

CIRS PERFORMANCE DATA - April 2012 - 2013

Between April 2012 - 2013, the Centre for Interactive Research on Sustainability at the University of British Columbia's (UBC) Vancouver campus was monitored for performance of its energy and water systems.

This ongoing process of monitoring has led to a better understanding of the operation of various building sub-systems and has informed future operation and building adjustments. For example through this monitoring process it has been discovered that there is room for optimization of various operational sequences controlling heat transfer to and from the building.

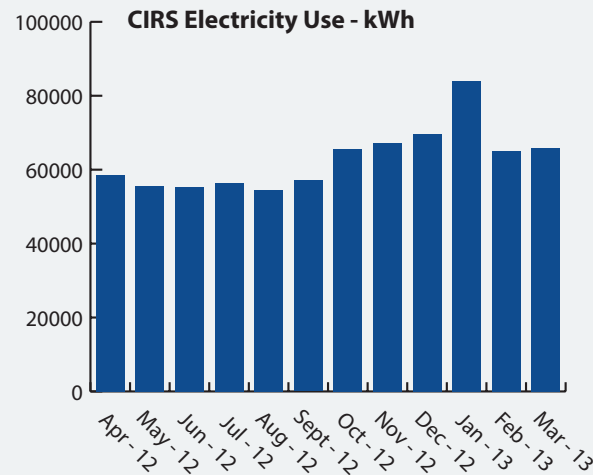
EOS/CIRS HEAT EXCHANGE

The measured annual heat extracted from exhaust ventilation of the EOS building is 147 MWh while the predicted energy transfer from EOS was 906 MWh.

The measured annual heat transferred to EOS from CIRS is 128 MWh while the predicted energy transfer from CIRS to EOS was 600 MWh.

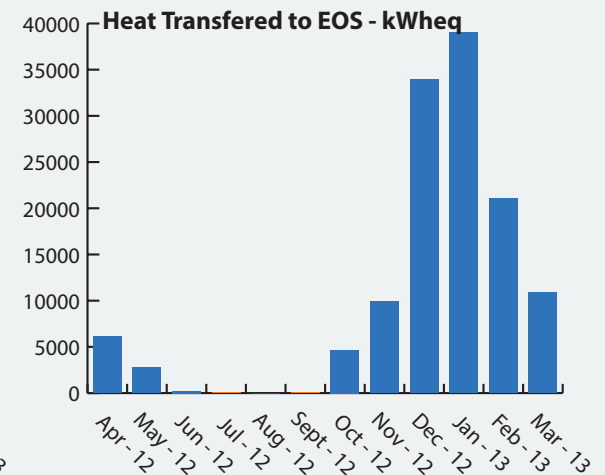
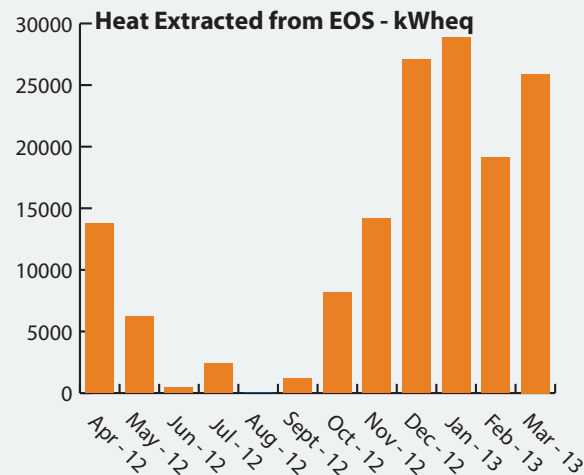
These numbers have resulted in system investigation that uncovered discrepancies between the design intent for the building and the installed components.

ELECTRICITY USE



The measured annual electricity use for CIRS between April 2012-2013 is 755 MWh while the predicted electricity use for the building based on the submitted compliance model was 585 MWh.

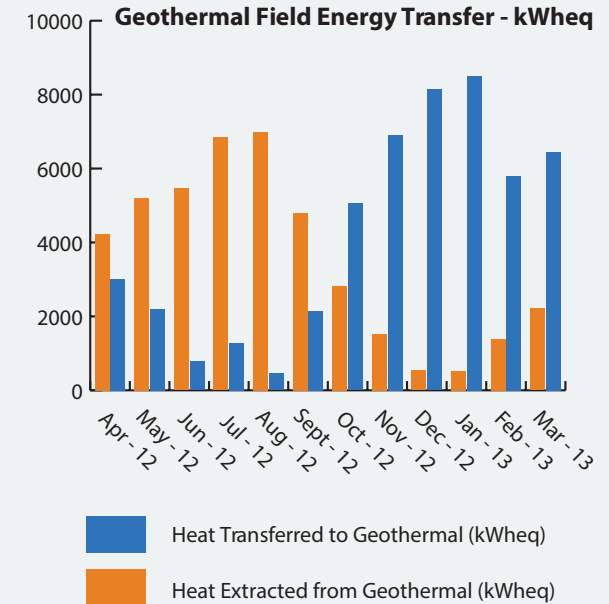
Without considering the reductions in energy gained at Earth and Ocean Sciences (EOS) through the exchange of excess heat, this results in a building EUI of 130 kWh/m², while including this energy gain for EOS results in an EUI of 100 kWh/m².



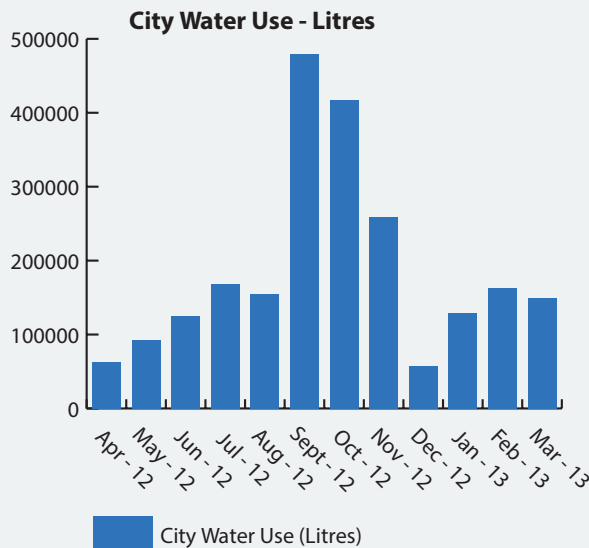
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GEOHERMAL FIELD

Between April 2012 - 2013, the measured total heating energy extracted from the geothermal field at CIRS was 42,500 kWh. During the same time period the heat transferred to the geothermal field at CIRS, the cooling energy, was 50,700 kWh.



WATER USE



Between April 2012 - 2013, the measured total water use for CIRS was 2,256,000 Litres. This water demand was all met by the municipal water supply connection to CIRS due to issues encountered that have thus far prevented the building from operating solely from its own rainwater and reclaimed water treatment facility. Delays that occurred in the construction, commissioning, and testing schedules resulted in a delay in obtaining an operating permit for the reclaimed water systems. Issues encountered in the training and handover process are also partly responsible for the delay in the water treatment facility becoming fully operational.

The predicted total water demand of CIRS as calculated using methodology as per the LEED Canada-NC 1.0 Reference Guide Addendum was 2,377,000 Litres. The predicted volume of reclaimed water to be processed on-site exceeded the predicted demand.