

2018 LEED Performance

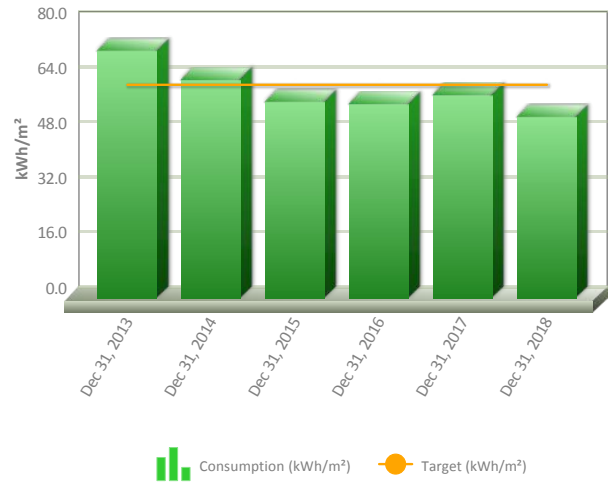
Reliable Controls Corporation - South Annex

Reliable Controls has occupied the LEED platinum South annex for over six years now. During that period, many improvements have been made to the sequence of operation of mechanical and electrical systems. The flexibility of the MACH-System means that changes are easy to implement, and the results are easy to monitor.

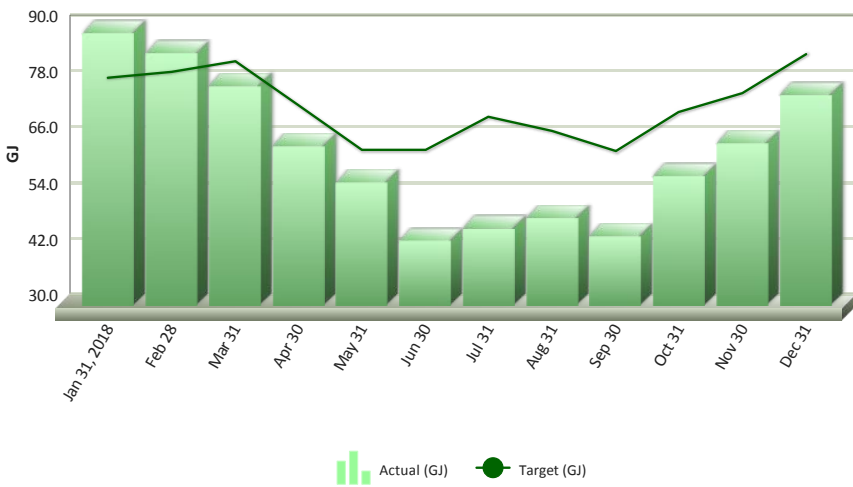
The chart to the right shows the track record for energy consumed from 2013 to 2018, expressed in units of Energy Use Intensity (EUI). In 2018, the EUI was well below the design goal (58.8 kWh/m²), ending with **52.6 kWh/m²**.

The facilities department can't take all the credit, as there were two significant factors contributing to the low energy expenditure. First, we had a year of mild temperatures. August was unusually cool due to smokey skies, and September through December weather was much warmer than recent years. The second factor was the relocation of the entire software department from the South Annex to our new leasehold at 401 Garbally. That happened on June 1st, and the reduction of daily energy consumed in the South Annex was immediate and lasted through December.

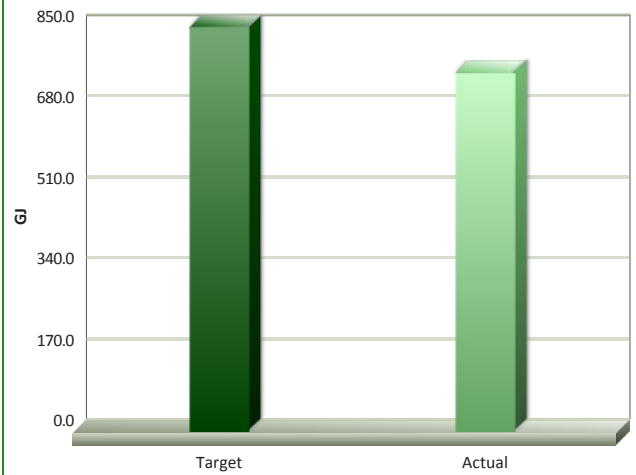
Energy Use Intensity (EUI)



Monthly Energy Consumption



Energy Consumption vs Target



Reliable Controls MACH system calculates a daily target for energy consumption, based on 50% of ASHRAE standard 90.1 (1999), adjusted for actual heating and cooling degree days. Standard 90.1 is used to predict the energy consumption of an energy efficient building in our geographical region.

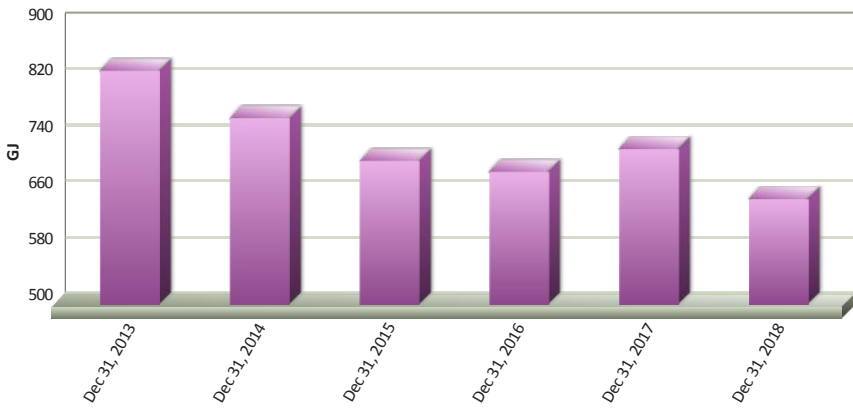
For 2018, the actual energy consumed was **44.2%** of ASHRAE 90.1 (1999), well below our goal.

Although that sounds pretty good, there is a newer version of ASHRAE 90.1, that is much more conservative than the standard that our building was originally built to. In 2019, we will modify the calculation for our daily target to incorporate the latest version of ASHRAE 90.1.

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Electricity

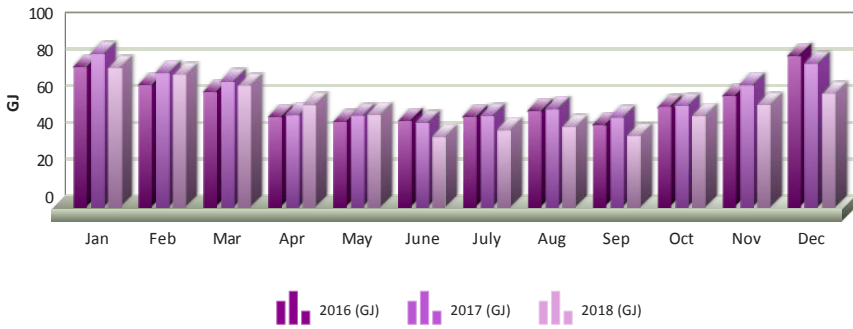
Annual Electrical Consumption



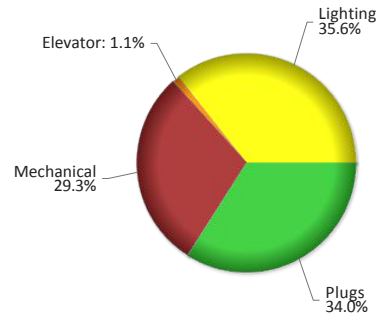
Electrical energy was reduced annually by sequence of operation improvements for the first four years of occupation. In 2017, a cold winter and a sharp increase in the number of occupants combined for an increase in electrical consumption. In 2018, as mentioned above, a reduction in occupants and a year of mild temperatures both contributed to a record year of low energy use.

The pie chart below shows a close race between lighting and plug loads for the greatest category of electricity use, with lighting being the worst offender. In 2019, we plan to invest in further lighting improvements and some degree of plug load control, using wireless EnOcean communication.

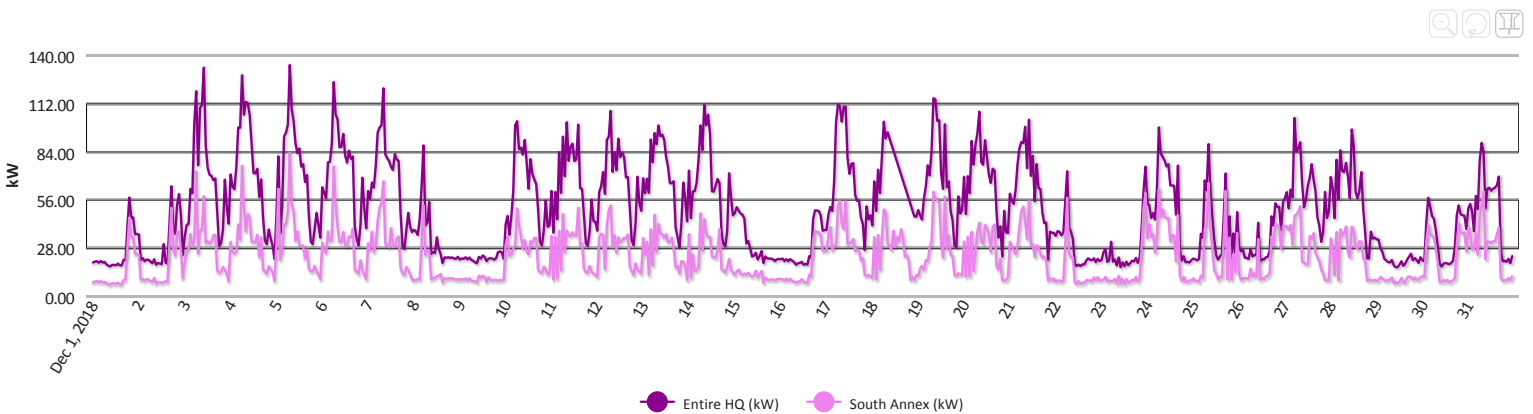
Monthly Electrical Consumption 2016 through 2018



Electrical Consumption Breakdown



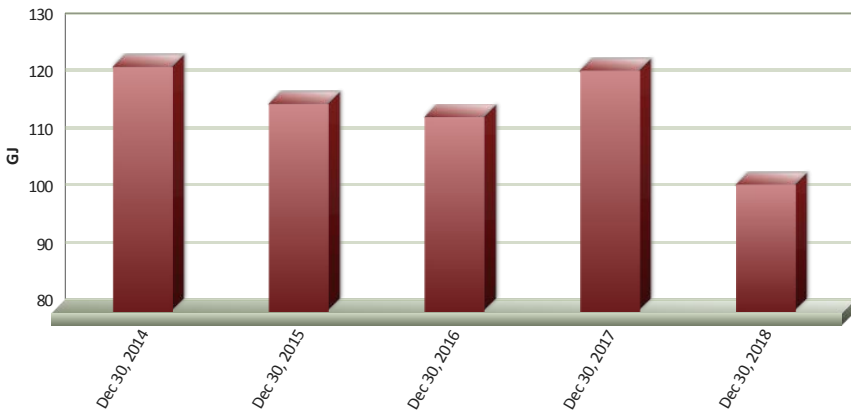
Hourly Electrical Demand



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Natural Gas

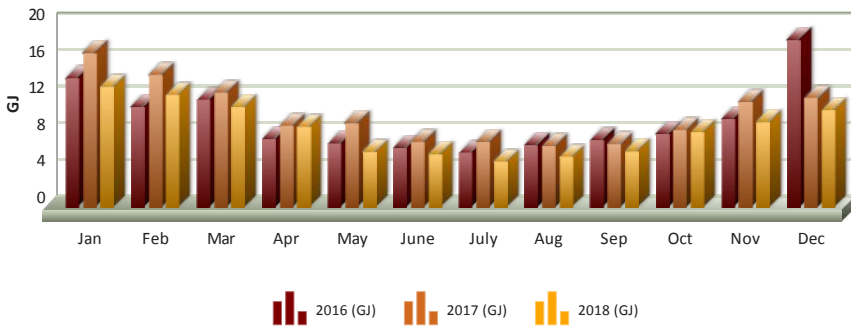
Annual Gas Consumption



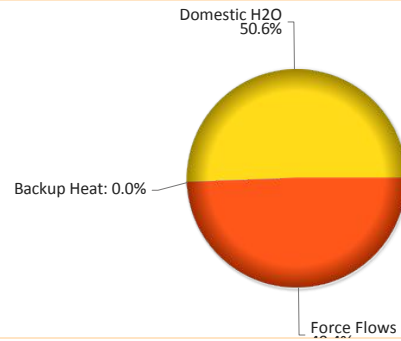
Gas consumption is very low for the South Annex, because all of the floor and ventilation heat is generated with electrical energy, using air source and heat reclaim heat pumps.

Management is unhappy about the three entrance force-flow units, which use a surprising amount of energy! In 2019, a study will be completed to determine if the hydronic force flow units should be replaced with electric units.

Monthly Gas Consumption 2016 through 2018



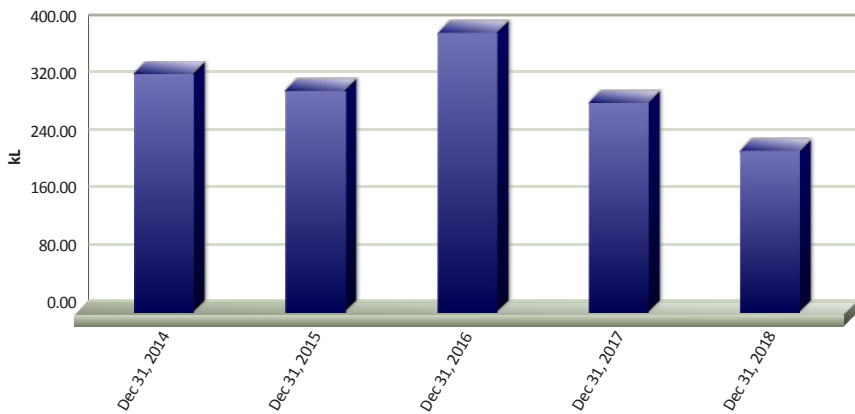
Gas Consumption Breakdown



2018 LEED Performance

Water

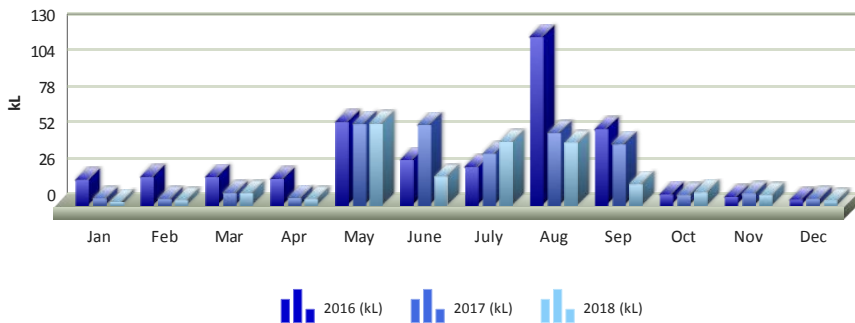
Annual Potable Water Consumption



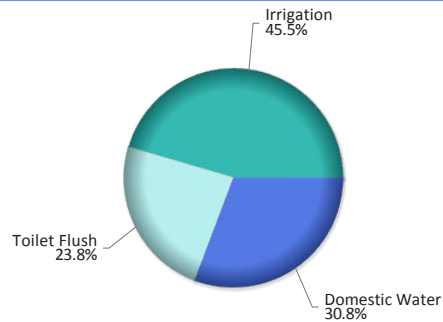
Potable water usage dropped to a new low, however we are aware it should have been lower. Minor operator errors resulted in unnecessary consumption. We will be keeping a close eye on water consumption in 2019. Certainly January started off with plenty of rain to fill our cisterns!

The South Annex has two large cisterns used to store rainwater. One cistern is used to flush toilets, and the other is used for irrigation in the summer.

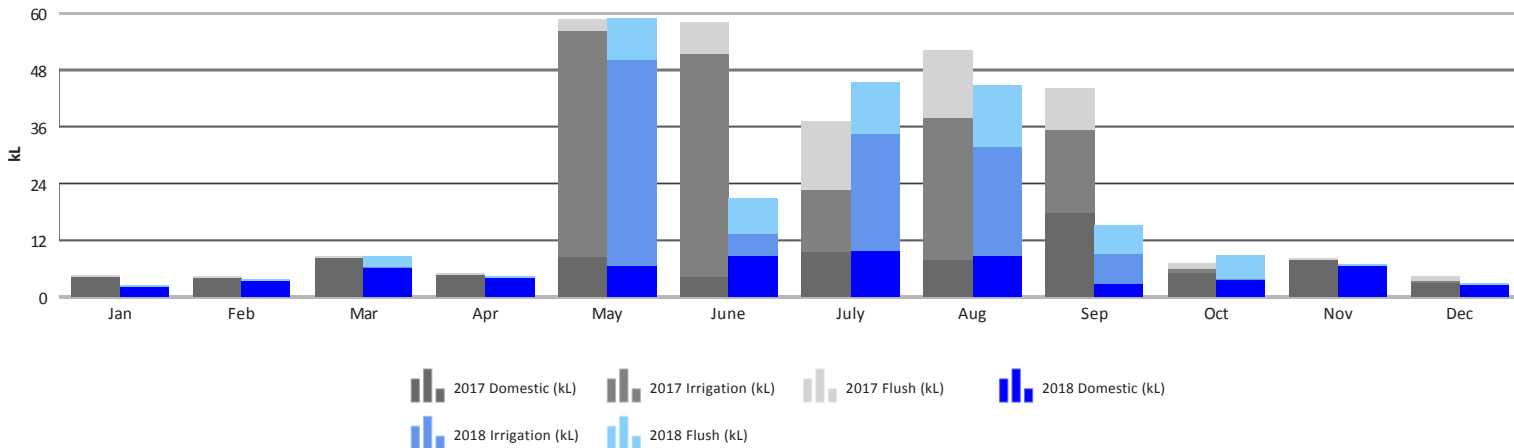
Monthly Potable Water Consumption 2016 through 2018



Potable Water Consumption Breakdown



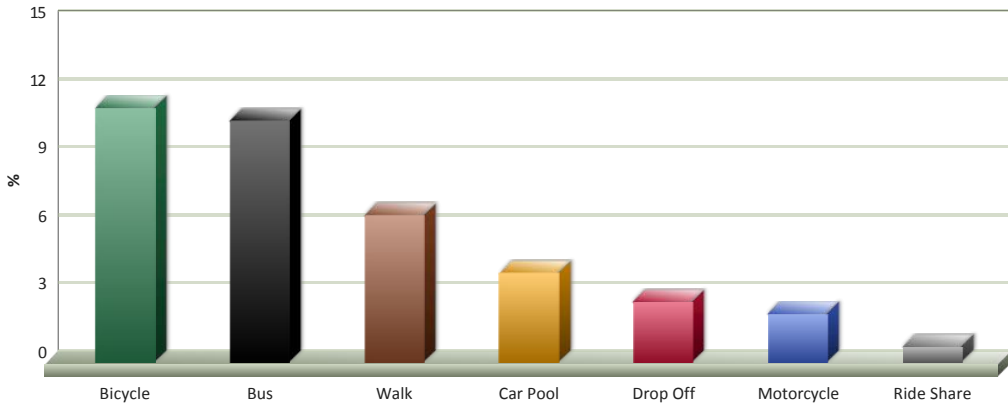
Potable Water Monthly Breakdown 2017 vs 2018



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Transportation

Reliable Controls Employee Alternative Transportation Methods



Reliable Controls encourages employees to use alternative forms of transportation to get to work, and even provides daily compensation for utilizing these methods.

On average, 38% of trips to and from work use alternative forms of transportation, thereby reducing traffic congestion, reducing parking requirements, and decreasing greenhouse gas generation.

Alternative Transportation Methods Trend

