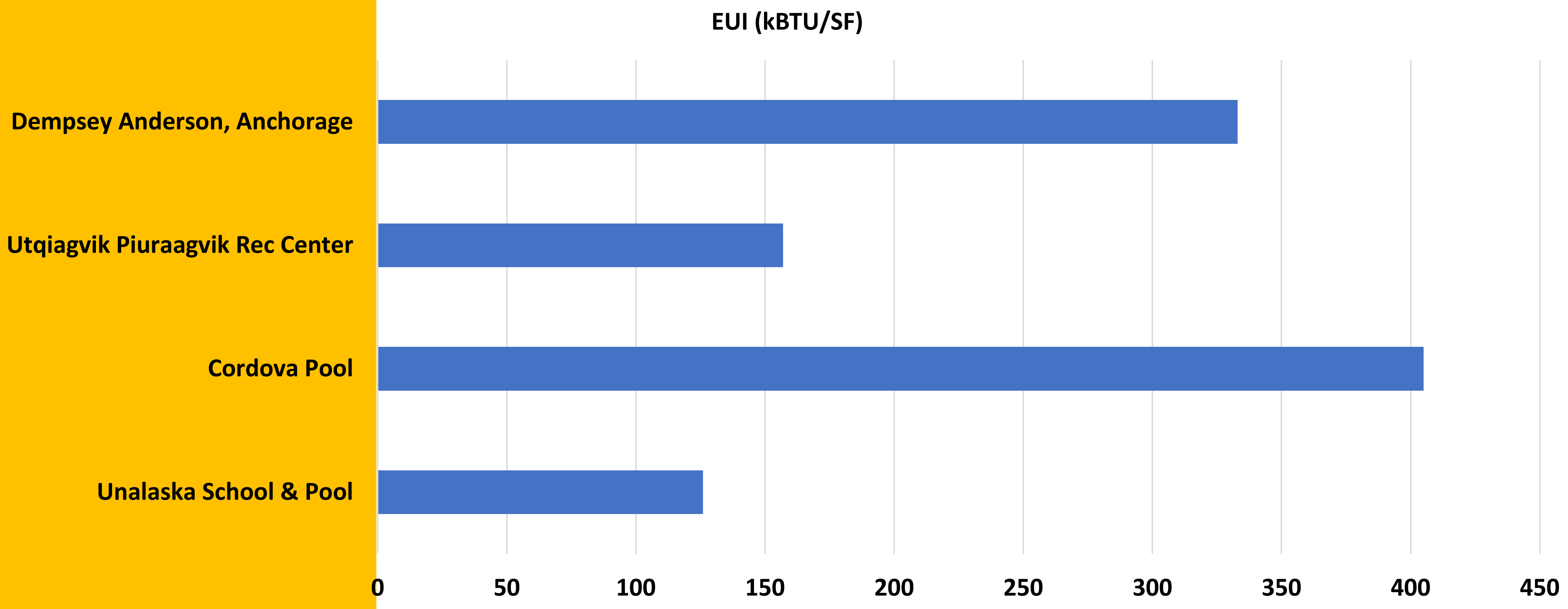
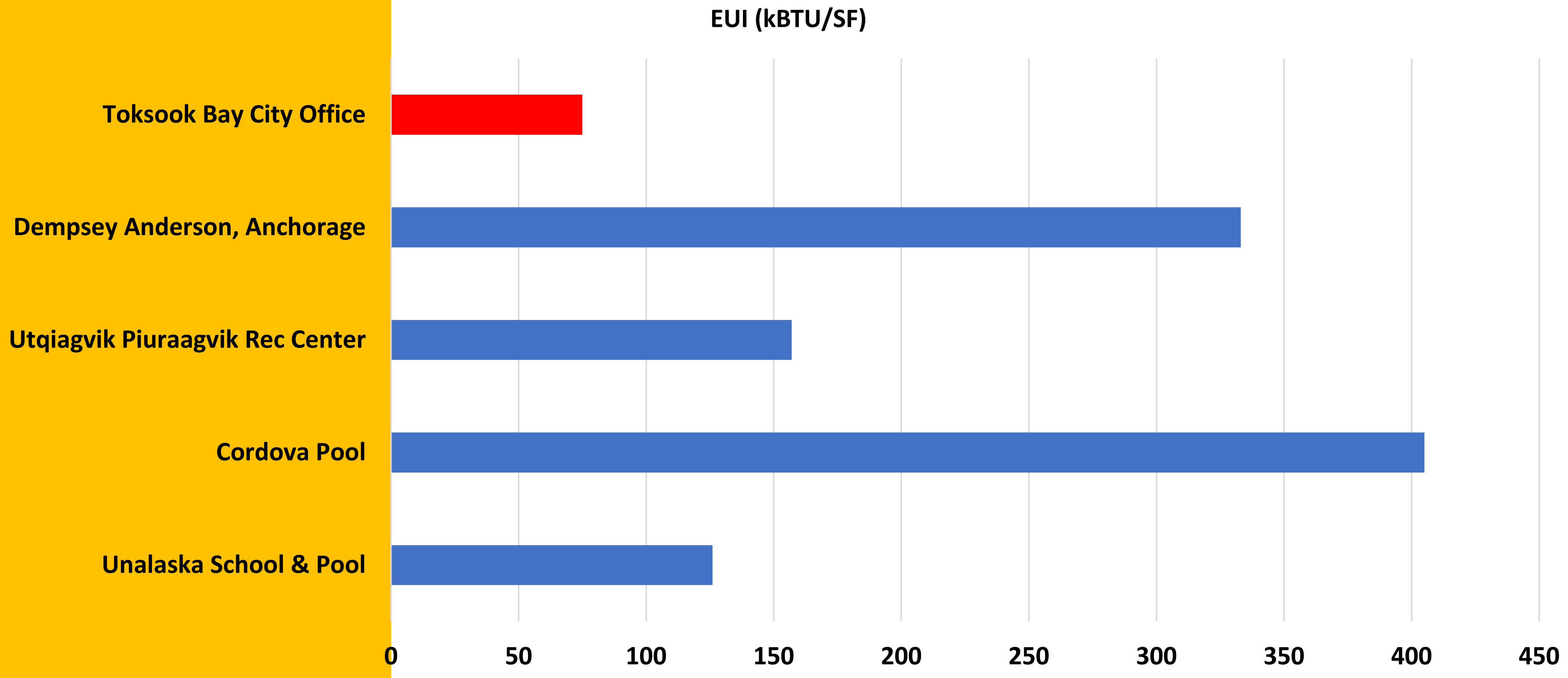
Pools and Play

Energy Audits of Alaska

Pools and Play



Pools and Play



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Gymnasiums

NOW:

- SET BACK TEMPERATURES
- OPTIMIZE EQUIPMENT SCHEDULES (PARTICULARLY AIR HANDLERS)
- REDUCE OSA MINIMUMS
- SCHEDULE DHW RE-CIRCULATION

A LITTLE LATER:

- CONVERT LIGHTING TO LEDS
- OCCUPANCY SENSORS

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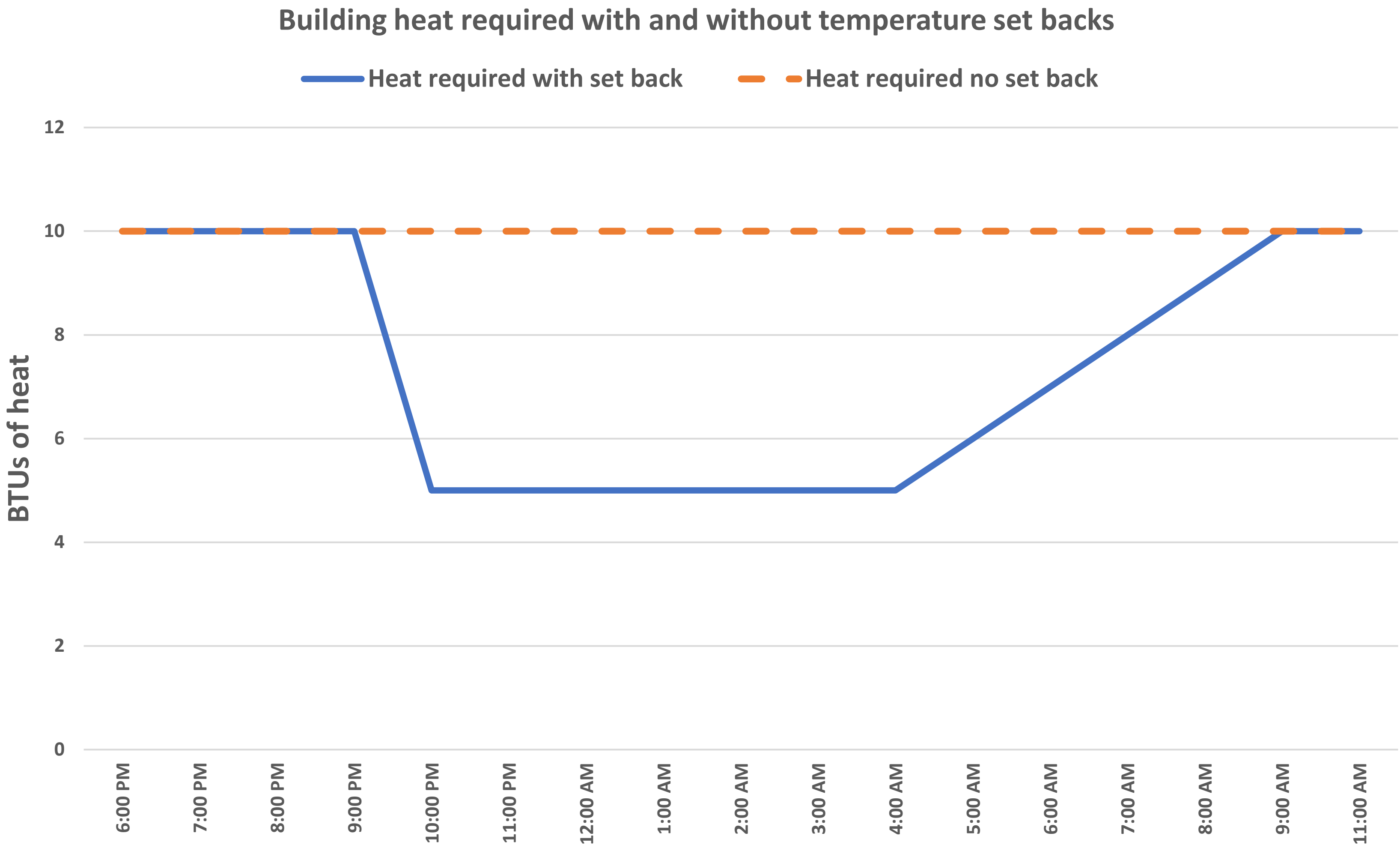
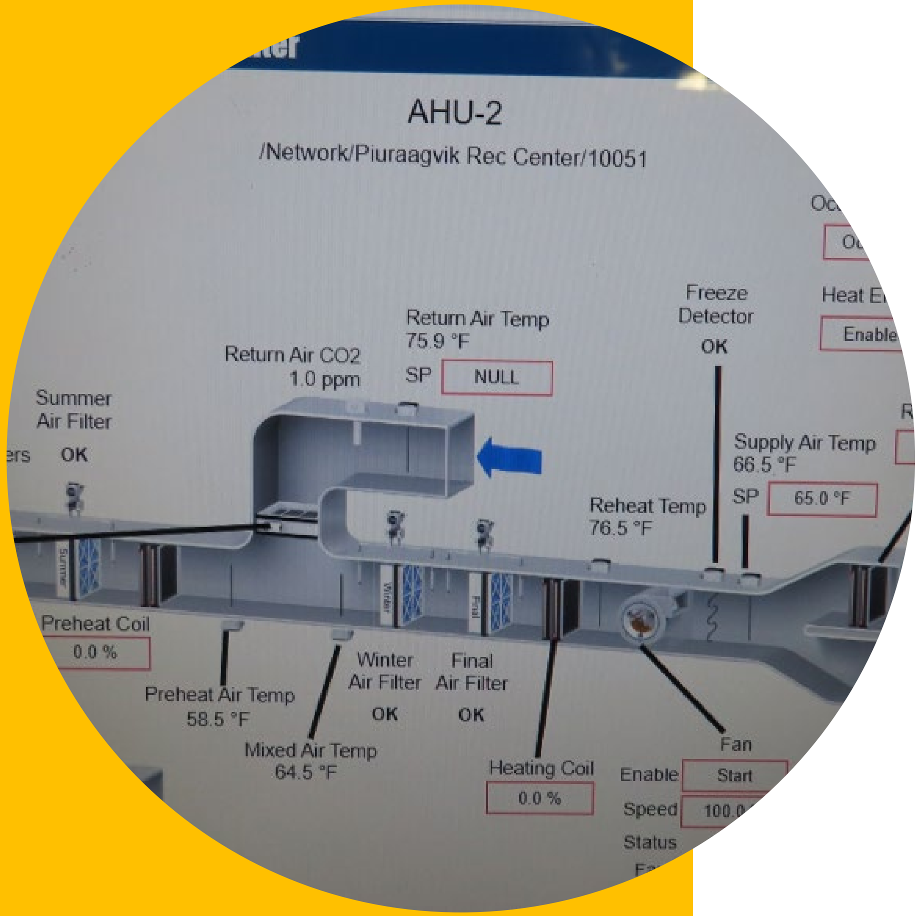
Set Back Temperatures





Optimize your DDC Settings

NOW:

- SPACE TEMPERATURES AND SET BACKS
- AHU SCHEDULES
- OSA MINIMUMS
- BOILER TEMPERATURE RESETS
- ENABLE/DISABLE CIRCULATION PUMPS

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Training and remote access for DDC Systems

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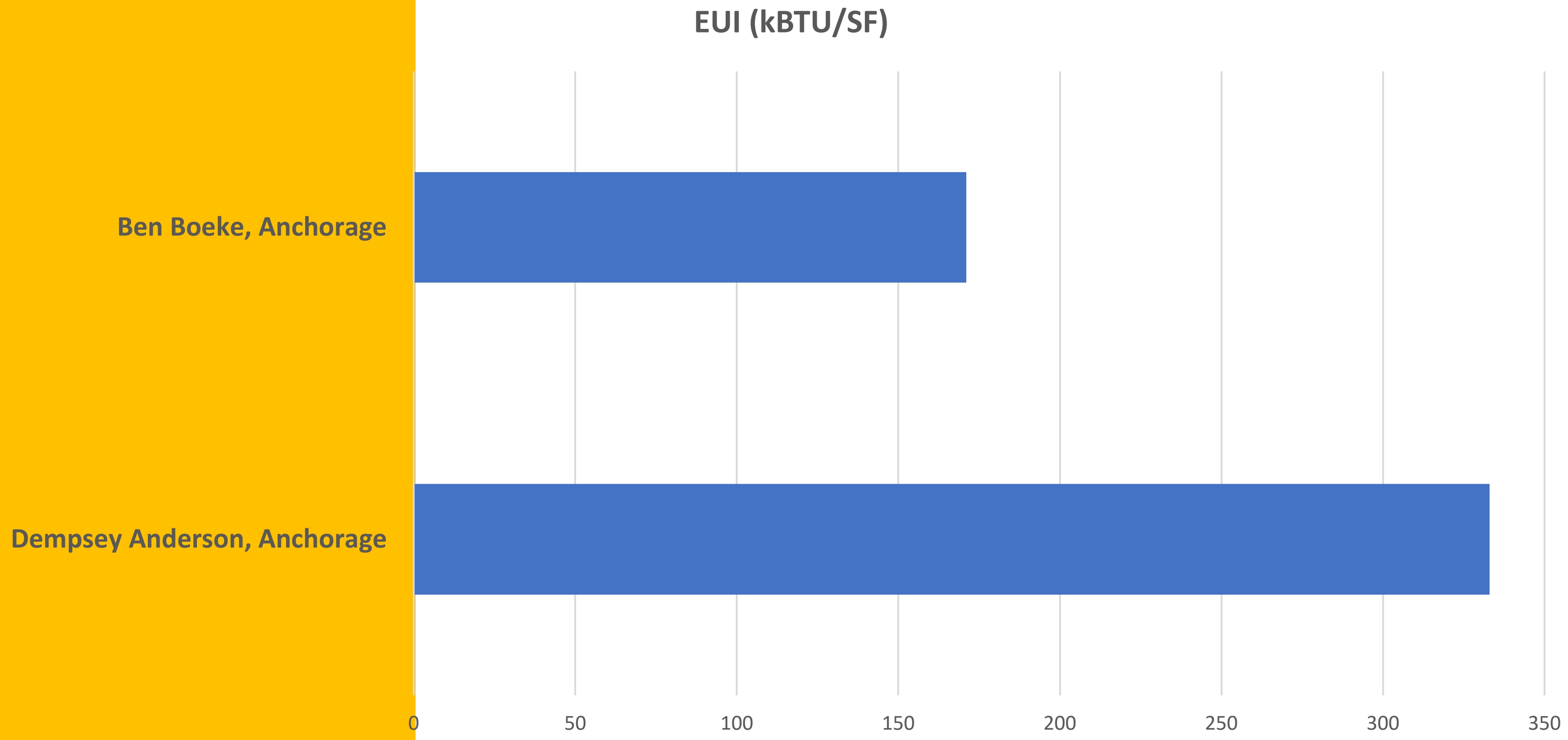
Training and remote access for DDC Systems



Ice Arenas

NOW:

- DEW POINT VS RELATIVE HUMIDITY
- OPTIMIZE EQUIPMENT SCHEDULES (PARTICULARLY AIR HANDLERS)
- RETRO-COMMISSION "LITE"
- OPTIMIZE REFRIGERATION OPERATING PARAMETERS

A LITTLE LATER:

- CONVERT LIGHTING TO LEDS ($$)
- OCCUPANCY SENSORS ($)
- RETRO-COMMISSION "HEAVY" ($$)
- HEAT RECOVERY ($$$$)

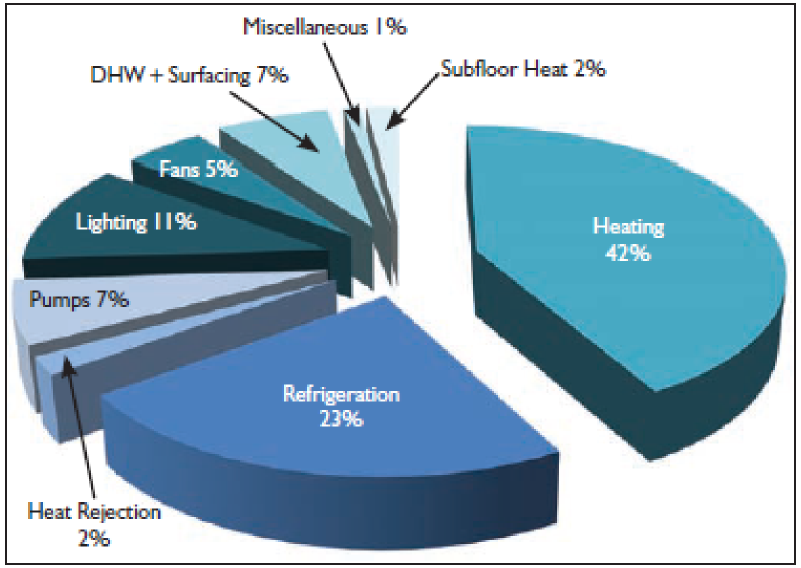


Figure 1: Inefficient arena (1,950,000 kWh).

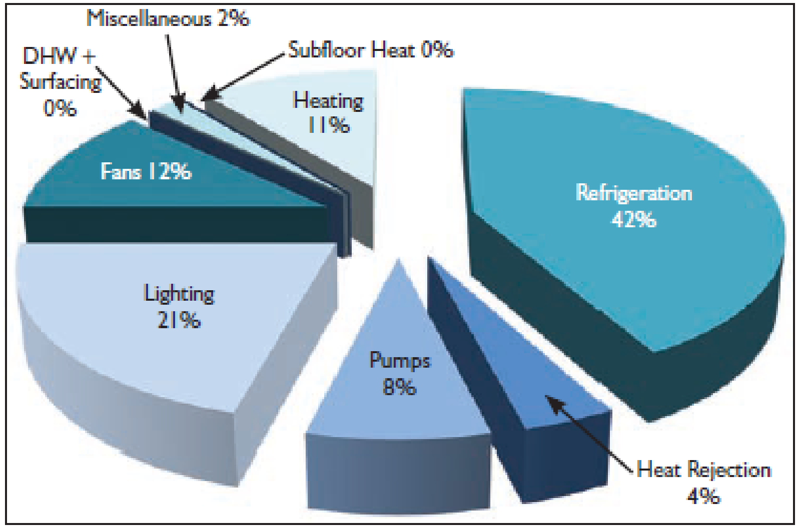


Figure 2: Modified arena (8,40,000 kWh).

Ice Arenas

CAPITAL IMPROVEMENTS:

- HEAT RECOVERY
  - From building exhaust
  - From compressor for under slab and building heat
  - from superheat for ice resurfacing
- LOW-EMMISSIVITY CEILING

Source: Improving Efficiency in Ice Hockey Arenas; Laurier Nichols, PE, ASHRAE Journal June 2009

Pools

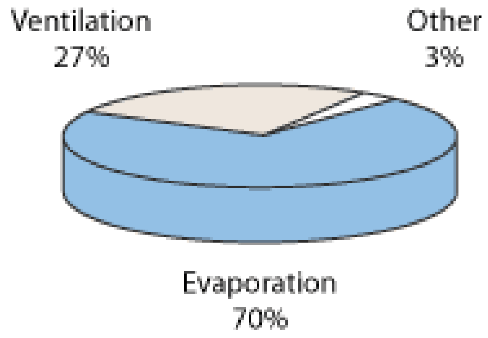
NOW:

- **POOL COVER (50%-70% SAVINGS)**
- DEW POINT VS RELATIVE HUMIDITY
- OPTIMIZE EQUIPMENT SCHEDULES (PARTICULARLY AIR HANDLERS)
- RETRO-COMMISSION "LITE"

A LITTLE LATER:

- CONVERT LIGHTING TO LEDS
- OCCUPANCY SENSORS
- RETRO-COMMISSION "HEAVY"
- HEAT RECOVERY FROM BUILDING EXHAUST

Indoor Pool Energy Loss Characteristics



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Pools

NOW:

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- OPTIMIZE EQUIPMENT SCHEDULES (PARTICULARLY AIR HANDLERS)
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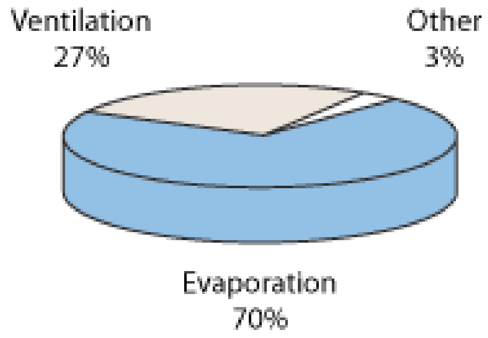
Indoor Pool Energy Loss Characteristics



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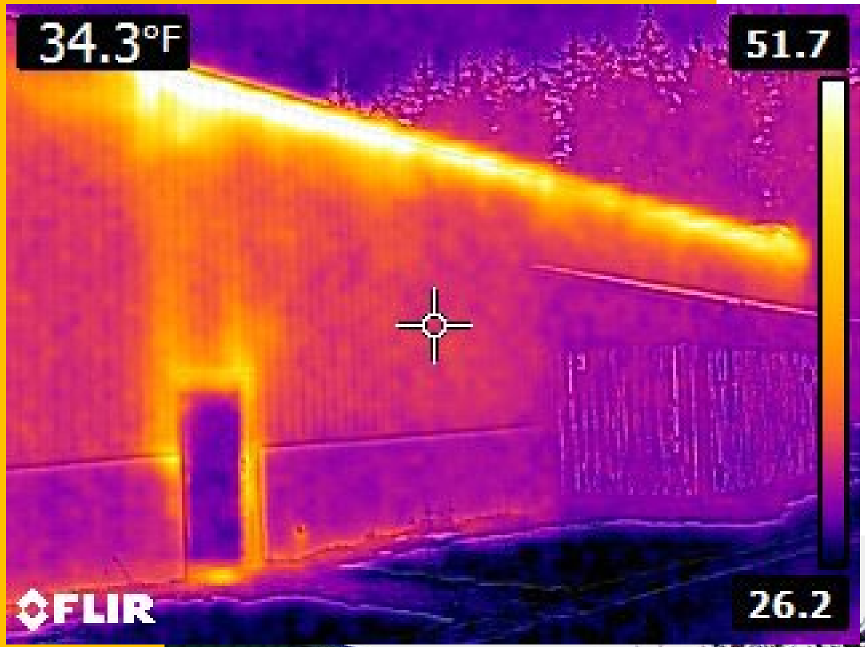
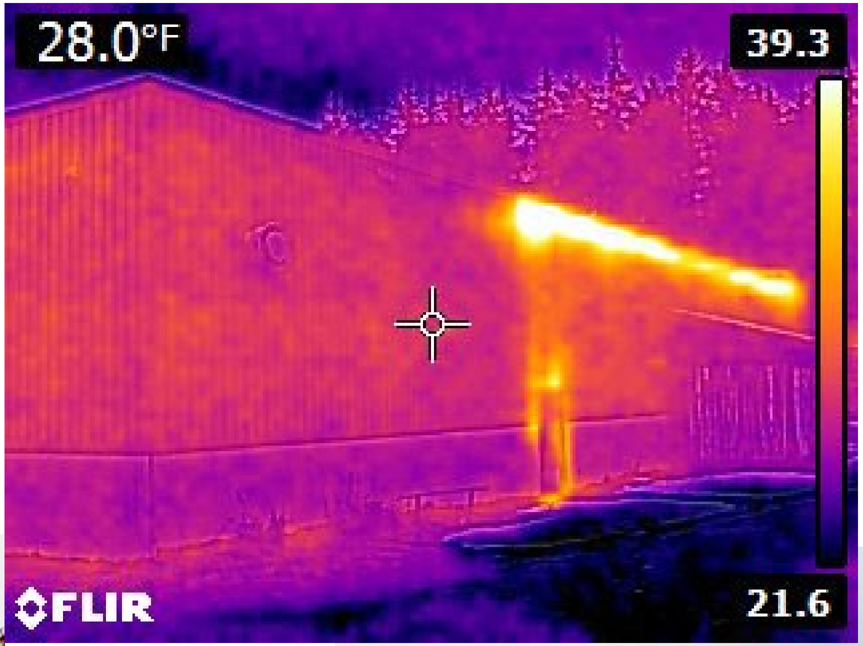

34.3°F
51.7
26.2
FLIR


28.0°F
39.3
21.6
FLIR

Pools

Utqiagvik EECBG Energy Audits

	City Offices			Gymnasium			Bingo Hall/Community Center			All buildings combined		
	Cost	Savings	Simple Payback (yrs)	Cost	Savings	Simple Payback (yrs)	Cost	Savings	Simple Payback (yrs)	Cost	Savings	Simple Payback (yrs)
Exterior wall insulation							$66,359	$336	197.5	**$66,359**	**$336**	**197.5**
Window replacements							$4,774	$10	477.4	**$4,774**	**$10**	**477.4**
Air sealing							$1,600	$83	19.3	**$1,600**	**$83**	**19.3**
DDC system upgrade and RCx	$30,000	$756	39.7	$30,000	$2,672	11.2				**$60,000**	**$3,809**	**29.3**
New glycol	$12,000			$24,000	$381	63.0				**$36,000**		
Archive building unit heater	$5,500									**$5,500**		
VFD circulation pumps	$10,000									**$10,000**		
AHU DDC and VFD fan motors	$16,000	$2,454								**$16,000**	**$2,454**	**6.5**
Setback thermostats	$5,200	$297	17.5	$5	$239	0.0	1300.0	195.0	6.7	**$6,505**	**$731**	**8.9**
Lighting upgrade to LED	$1,653	$640	2.6	$12,170	$1,996	6.1	$8,334	$1,083	7.7	**$22,157**	**$3,719**	**6.0**
TOTALS	**$80,353**	**$4,147**	**19.4**	**$66,175**	**$5,288**	**12.5**	**$82,367**	**$1,707**	**48.3**	**$228,895**	**$11,142**	**20.5**

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CELEBRATING 75 YEARS
ALASKA MUNICIPAL LEAGUE
1950-2025

Pools and Play

Thank you,

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