



*feel good about your money.*

# Sustainable Buildings and their Financial Implications

September 16, 2011  
9:45am session



## Overview

- Why we did this renovation
- LEED certification
- What we did
- How it pays off

# Background

- When Servus merged with Common Wealth and Community Savings, we needed one corporate centre.
- This building met our physical needs but needed renovations to accommodate our environmental and people needs.
- Servus Credit Union approached Manasc Isaac Architects in 2007. They were chosen for their extensive 'green' building experience and unique approach
- Process was very collaborative and accountable throughout



# Former building issues

With the existing building, a number of issues were identified that needed to be fixed:

- How do we bring light into the formerly dark call centre spaces?
- Inefficient building performance
- New vs. retrofit



# LEED Silver

Leadership in Energy and Environmental Design (LEED) promotes sustainable building and development practices through a suite of rating systems

- Certification is based on how many green credits, or strategies, the building has including
  - Recycling
  - Reducing
  - Reusing



## Plans to achieve LEED certification

These strategies enabled this building to receive LEED Silver certification:

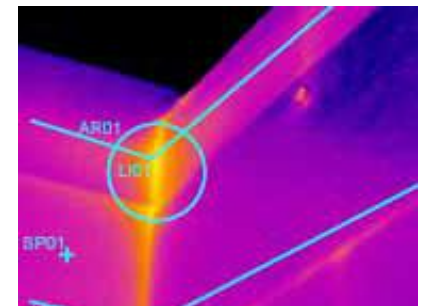
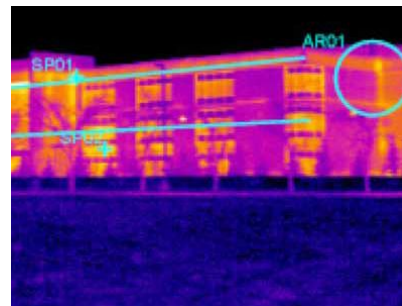
- Updated exterior
- New high-efficiency windows
- Improved mechanical systems
- Increased daylighting
- South-facing sun shades



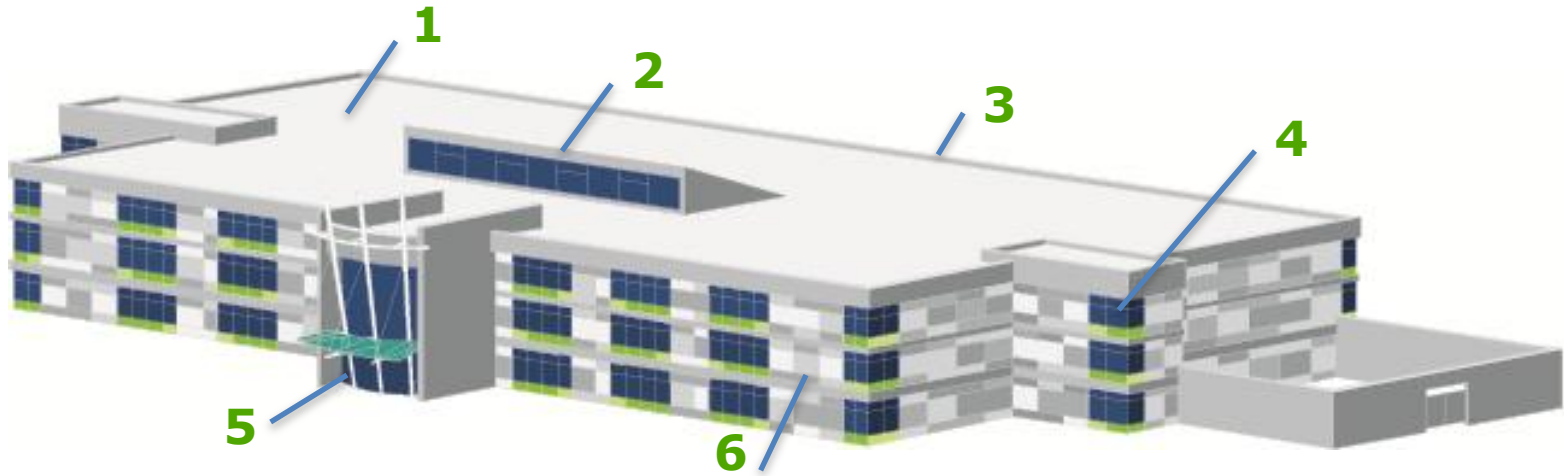
## Old exterior

Thermal imaging scans of the old exterior revealed many inefficiencies:

- Significant heat loss
- Frost build up on interior steel beams



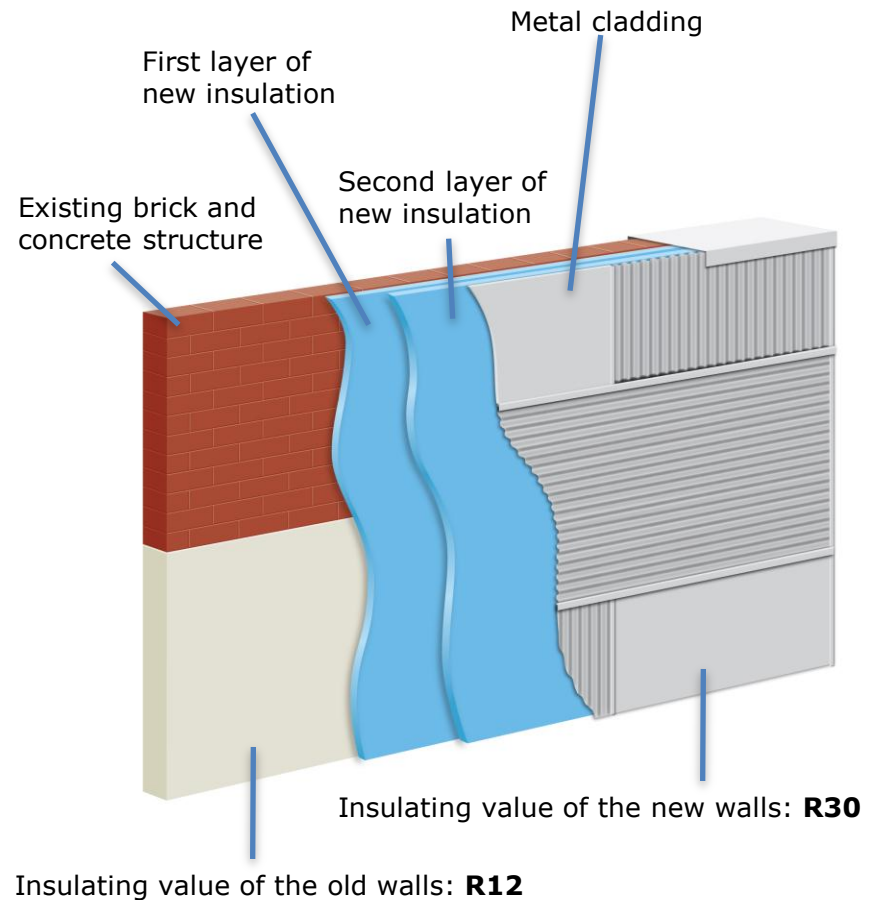
# Green strategies



1. Improved mechanical and electrical systems
2. Increased day lighting
3. New South-facing sunshades
4. New high-efficiency windows
5. Recycled and low-emitting interior materials
6. Re-skinned exterior

# New exterior

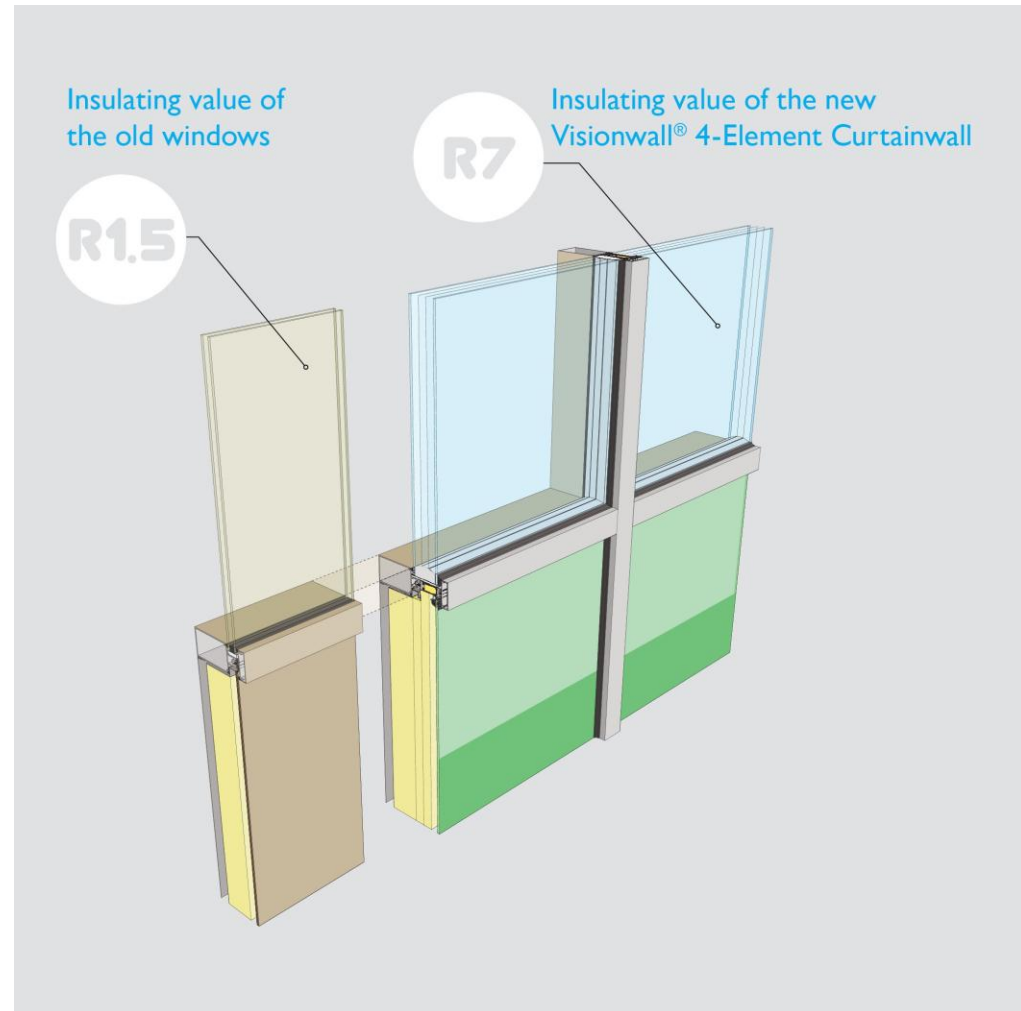
- Wraps the building like a blanket
- Two additional layers of insulation provide R30 insulation value (old walls were R12)
- Metal cladding requires little maintenance and provides a properly sealed rain barrier



# New windows

Windows and frames were outfitted with a high performance, four-element Vision Wall system

- They permit more light into the building
- They open for natural ventilation with less air conditioning



# Natural light

Natural improves how employees feel and reduces energy usage.

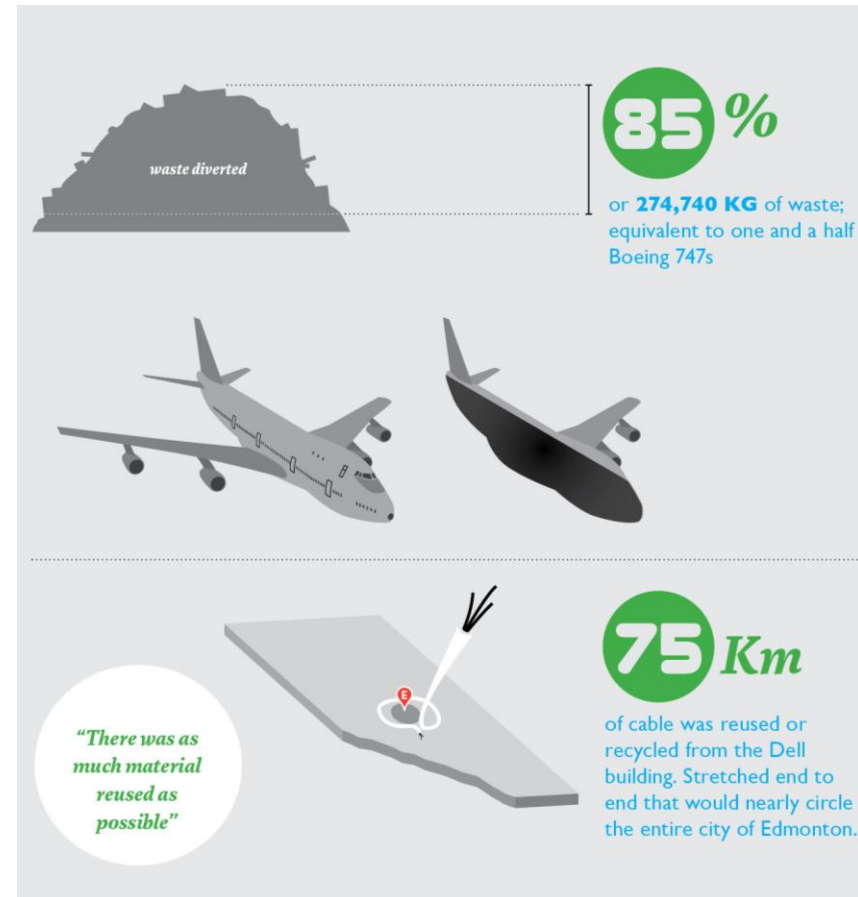
- Clerestory roof: windows that rise above the roofline allowing more light to enter
- Renovations contributed to a savings of 1,640,117 kWh in 2010/2011
- New south-facing sun shades reduce solar glare and building heating



# Reused materials

Reusing materials contributed to the LEED certification by:

- Reused original building lockers
- Communications system cables were reused for the workstations
- Reused 100% of the carpet and vinyl flooring, and 90% of the ceramic tile
- Old kitchen equipment was donated to Memorial Composite High School in Stony Plain
- Reused over \$1 million of furniture from other Servus locations



# Green Materials

Many of the everyday items in the building were made with recycled materials

- All the wood is certified by the Forestry Stewardship Council ensuring it came from environmentally responsible producers and managers
- Many other materials are emit low levels of Volatile Organic Compounds (VOCs)

# Mechanical and lighting system improvements

- The heating system was retrofitted with more appropriate components
- Many of the rooms and spaces feature motion activated lighting controls that reduce electricity use when no one is in the space

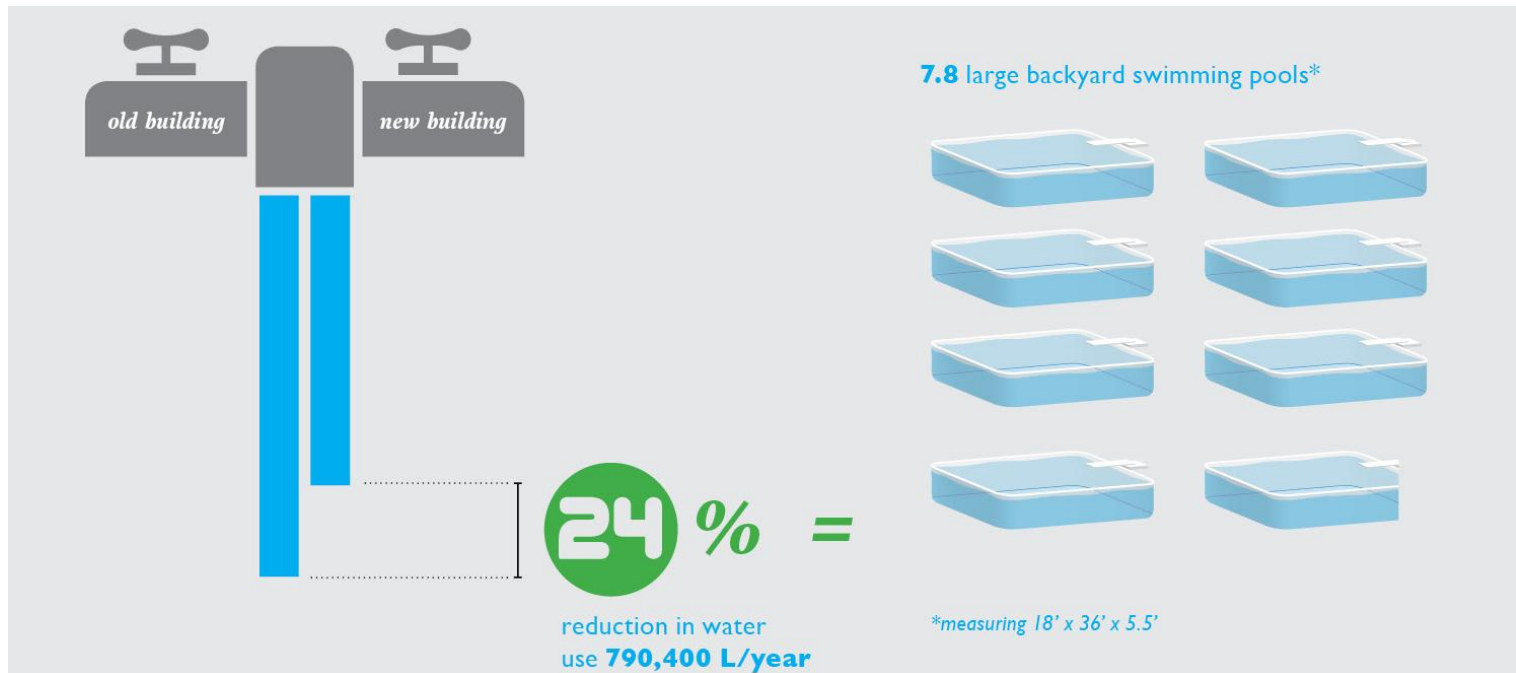


# Thermostat

- They have CO2 sensors that manage the fresh air levels in the building, reducing air conditioning
- Built in light level and motion sensors that can turn on lights and adjust them to personalized settings
- Ties into the building automation system that automatically opens and closes windows



# Reduction in water

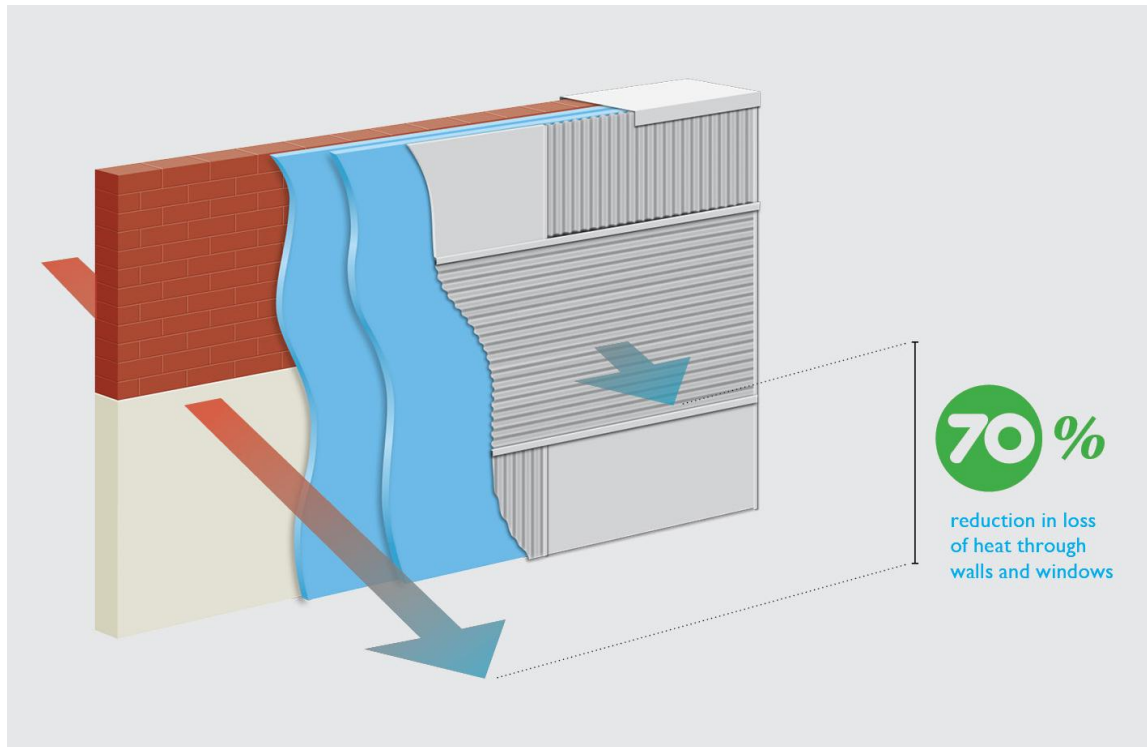


Eliminated the outdoor sprinkler system and installed low flow toilets and taps.

- The building uses 24% less water
- That's equal to 790,400 litres saved per year

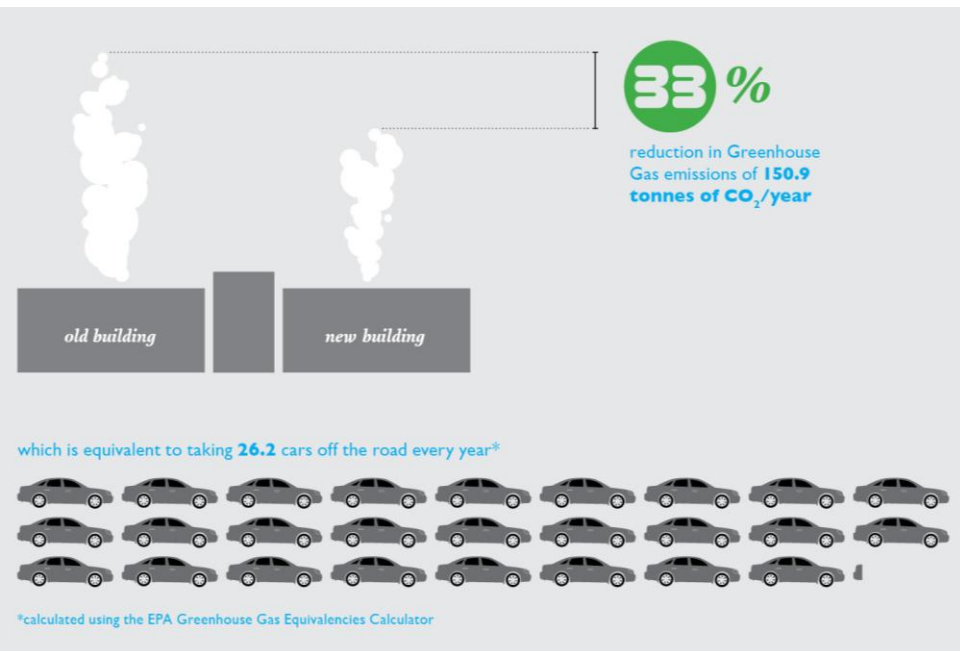
# Reduction in thermal transfer

The renovations resulted in losing 70% less heat through the walls than before the renovation.



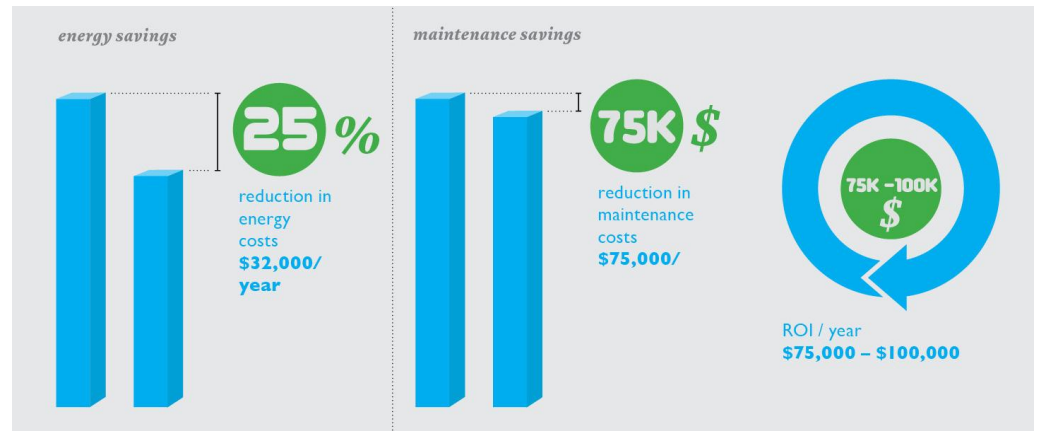
# Reduction in greenhouse gas emissions

All the retrofits and design led to a significant reduction of the annual greenhouse gas (GHG) emissions:








- 33% reduction than before the build
- That's roughly 150 tonnes less of CO<sub>2</sub> per year into our environment
- Equivalent to keeping over 26 cars off the road

# Energy and maintenance savings



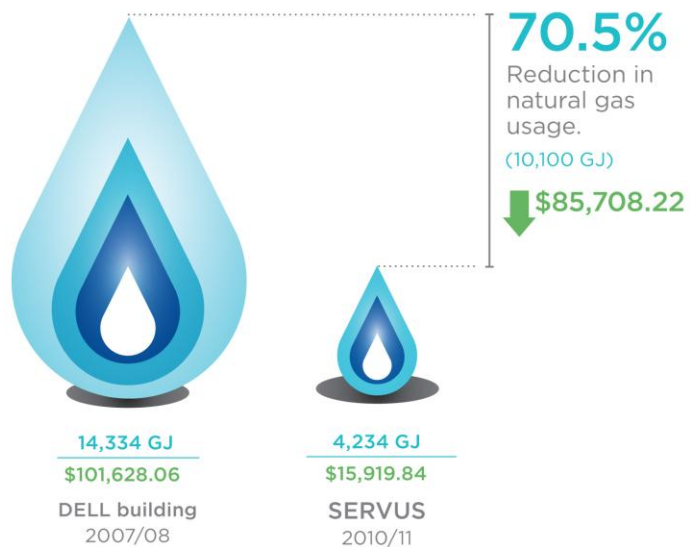
- Overall, the building uses more than 20% less energy than it did before
- Used 14,334 GJ of natural gas in 2007/2008. Used 4,234 GJ in 2010/2011 after renovations. Savings: 10,100 GJ.
- Used 3,861,752 kWh of electricity in 2007/2008. Used 2,221,635 in 2010/2011 after renovations. Savings: 1,640,117 kWh.
- That's a savings of \$32,000 per year
- Maintenance costs have been reduced almost 6% a year for annual savings of approximately \$75,000 a year

	SAVINGS MEASURED IN UNITS	SAVINGS MEASURED IN % AS COMPARED TO OLD STRUCTURE	
 <b>electricity</b> • parking lot fixtures • signage	<b>900,000 kWh</b>	<b>15 – 25%</b>	 <b>total savings</b> REDUCTION IN ENERGY COSTS <b>\$32,000/year 25%</b>  REDUCTION IN MAINTENANCE COSTS <b>\$75,000/year</b>
	<b>62,382.15 kWh</b>	<b>73%</b>	
	<b>\$10,649</b>		
 <b>water</b> <b>790,400 L</b> <b>24%</b>			
 <b>building envelope</b> <b>70%</b>			
 <b>emissions</b> <b>150.9 tonnes of CO<sub>2</sub></b> <b>33%</b>			

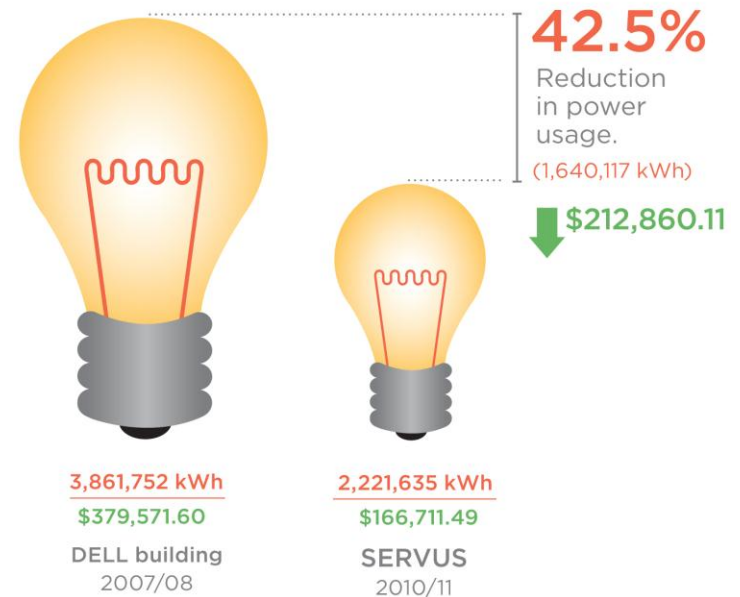
- Electricity saved: 1,640,117 kWh
- Natural gas saved: 10,100 GJ
- Emissions reduced: 150.9 tonnes
- Water saved: 790,400 L
- Heat loss: reduced by 70%

# SERVUS CORPORATE CENTRE STATISTICS

## REDUCTION IN NATURAL GAS USAGE (GJ)



## REDUCTION IN POWER USAGE (kWh)



# Lifestyle amenities

These features help our employees enjoy a better quality of life. And certification considers how this building fits into its community.

For our 420 employees in this building, there are:

- 51 bike stalls
- 11 showers and change rooms
- Access to public transit by the front of the building
- Smoke free workplace
- HealthFare restaurant
- Energy Star vending machines
- Fitness facilities
- Hybrid vehicle and carpooling parking spots



## Alberta's Best Workplaces 2011

- Servus Credit Union is one of Alberta's Best Workplaces for 2011.
- Healthy lifestyle options like the full fitness facility contributed to that win.

# Future

- The building was designed to easily handle expansion if required.
  - We can build another replica in our parking lot
- We've taken what we've learned from this project and applied that knowledge to our new branch construction





# Questions?

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