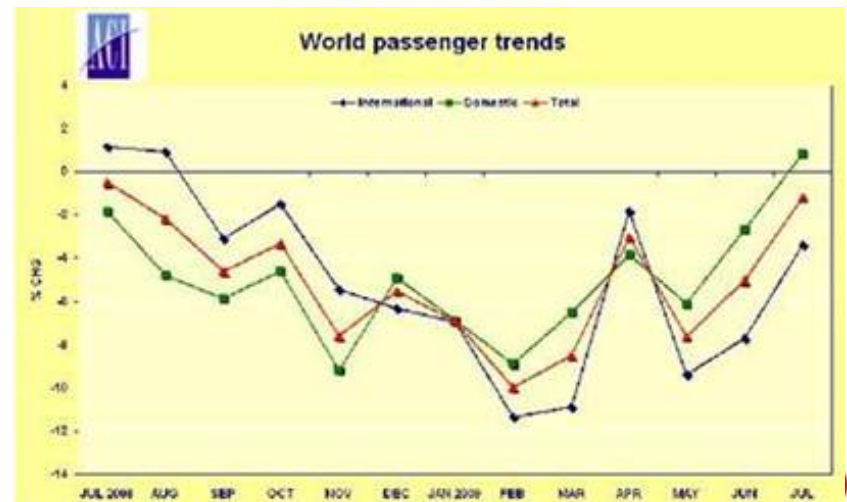
APRIL 12TH - 18TH 2008 www.economist.com

- Next stop Pennsylvania
- China, the Olympic torch and Myanmar
- Zimbabwe holds its breath
- India's rising inflation
- God meets Charlton Heston, again

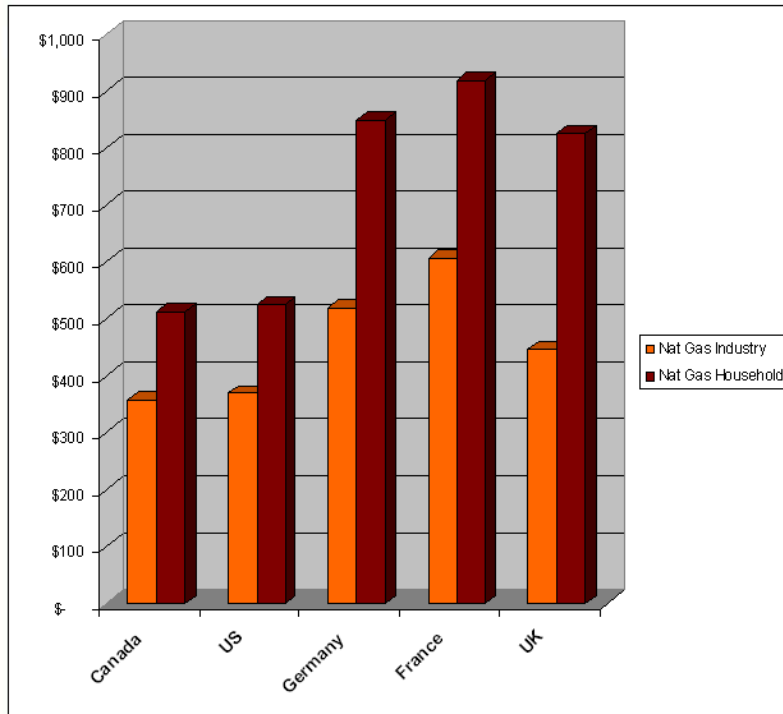
The great American slowdown



...and what it means for the world economy

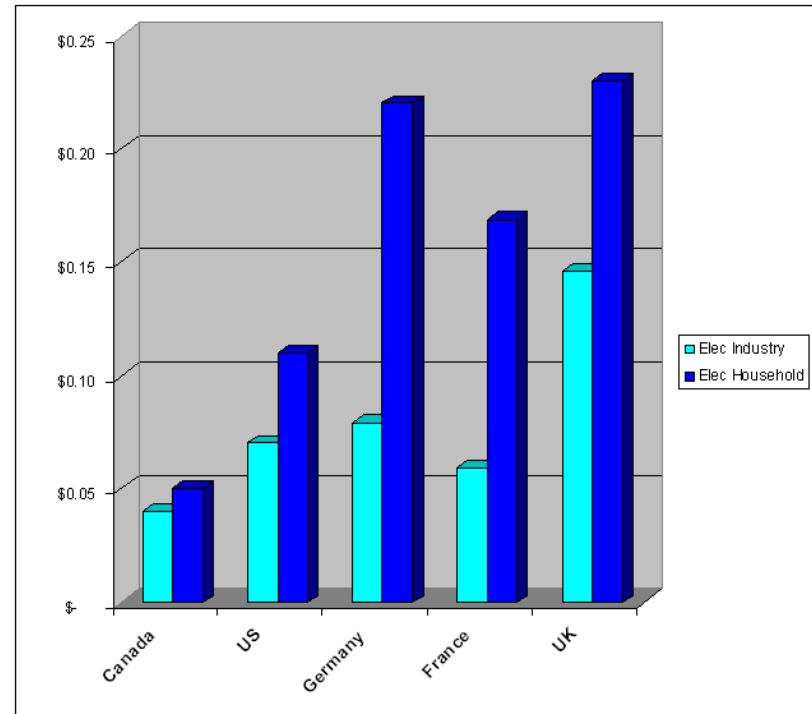


Energy Cost Context



Natural Gas

10⁷ kcal GCV(e) in constant US\$, Source: www.iea.org



Electricity

kWh in constant US\$, Source: www.iea.org

Client response to “Sustainability”

Principled (“Do the Right Thing”)

Pragmatic (“Do the Common-Sense Thing”)

Passive (“Wait and see”)

Perplexed (“Not sure what to do”)

Building Industry Response



DGNB

Deutsche Gesellschaft für nachhaltiges Bauen e.V.
German Sustainable Building Council



BREEAM



2010

LEED® in North America

LEED Categories:

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Environmental Quality
- Innovation & Design

Categories: Certified, Silver, Gold, Platinum

Sustainable Sites					Water Efficiency					Energy & Atmosphere					Materials & Resources					Environmental Quality					Innovation & Design									
Prereq	Credit	Points	Y	P	T	N	Prereq	Credit	Points	Y	P	T	N	Prereq	Credit	Points	Y	P	T	N	Prereq	Credit	Points	Y	P	T	N	Prereq	Credit	Points	Y	P	T	N
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	Credit 2	1						Credit 1.2	1					Prereq 2	1						Credit 1	1					Credit 1.1	1						
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LEED® Limitations and Trends

- For commercial buildings & urban settings
- Not all points are appropriate
- Not all initiatives earn “fair” points
- “Point chasing”
- No GHG analysis
- Not the “be-all-and-end-all” of Green, but ...
- It is the North American Standard, and
- It is coming to an Airport near you!

LEED® Impact on Retail

When a Project is proceeding through LEED certification, then the retail tenancies need to comply with LEED requirements

LEED requires a different approach to selection of tenant finishes, lighting and fixtures than conventional design

Airports will be producing LEED/Sustainable Design guidelines that Tenants will need to understand

LEED® Impact on Retail

Integrated Design

Integrated design = better design

Water Efficiency

Reduce water use = reduced costs
Specify low flow fixtures

Energy Efficiency

Reduce energy use = reduced costs
Use energy-modeling to optimize systems
HVAC responsive to partial loads
Specify Commissioning
No equipment with CFC's/HCFC's
Energy Star products
Compact fluorescents, LED's etc.
Lighting controls & daylight sensors
Light-coloured finishes

Materials

Include recycling/sorting in tenant space
Have a Construction waste plan
Specify materials with recycled content
Specify Local/regional materials
Specify wood from renewable sources

Indoor Air Quality (IAQ)

Good IAQ = Good Health
Have Construction IAQ procedures
Provide CO² sensors
Low-emitting materials & furnishings

Other

Use "green" cleaning/housekeeping


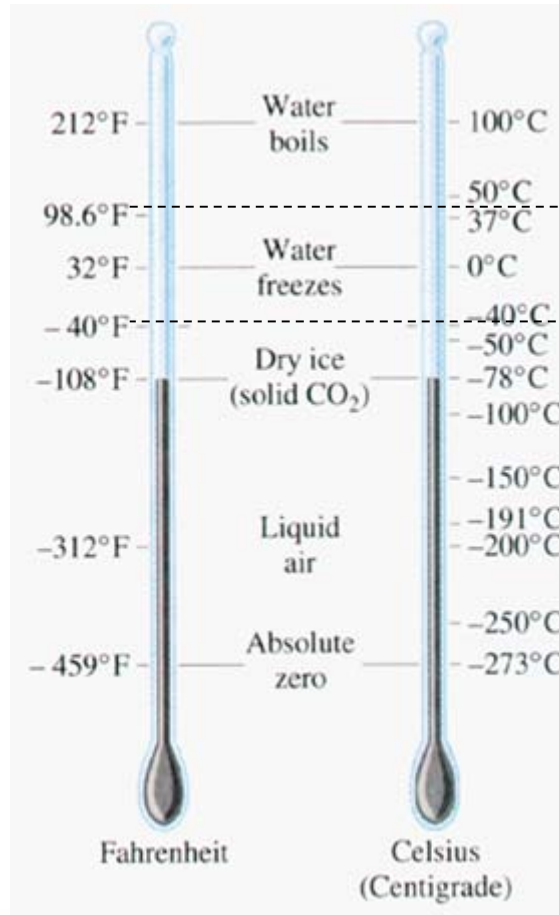
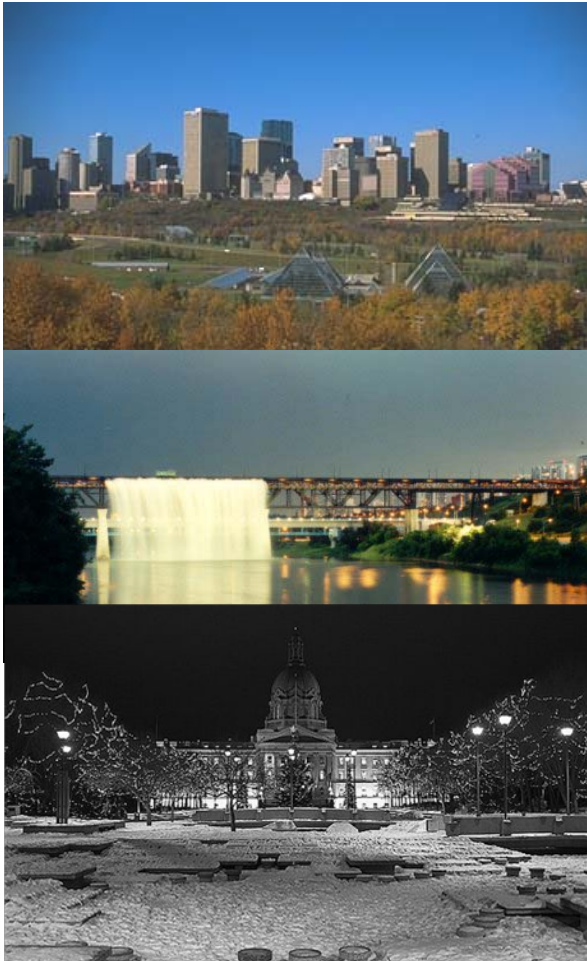
Case Study: EIA



EIA Location



EIA Climate



Design
Temperature
**+40°C to
- 40°C**
**(+100°F to
- 40°F)**

Sustainability Features - Terminal

- Radiant flooring at departures level
- Boiler efficiency at 95%
- Energy model at 45% reduction in use
- Heat recovery from retail tenants
- Daylighting > 75% of Public Space
- Indoor air monitoring for CO² and VOC's
- Acoustic treatment from recycled sources
- 30% reduction in water use
- High performance building envelope

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Sustainability Features - Retail Guidelines



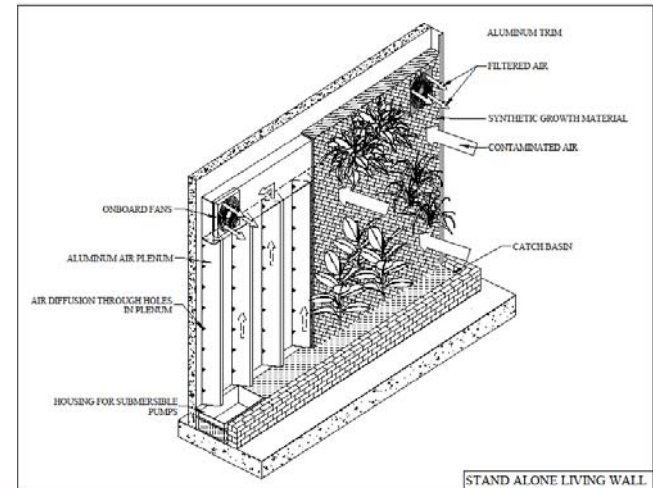
EDMONTON AIRPORTS - AIR TERMINAL BUILDING EXPANSION

TABLE OF CONTENTS

- 1.0 INTRODUCTION
- 2.0 INTEGRATED DESIGN PROCESS
- 3.0 WATER EFFICIENCY
- 4.0 ENERGY EFFICIENCY
- 5.0 MATERIALS & RESOURCES
- 6.0 INDOOR ENVIRONMENTAL QUALITY
- 7.0 OTHER SUSTAINABLE IDEAS
- 8.0 APPENDIX



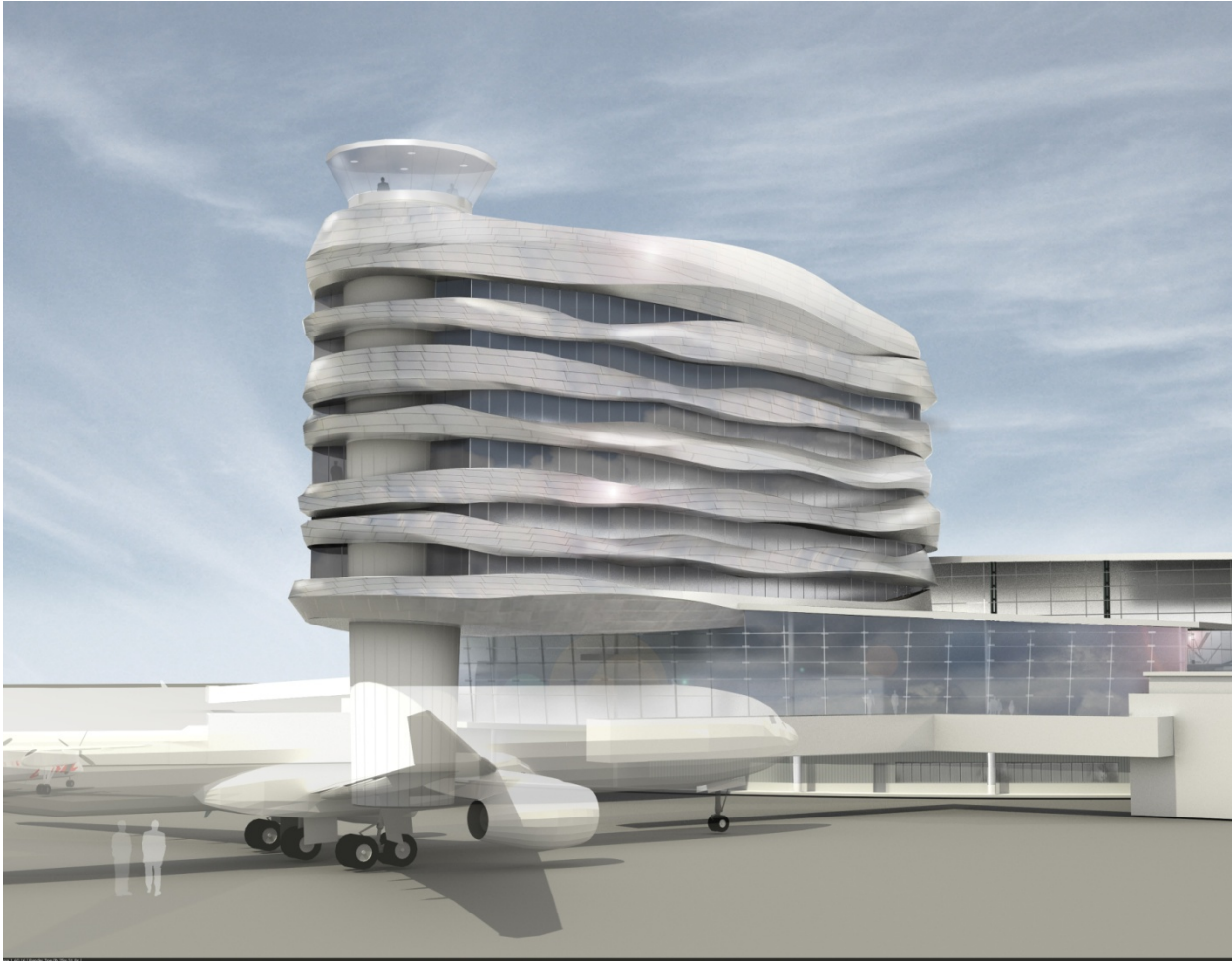
Sustainability Features – Living Wall



EIA – “Living Wall”



EIA – Office Control Tower – LEED® Silver



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Lessons Learned

Decide your level of commitment to Sustainable Design (Principled, Pragmatic etc.)

Design the process for engaging stakeholders, including tenants

Ensure all stakeholders understand what's required of them to deliver the desired level of Sustainability