

APPENDIX C
ENERGY CONSUMPTION ESTIMATE



M-E Engineers
29 west 38th street, 5th floor / new york / ny 10018
t. 212.447.6770 / f. 212.447.6615
www.me-engineers.com

KINGSBRIDGE PRELIMINARY UTILITY USAGE ESTIMATE

5/10/2013

Energy

Study Assumptions

Envelope

	Value
Roof: Tin with wooden planks	R-5
Wall: Brick façade, 12" HW Block	R-5
Glazing: 1/4" Single Pane Clear Glass	U-0.95, SHGC - 0.83

Interior Loads

Max Rink Occupancy:	5,800 people
Ice Rink Schedule:	365 days a year, 5 AM to Midnight weekends, 5AM to 1AM weekdays
Ice Resurfacing Schedule:	Once per rink per hour
Lighting Loads:	per ASHRAE 90.1-2007, space by space method
Plug Loads:	varies by space
Space Temperatures:	Ice Rink Area: 60 ±5 deg F, All other Areas: 75 ± deg F
Space Humidity:	Ice Rink Area- Winter: Uncontrolled, Summer: 45 ±5% RH, All other Areas: Uncontrolled
Ventilation:	Ice Rink Area: 0.50 cfm/sf, per NYC Mechanical Code Spectator Area: 15 cfm/person, per NYC Mechanical Code All other Areas: per NYC 2008 Mechanical Code

HVAC Equipment

Cooling: Water Cooled Chillers, Cooling Towers	0.57 kW/ton
Heating: Gas-fired Boilers	80% Minimum Efficiency
Dehumidification: Gas-fired desiccant units	80% Minimum Efficiency
Domestic Hot Water: Gas-fired hot water heaters or heat recovery	80% Minimum Efficiency

Results

Gas

Heating/Dehumidification	1,083,456 therms/yr
Domestic Hot Water	89,177 therms/yr
Total:	1,172,633 therms/yr

Electricity

Cooling	6,710,599 kWh/yr
Ice Cooling	7,899,694 kWh/yr
Lighting	5,201,000 kWh/yr
Zamboni Charging	737,300 kWh/yr
Car Charging Station	372,300 kWh/yr
Misc. Equipment/Plug Loads	4,637,624 kWh/yr
Total:	25,558,517 kWh/yr