

# Saving our Energy for Education

## The Enerlife 2009 List of Top Energy Performing Schools

"There is a three pronged approach to success in high performance schools," according to Erin Holko, Environmental Sustainability Officer of the Halton Catholic District School Board in Ontario. "Building design, operations, and occupant engagement are essential in achieving and sustaining consistent energy and environmental performance."



#4 St. Andrew CES - Oakville, ON

The board's **St. Andrew CES** in Oakville comes in at #4 in the Enerlife 2009 list of top energy performing schools. Built in 1999 with full air conditioning, it sets the standard for top-performing schools without ground source heat pump systems, using just 10.9 ekWh (37 kBtu) per sq ft of total energy (electricity and gas) in 2009.

Erin speaks with the authority of having five schools in the top-20 list. Drawing from Enerlife's database of more than five hundred North American schools, this second annual report examines the energy efficiency and best practices of the top twenty. The 2009 competition was open to school boards across Canada and the United States.

With ten schools in the 2009 top-twenty, Norm Vezina, Senior Manager of Environmental & Office Services at the York Catholic District School Board in Ontario, also knows a great deal about what makes an energy efficient school.



#3 Prince of Peace CES - Keswick, ON

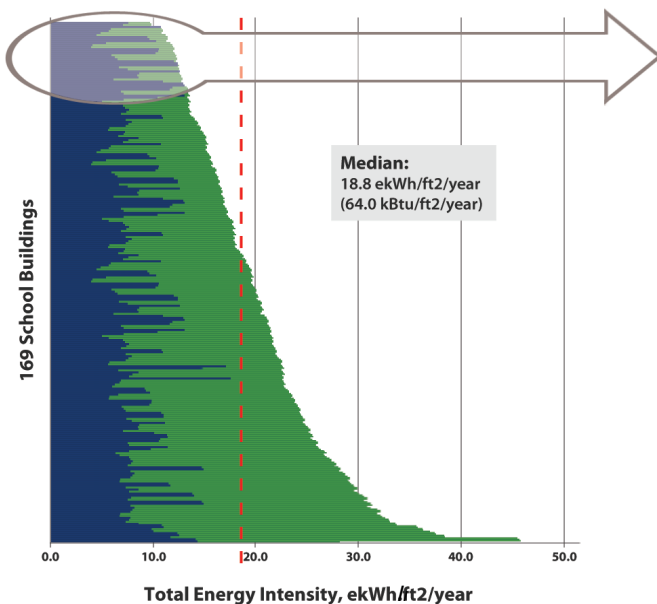
"We have been continuously improving the energy efficiency of our schools since

1999. We combine the best of technology with empowerment of staff and students to achieve, sustain and recognize high performance." **Prince of Peace CES** in Keswick, Ontario is the best of the board's schools, consuming 10.6 ekWh/ft<sup>2</sup> of electricity and no thermal energy. Built in 1993, the school features geo-exchange and full air conditioning.

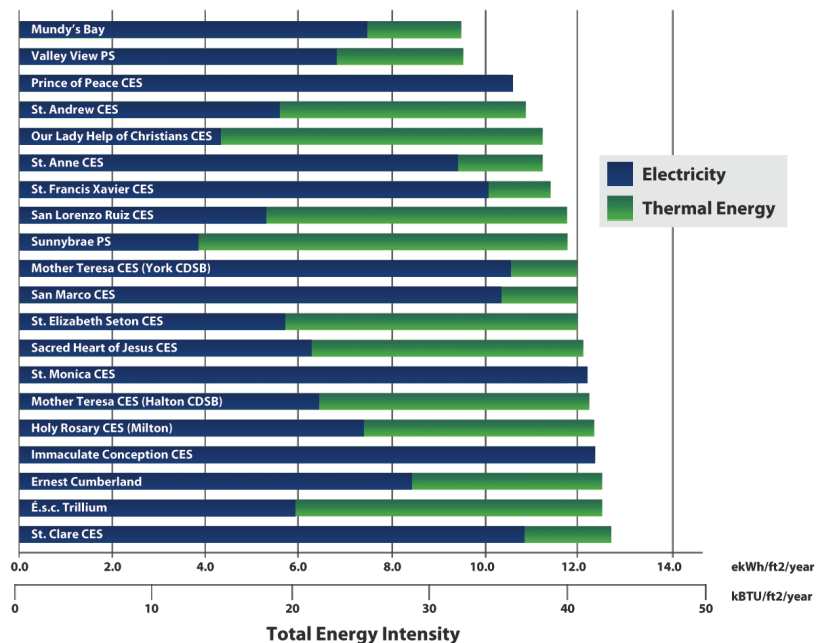
### The 2009 top-20 schools can be characterized as follows:

- Average energy use 11.6 ekWh (39.5 kBtu) per sq ft
- Built between 1959 and 2008
- Half heated with heat pumps or electric heat, the rest with natural gas boilers
- All but one are elementary schools (the top five secondary schools averaged 13.3 ekWh (45 kBtu) per sq ft)

### 2009 Total Energy Use Benchmark - Schools Weather-normalized to Toronto, ON



### 2009 Top Performing Schools





#1 Mundy's Bay PS - Midland, ON

The top two schools in this 2009 list are **Mundy's Bay Public School** in Midland, Ontario (Simcoe County DSB), and Valleyview Public School (Rainbow DSB) in Val Caron Ontario. Both schools opened in 2008, employ ground-source heat pumps and full air conditioning, and came in at 9.5 ekWh (32.5 kBtu) per sq ft of total energy.



#19 É.s.c. Trillium - Chapleau, ON

The top-performing secondary school is **École secondaire catholique Trillium** in Chapleau, Ontario. The Conseil scolaire catholique du Nouvel-Ontario makes "Green" a priority.

Michel Seguin, Director of Building Maintenance and Janitorial, says "It's a challenge to offer a variety of programs at the secondary level in small remote communities because we are funded based on student population. The school includes a gym, shops, cafeteria and labs. High efficiency equipment and operations ensure a healthy learning environment and low operating costs." CSCNO has incorporated energy-saving strategies into all the renewal and renovation projects for their schools.

The physical characteristics of the schools are only the beginning of the top performance story. What is more remarkable in this 2009 report is that, out of 27 school boards reporting to date, three boards dominate the 2009 top-20:

**Simcoe County DSB - 3 schools**

**York Catholic DSB - 10 schools**

**Halton Catholic DSB - 5 schools**

## Keys to Success

What makes individual school boards capable of achieving high energy performance not just in individual schools, but across their portfolios? All three boards report similar keys to success found in Erin Holko's three pronged approach, and in the management policies and processes that bind them together.

Building design does come first. "For more than a decade we have been building more and more efficient new schools and renovations," says Brad Parkes, Assistant Manager of Design and Construction at the Simcoe County DSB. "Every project is a learning opportunity which guides our ongoing efforts." Abdul Bilah at York Catholic DSB reports a similar approach, with a focus on more efficient plant and equipment and on continuous improvement.

Operational excellence is the second prong. The three boards follow rigorous standards and procedures with their building automation systems, and with engagement of operations and maintenance staff as active partners in school performance. All make extensive use of automation and real-time electricity metering to stay on top of performance across all their schools. All have dedicated staff monitoring energy use and responding to variances.

And active participation by school communities is cited by the three boards as essential to ongoing success. "As a Catholic board, we believe we are all stewards of the Earth, here to cherish, protect and preserve the natural environment. We take a holistic approach, which includes recognizing and encouraging the vital role that our students and staff play in sustainability," says Erin Holko. The three boards are active participants in the Eco Schools environmental certification program, and provide extensive outreach and communications to their schools.

## Every School can be Green

This 2009 report has added to the large number of schools of varying age and system types which are performing between 10-15 ekWh (35-50 kBtu) per sq ft of total annual energy use. Most schools operating above this range have the potential for substantial savings. "We are working through a program of reengineering our higher energy using schools" reports Brad Parkes. "Retrofitting and re-commissioning lighting and mechanical systems, and upgrading building automation, work together towards a more consistent level of performance across all of our schools."

Knowing your school's energy performance and applying the three-pronged approach is the path to becoming a top performer.

	School Board	School Name	Built	Sq. Ft.	ekWh/ft2
1	Simcoe County District School Board	Mundy's Bay	2008	56,834	9.52
2	Rainbow District School Board	Valley View PS	2008	63,949	9.55
3	York Catholic District School Board	Prince of Peace CES	1993	42,023	10.61
4	Halton Catholic District School Board	St. Andrew CES	1999	60,278	10.86
5	York Catholic District School Board	Our Lady Help of Christians CES	2004	58,029	11.25
6	York Catholic District School Board	St. Anne CES	1984	42,550	11.25
7	York Catholic District School Board	St. Francis Xavier CES	1987	57,264	11.40
8	York Catholic District School Board	San Lorenzo Ruiz CES	2008	63,540	11.79
9	Simcoe County District School Board	Sunnybrae PS	1959	39,784	11.80
10	York Catholic District School Board	Mother Teresa CES	1981	39,149	11.97
11	York Catholic District School Board	San Marco CES	1986	45,241	11.97
12	Halton Catholic District School Board	St. Elizabeth Seton CES	2002	55,542	12.01
13	Halton Catholic District School Board	Sacred Heart of Jesus CES	1999	60,278	12.10
14	York Catholic District School Board	St. Monica CES	1993	56,027	12.24
15	Halton Catholic District School Board	Mother Teresa CES	1999	60,278	12.27
16	Halton Catholic District School Board	Holy Rosary CES (Milton)	1999	45,521	12.32
17	York Catholic District School Board	Immaculate Conception CES	1985	55,413	12.44
18	Simcoe County District School Board	Ernest Cumberland	1993	52,076	12.50
19	Conseil scolaire catholique du Nouvel-Ontario	É.s.c. Trillium	2006	40,483	12.50
20	York Catholic District School Board	St. Clare CES	1991	53,163	12.70