ENGINEERING ECONOMIC ANALYSIS
FOR
Lexington High School

Lexington, MA

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Garcia • Galuska • DeSousa
Consulting Engineers, Inc.
370 Faunce Corner Road
Dartmouth, MA 02747
508-998-5700

CONDITION SURVEY

Existing HVAC Conditions

Executive Summary

To generalize, the existing mechanical systems represent what would have been installed during their original construction period, serving a very specific need of providing temperature and ventilation control with little, if any, attention given to energy conservation. Although the systems are capable in providing the necessary heating and ventilation control, over the years many of the systems have been modified or have failed due to lack of maintenance. This is generally confirmed in a commissioning report which was completed for the school submitted February 1, 2007. Although the commissioning report did not specifically address the classroom unit ventilators, it did inspect the rooftop equipment and the automatic temperature control systems all of which are consistent with the comments that we have provided herein.

Much of the installed steam and condensate piping, we suspect, contain large amounts of sediment which is reducing overall heat transfer. Steam systems in themselves do relate to very high maintenance resulting from the constant replacement of thermostatic traps. These traps, when not maintained will allow the steam to bypass into the condensate system and vent to the exterior of the building which is extremely energy wasteful. All of these operational conditions are now, or have previously occurred, (many traps underwent a replacement program in the last year) and all systems would be considered extremely antiquated and near failure.

Noise is always an issue in a classroom environment and building occupants have manually shut down the classroom unit ventilators from time to time which flood the unit with heat and close the ventilation dampers resulting in overheating and no ventilation. Both of these conditions were a common complaint while touring the building.

As modifications and additions took place over the years a master plan of direction was never in place which would have directed how particular mechanical systems would be applied to the modifications and additions, which is particularly noticeable when buildings F, G, H, and J were constructed. These additions tied into a new hot water distribution piping system with remote boiler plant, which was installed in G building, with no attention given to the existing steam system that had previously been installed in the original buildings. More often than not, these decisions focus around economic considerations which perhaps may not have allowed a more integrated interface with the existing mechanical systems.

In 2000 when a major modification was undertaken in many of the buildings, again, very little attention was given to the existing steam system and a new hot water distribution system was overlaid and operates in parallel to only serve the 2000 equipment.

The rooftop equipment that was installed in both 2000 and 2003 was a complete departure from the baseline systems and were installed to specifically address a particular need of providing air-conditioning to major areas of modification which paid no attention whatsoever to building aesthetics or good engineering practice.

Most importantly, is the need to consider the requirement of the State of

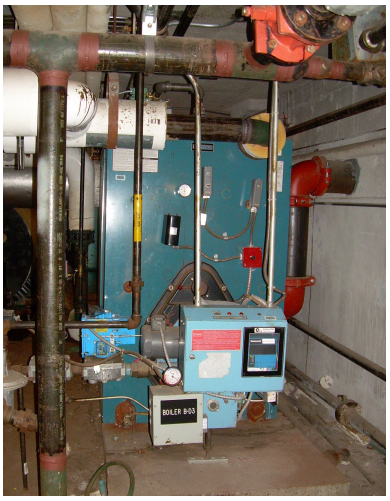
Massachusetts reimbursement program that all systems whether they be modified existing systems or new systems must have a useful life of 30 years to be a consideration for SBAB reimbursement. To think that a deteriorated system could be reused and provide 30 years of useful life would be unrealistic and physically not possible in this building. This, however, should have been a consideration during the building modifications which occurred during 2000 and perhaps may have been overlooked or rejected due to the very high cost which would have been associated with the replacement of the steam system at that time.

In our opinion, the school mechanical systems have received very little preventative maintenance of the HVAC systems over its occupied years. Any maintenance which would have been provided would have included replacement of motors when they would fail, replacement of filters on a minimal basis, and making general repairs as equipment would fail. Even with adequate preventative maintenance, through normal operation systems do gradually deteriorate due to scale, poor water conditions, and lack of preventive maintenance which is primarily the case with the steam system which was originally installed in buildings A, B, C, D, and E. The steam system is accelerating to its point of "maximum serviceable life". While generally speaking, all systems are operating, they are not maintaining reasonable space temperature or ventilation control due to the antiquated nature of the pneumatic automatic temperature control system as well as many of the mechanical systems which were not upgraded during previous renovation projects. There is no evidence of a near catastrophic failure obvious with the present systems, however, systems could be continuously repaired and modified on a sectional basis that will keep the systems operating. Continued operation will be at the expense of increased operating costs due to inefficiency in heat transfer and through the generally antiquated nature of the systems themselves. All original systems installed within building A, B, C, D, and E have exceeded their maximum serviceable life. Ironically, the mechanical upgrades which occurred in 2000 were highly selective to particular areas of the building and did not address in a master plan for coordinated approach with the existing systems. The hearing impaired improvements which are made in 2003 were also highly selective, designed and installed with very little regard for aesthetic appearance as well as good engineering practice.

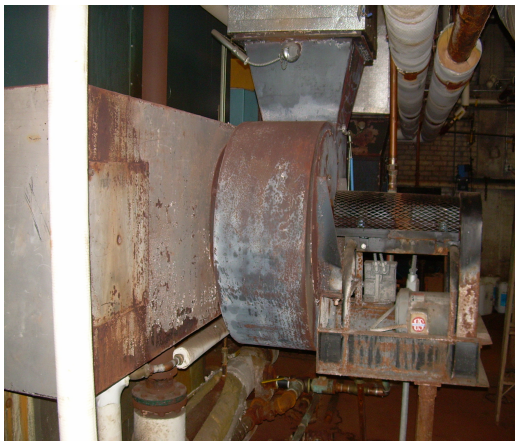
We have provided attached to this report a copy from the ASHRAE guide which indicates the median serviceable life of respective pieces of equipment which make up the original existing heating and ventilating systems within the original buildings. As can be referenced in this table the maximum serviceable life of all systems and equipment had been exceeded.

In buildings G, H, and J, only a percentage of the heating ventilating air-conditioning equipment was replaced, and although the hot water distribution system was adequate and available to be reused, the remaining reused equipment had also reached its maximum serviceable life rendering the operational results of that equipment as very poor. The following pages of this report provide a more detailed description of the mechanical system make up, general condition of the systems, and problematic operational conditions which are contributing poor operational results.

Original Building Powerplant (Building D)



This boiler room is provided with three individual boilers. Boiler #1 and Boiler# 2 are H. B. Smith 650 mils cast iron sectional boilers generating low-pressure steam which tie into the central steam distribution system. Boiler #1 and Boiler# 2 are replacement boilers to the original steam boilers and were installed in approximately 1998. Boiler #3 is a Burnham series V-1110 cast iron sectional boiler which was installed during a 2000 building modification which addressed numerous building renovations in buildings A,B,C,D and E. All hot water piping associated with the 2000 renovation is schedule 40 black steel insulated with fiberglass insulation. The system is provided with a three way compensated water mixing valve which adjust supply water temperature based on outside air temperature, and is distributed to all areas through a primary and standby in-line circulator, as well as air separator and expansion tank. The entire system was noted to be in very good condition and operating as intended. Remaining areas which underwent similar building renovations in 2000 in buildings F,G,H and J are served by a secondary powerplant located in building G. Boiler #1 and Boiler #2 are considered to be in good condition with minor surface contamination and soiling and a very limited amount of nipple leaks at the mud drums of each boiler. The boilers were provided with a purge venting system which is designed to discharge combustibles into the breeching system prior to starting the system. It does appear that the entire purge system is operating as intended. We were advised that Boiler# 2 is presently shut down because of an apparent internal leak which could be related to a fractured section, however, this could not be determined or confirmed. Each boiler communicates to a common overhead header which, through individual branch lines located throughout crawl spaces in each building, provides low-pressure steam throughout the entire building. Low-pressure steam is generated at approximately 10 psi and distributes through a series of schedule 40 black steel piping zones each of which are covered with what appears to be fiberglass insulation with an all service jacket. It appears that the piping has been reinsulated within this boiler room more than likely when the boilers were replaced in 1998. Combustion air for this boiler room is through a single duct which communicates from a wall mounted louver down to approximately 12" above the floor through a galvanized duct. This duct was provided with a motor operated damper which does not appear to operate preventing adequate combustion air to the space. The existing single louver is undersized for the powerplant capacity. As it presently exists the building code requires two individual openings of equal size one high and one low in the space each provided with motor operated dampers. The single louver and undersized nature is resulting in inadequate combustion air flow to the boiler room which could be contributing to carbon monoxide circulation and poor combustion efficiency. Each boiler is provided with all required controls including low water cut offs, boiler switch at the exit door, and all operating safety controls. Boiler #1 and Boiler# 2 are provided with an induced draft fans each of which discharge into a common rectangular steel breeching insulated and covered with an aluminum protective shield. The entire installation is in very good condition and appears to be of proper size. The breeching from Boiler #3 is also insulated steel with a protective covering and was also noted to be in good condition, however, the entire horizontal length of breeching installed is in excess good engineering practice as well as code



requirements as compared to the overall chimney height. Boiler #3 is not provided with an induced draft fan or barometric damper which discharges into the same chimney as Boiler #1 and Boiler# 2. In addition to the excessive horizontal friction, this could potentially create a back flow condition created by the positive pressure in the chimney since Boiler #3 is designed to operate under a neutral draft condition its outlet connection. The (2) breeching systems connect directly to a masonry chimney which appears to be of adequate height for the combustion served. It does not appear that the masonry chimney was provided with a cleanout door at the base. Each boiler burner unit is of the single fuel natural gas type and the regulators on each gas train are vented per code requirements to the exterior of the building. Condensate is returned to a central area at the rear of the boiler room originally designed to a vacuum system where all condensate was discharged to an adjacent floor mounted steel insulated boiler feed tank. Condensate is feed to each boiler from the feed water system by two individual feedwater pumps, one to each boiler. A third feed water pump is also provided as a manual backup in the event of a failure in either of the primary pumps, and it was noted that one of the (3) pumps is leaking excessively resulting in extensive water "ponding" on the floor. In recent years, the condensate vacuum return system has been removed from service (abandoned in-place) and condensate from the building is allowed to flow back to the boiler room by gravity pressure. This condition has resulted in a "waterlogged" return with the condensate return main installed at an elevation below the boiler room floor. Much of the feed water piping appears to be original and is insulated. There are suspicions that much of the condensate vacuum return piping could be perforated as was noted by amounts of pipe being recently replaced and presumably the inability of the vacuum return system to maintain adequate vacuum. There was no blowdown piping indicated within the boiler room and without proper blowdown in the boilers, extensive sludge and interior surface contamination will accumulate. Automatic temperature controls for the original building are of the pneumatic type, and the system is provided with a single storage tank with duel tank mounted compressors and motors which appear to have been recently installed. In an adjacent space to the air storage tank is a refrigerated air dryer with oil and water separators which were noted to be in extremely poor condition. It appears that duel day / night pressures are being maintained for occupied / unoccupied control. The pneumatic distribution system is of the combination copper and poly-vinyl tubing type and all systems are extremely antiquated. It does appear that modifications have taken place in the automatic temperature control system since the original building was built which has included a direct digital control interface which appears to be the control source for the renovations which took place in 2000. No major modifications appear to have taken place in the boiler room with the exception of new steam boilers and the addition of Boiler # 3 which serves the 2000 renovations only.

Boilers:

Boiler #1 and Boiler #2, although only 10 years old, are showing surface contamination on the mud drums as well as rusting indicating leaks at the nipples between the cast iron sections and the mud drums. The boilers have surface contamination around the base edges however it does not appear to be effecting overall system operation. Boiler #1 contains an internal water leak and is presently not operating which could result in a lack of overall building capacity during design winter days.

Blowdown:
There are no blowdown systems installed for either boiler

Breeching:
The horizontal breeching system associated with Boiler #3 appears to be well in excess of code and industry standards and should be investigated further. Minor structural cracks were noted in the masonry chimney at the base of the breeching thimble and should be investigated further by a structural engineer. The masonry chimney should also be investigated for the presence of an internal liner.

Condensate Return System:
The condensate return piping is contaminated on the surface and the sections of the piping should be examined internally for the presence of corrosion and perforation. There is severe contamination on the surface of the vacuum return system and boiler feed water tank. The condensate return main is flooded as a result of abandoning the vacuum system. One boiler feed water pump is leaking severely. Extensive damage to the insulation on the condensate piping between the feed water system and the boilers.

Combustion Air:
The combustion air intake system is undersized and does require a secondary combustion air intake as well as motor operated dampers on each opening.

Automatic Temperature Controls:
Extensive surface contamination and oil leaks were noted on the compressed air supply tank. The refrigerated air dryer and oil and water separators are severely contaminated and it does appear that oil and water have entered the compressed air supply potentially rendering the compressed air supply inoperative. Extremely antiquated automatic temperature control board.

Addition Building Powerplant (Building G)

The powerplant consists of three Burnham model KV1123WML cast iron sectional boilers which were installed during the 2000 renovation. The boilers are provided with Powerflame burners and operate on natural gas only. The gas trains are provided with various pressure regulators all of which are vented by code to the exterior of the building. Each boiler is provided with single low water cut off's and all operating and safety controls and generates heating hot water at approximately 200° which is controlled by individual aquastats on each boiler. The boilers were noted to be in good condition, however, it was noted they have slight surface contamination on the boiler jackets and along the mud drums at the base of each boiler. The noted surface contamination is not causing an operational problem nor is it evidence of a more widespread problematic condition.

Heating hot water is generated at approximately 200°, which is adjusted by a compensated water mixing valve controlled by outside air temperature. The heating hot water is circulated throughout the boiler room and the entire building through a fiberglass insulated schedule 40 black steel piping system.

Heating hot water is distributed to building F, G, H, and J by two primary base mounted end suction distribution pumps. A third identical pump is provided in the center of the two primary pumps which serves as a standby which is intended to be manually controlled in the event of a primary pump failure. If this assumption is correct the secondary pump is incorrectly valved and will not allow complete isolation of either of the

adjacent primary pumps. This condition should be investigated further. The overall condition of all piping and insulation appears very good and operating as intended. Adjacent to the pumps is a floor mounted tangential separator which is of adequate capacity for the powerplant served. It was noted that there was surface contamination on the pressure vessel and was not insulated.

Breeching from boilers is through a a premanufactured positive pressure breeching system which ties into an existing masonry chimney. The overall developed length of the horizontal breeching as compared to the overall chimney height is well in excess of good engineering practice. The system friction as compared to the available stack effect of the vertical chimney will not overcome the associated pressure drop in backpressure will occur. We have been advised that carbon monoxide discharge within the boiler room was problematic in the past which could be the result of the in correct design. It appears that an induced a draft fan was installed at the top of the chimney to increase available pressure and as we understand it has corrected the problem. We could not determine if a flue liner was in place in the existing masonry chimney which should be investigated further.

Combustion air for the boiler room is provided by a single air handling unit located at the ceiling of the boiler room. The unit is provided with 100% outside air, filters, hot water coil with face and bypass control, supply fan, and a limited length of supply ductwork which provides air to the boiler room when either of the three boilers are energized. Both the outside air duct and supply duct to the space are galvanized steel both of which are insulated with rigid fiberglass insulation. The system does operate and does appear to be of adequate capacity for the overall combustion system.

Expanded water due to heating is controlled through (3) air elimination tanks which are located at the ceiling of the boiler room. The expansion tanks were not insulated and do appear adequate to maintain the entire system expansion requirements as well is air elimination. Each tank was noted to be in good condition.

The automatic temperature control is of the pneumatic design. Located within the boiler room is a single air storage tank with dual tank mounted compressors and motors which generates compressed air for distribution through a dual pressure day night control system. Located on the adjacent wall is a refrigerated air dryer with oil water separators as well as pressure regulators. Compressed air circulates throughout the boiler room and the building thru a combination of copper tubing and polyvinyl tubing to the individual control devices. It does appear that this automatic temperature control system is also original to the building and it was noted that the compressed air tank does have excessive surface contamination, as does the adjacent control devices. The air tank or refrigerated air dryer did not have a condensate discharge receptor. Considering the age and antiquated nature consideration should be given to upgrading.

Pumps:
It appears that the pumps are incorrectly valved for primary/standby operation.

Breeching:
The escessive horizontal breeching length friction cannot be overcome by the chimney height which will result in carbon monoxide discharge to the space. This has been addressed by adding an induced draft fan on the existing chimney. Cannot confirm if a flue liner is in place.

Automatic Temperature Controls:
Surface contamination and oil leaks were noted on the compressed air supply tank. The refrigerated air dryer and oil water separators are slightly contaminated.

Building A

Classrooms:

The typical classrooms are provided with a wall mounted classroom unit ventilators which are the original equipment installed when the building was built in approximately 1962. The unit ventilators are provided with a wall mounted intake louver for the introduction of outside ventilation air which was upgraded during the 2000 renovation, filters, supply fan, and a steam heating coil with valve control. The unit ventilators provide a source of heated and ventilated air to the entire classroom area. Located adjacent to the unit ventilators is fin tube radiation which is located within the masonry wall which is provided with a discharge and inlet grille. The radiation was installed during the original building construction and does appear to operate. The radiation ties into the adjacent unit ventilator piping which ultimately ties into the low-pressure steam distribution system. A single wall mounted pneumatic thermostat controls the unit ventilator and fin tube radiation which was noted to be extremely antiquated. Also located in various classrooms are exhaust registers which were noted to be extremely antiquated some of which appear to have been abandoned in-place. In their place are ceiling exhaust registers which tie into the existing galvanized sheet-metal exhaust ductwork. Groups of classrooms tying into various exhaust systems which traveled vertically to the roof and terminates at roof mounted exhaust fans. All exhaust systems were operating and all exhaust fans were noted to be like new and in very good condition and appear to be maintaining code compliant ventilation requirements. The original building also included fin tube radiation which tied into the existing steam distribution and system, however, during the 2000 renovation the majority of this steam radiation was removed from service. The existing branch piping which travels vertically between the floors was left in place and capped as necessary. During the 2000 renovation a modification occurred to what is known as the computer area which included a new roof mounted HVAC unit with variable air volume control terminals controlled by new electronic thermostats. The variable air volume boxes are provided with hot water heating coils which tie into the hot water supply and return piping system, also installed in 2000, which travels throughout the crawl space. New fin tube radiation was also installed along the exterior wall and this also ties into the hot water supply and return piping system. Electronic controls are provided including modulating hot water valve and space sensors for control. An above ceiling galvanized ductwork supply distribution system provides supply air to the areas. The new rooftop HVAC equipment is provided with direct expansion cooling coil and a hot water heating coil with a supply fan, filters, and a direct supply of outside and return air. The unit is also provided with a variable frequency drive which slows the supply fan in response to rising system pressures. The heating hot water piping located within the rooftop unit is not insulated. During 2003 a renovation occurred to incorporate what is known as a hearing impaired area which took out of service the classroom unit ventilators in classrooms 240, 241, 242, and 244 and provided a new roof mounted HVAC unit with variable air volume control terminals controlled by new electronic thermostats. The variable air volume boxes are provided with hot water heating coils which tie into the hot water supply and return piping system, installed in the 2000 renovation. An above ceiling galvanized ductwork supply distribution system provides supply air to the areas. The new rooftop HVAC equipment is provided with direct expansion cooling coil and a hot water heating coil with a supply fan, filters, and a direct supply of outside and return air. The unit is also provided with a variable frequency drive which slows the supply fan in response to rising system pressures. The ductwork

in both systems, to a varying degree, is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork. We were advised that the heating system is required to operate during summer seasons to melt the ice which forms on the cooling coils which appears to be the result of a reduced airflow through the air handling unit. This condition should be investigated further to rebalance the system and provide the necessary controls to prevent the ice and reduce hot water system energy consumption. In classrooms 240, 241, 242, and 244 the variable air volume equipment is reducing the total air flow to the space when temperatures are satisfied and could result in rising carbon dioxide levels above code required limitations due to the high population in each space.

Corridors:
Each corridor was provided with a wall mounted classroom unit ventilator which was installed during the 2000 renovation. The unit ventilators are provided with a wall mounted intake louver for the introduction of outside ventilation air, filters, supply fan, and a steam heating coil with valve control. The unit ventilators provide a source of heated and ventilated air to the entire corridor m area. A single wall mounted pneumatic thermostat controls the unit ventilator which was noted to be in good condition. Also located in the corridors are wall exhaust registers which were also noted to be in good condition. The registers tie into the existing galvanized sheet-metal exhaust ductwork which terminates at roof the mounted exhaust fans.

Classroom unit ventilators:
The classroom unit ventilators throughout the classroom spaces are extremely antiquated and were noted to be dirty and slightly damaged. It does appear that the control system is controlling the steam flow through the classroom unit ventilators, however, the pneumatic control system is extremely antiquated. In classrooms 240, 241, 242, and 244, the classroom unit ventilators have been abandoned in-place. The exhaust registers in all classrooms contained surface soiling many of which are covered with bookcases preventing adequate ventilation control.

Rooftop units:
The rooftop units are experiencing a reduced airflow resulting in ice formation and the need to run heating during summer seasons. The supply and return ductwork in the area of the rooftop equipment is exposed on the roof and to a varying degree the ductwork insulation has become dislodged from the system and is exposing the sheetmetal to weather conditions. The close relationship of supply diffusers to return air registers is resulting in a percentage of the total supply air as ineffective. Circulating hot water into the rooftop equipment could potentially freeze coil and piping during winter conditions.

Crawl Spaces:
The crawl space throughout building "A" is not provided with any form of vapor barrier nor is it provided with code required ventilation openings. Excessive dampness was noted throughout.

Building B

Classrooms:
The typical second-floor classrooms are provided with a wall mounted classroom unit ventilators which are the original equipment installed when the building was built in approximately 1962. The unit ventilators are

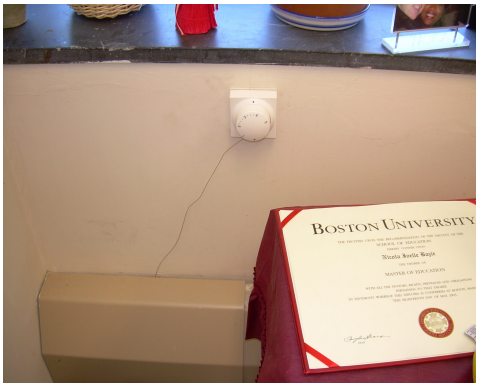
provided with a wall mounted intake louver for the introduction of outside ventilation air which was upgraded during the 2000 renovation, filters, supply fan, and a steam heating coil with valve control. The unit ventilators provide a source of heated and ventilated air to the entire classroom area. A single wall mounted pneumatic thermostat controls the unit ventilator which was noted to be extremely antiquated. Also located in the classrooms are wall exhaust registers which were noted to be extremely antiquated. The exhaust registers tie into the existing galvanized sheet-metal exhaust ductwork. Groups of classrooms tie into various exhaust systems which travel vertically to the roof and terminat at roof mounted exhaust fans. All exhaust systems were operating and all exhaust fans were noted to be like new and in very good condition and appear to be maintaining code compliant ventilation requirements. A hot water supply and return piping system, also installed in 2000, travels throughout the crawl space and feeds vertically to the second-floor ceilings space which feeds to roof mounted air-conditioning systems.

(2) first-floor classrooms are provided with a wall mounted classroom unit ventilators which are the original equipment installed when the building was built in approximately 1962. The unit ventilators are provided with a wall mounted intake louver for the introduction of outside ventilation air which was upgraded during the 2000 renovation, filters, supply fan, and a steam heating coil with valve control. The unit ventilators provide a source of heated and ventilated air to the entire classroom area. A single wall mounted pneumatic thermostat controls the unit ventilator which was noted to be extremely antiquated. Also located in the classrooms are wall exhaust registers which were noted to be extremely antiquated. The exhaust registers tie into the existing galvanized sheet-metal exhaust ductwork. Groups of classrooms tie into various exhaust systems which travel vertically to the roof and terminat at roof mounted exhaust fans. All exhaust systems were operating and all exhaust fans were noted to be like new and in very good condition and appear to be maintaining code compliant ventilation requirements.

The first-floor classrooms which border the media center addition had the wall mounted classroom unit ventilators removed in the 2000 renovation and a new variable air volume supply system including galvanized sheetmetal supply ductwork with variable air volume boxes with hot water heating coils were provided in their place. Electronic controls are provided including modulating hot water valve and space sensors for control. The variable air volume equipment is reducing the total air flow to the space when temperatures are satisfied and could result in rising carbon dioxide levels above code required limitations due to the high population in each space. Complaints were brought to our attention of widely varying temperatures and poor overall air-quality within the spaces. Return air is drawn back from ceiling return air registers through a galvanized sheet-metal return system to the rooftop unit. The close relationship of the supply and return registers is short cycling the supply within the space limiting the effectiveness of the air circulation within each space. A new rooftop HVAC unit was provided in the 2000 renovation which includes a direct expansion cooling coil and a hot water heating coil with a supply fan, filters, and a direct supply of outside and return air. The unit is also provided with a variable frequency drive which slows the supply fan in response to rising system pressures. The ductwork in both systems, to a varying degree, is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork. We were advised that the heating system is required to operate during summer seasons to melt the ice which forms on the cooling coils which appears to be the result of a reduced airflow through the air handling unit. This condition should be investigated further to rebalance the system and provide the necessary controls to prevent the ice and reduce hot water

system energy consumption.
The audiovisual area which is adjacent to the media center addition had the wall mounted classroom unit ventilators removed in the 2000 renovation and a new variable air volume supply system including galvanized sheetmetal supply ductwork with variable air volume boxes with hot water heating coils were provided in their place. Electronic controls are provided including modulating hot water valve and space sensors for control. Complaints were brought to our attention of widely varying temperatures and poor overall air-quality within the spaces. Return air is drawn back from ceiling return air registers through a galvanized sheet-metal return system to the rooftop unit. The close relationship of the supply and return registers is short cycling the supply within the space limiting the effectiveness of the air circulation within each space. A new rooftop HVAC unit was provided in the 2000 renovation which includes a direct expansion cooling coil and a hot water heating coil with a supply fan, filters, and a direct supply of outside and return air. The unit is also provided with a variable frequency drive which slows the supply fan in response to rising system pressures. The ductwork in both systems, to a varying degree, is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork. We were advised that the heating system is required to operate during summer seasons to melt the ice which forms on the cooling coils which appears to be the result of a reduced airflow through the air handling unit. This condition should be investigated further to rebalance the system and provide the necessary controls to prevent the ice and reduce hot water system energy consumption.

Guidance Area:
The guidance area which is opposite of the media center had the wall mounted classroom unit ventilators removed in the 2000 renovation and a new variable air volume supply system including galvanized sheetmetal supply ductwork with variable air volume boxes with hot water heating coils were provided in their place which serves a number of smaller offices and counseling spaces. Electronic controls are provided including modulating hot water valve and space sensors for control. Complaints were brought to our attention of widely varying temperatures and poor overall air-quality within the spaces. Return air is drawn back from ceiling return air registers through a galvanized sheet-metal return system to the rooftop unit. The close relationship of the supply and return registers is short cycling the supply within the space limiting the effectiveness of the air circulation within each space. (2) new rooftop HVAC unit were provided in the 2000 renovation which includes a direct expansion cooling coil and a hot water heating coil with a supply fan, filters, and a direct supply of outside and return air. The unit is also provided with a variable frequency drive which slows the supply fan in response to rising system pressures. The ductwork in both systems, to a varying degree, is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork. We were advised that the heating system is required to operate during summer seasons to melt the ice which forms on the cooling coils which appears to be the result of a reduced airflow through the air handling unit. This condition should be investigated further to rebalance the system and provide the necessary controls to prevent the ice and reduce hot water system energy consumption. One access door on both units cannot be opened completely due to interference with the associated roof mounted ductwork. Along the exterior wall is new fin tube radiation which ties into the hot water system, was also installed during the 2000 renovation, and is provided with electronic modulating control valves which tie into the space sensor. A number of non electric self-contained control valves were installed on the fin tube radiation



suggesting that the pneumatic control system is not controlling the fin tube radiation properly.

Media center:
The media center is provided with a standalone single zone rooftop heating ventilating air-conditioning unit which is located on the second-floor over the classrooms. The unit is provided with direct expansion cooling, outside and return air dampers, a supply fan and filters. The unit is also provided with a steam heating coil which ties into the existing building steam and condensate distribution system. A galvanized steel supply and return ductwork system is provided for distribution of air throughout the entire space. The entire system was installed during the 2000 renovation and with the exception of minor surface soiling the system is noted to be in good condition and operating as intended. We do believe that additional control should have been provided considering the very large area served and the style of linear diffusers installed in the open areas is resulting in a very drafty supply air condition.

Classroom unit ventilators:
The classroom unit ventilators throughout the classroom spaces are extremely antiquated and were noted to be dirty and slightly damaged. It does appear that the control system is controlling the steam flow through the classroom unit ventilators, however, the pneumatic control system is extremely antiquated. The exhaust registers in all classrooms contained surface soiling many of which are covered with bookcases preventing adequate ventilation control.

Rooftop units:
The rooftop units are experiencing a reduced airflow resulting in ice formation and the need to run heating during summer seasons. The supply and return ductwork in the area of the rooftop equipment is exposed on the roof and to a varying degree the ductwork insulation has become dislodged from the system and is exposing the sheetmetal to weather conditions. . One access door on both units cannot be opened completely due to interference with the associated roof mounted ductwork. The close relationship of supply diffusers to return air registers is resulting in a percentage of the total supply air as ineffective. Circulating hot water (as well as steam and condensate) into the rooftop equipment could potentially freeze coil and piping during winter conditions. Linear diffusers installed in the media center are extremely drafty. A generalized surface soiling on all diffusers and registers.

Corridors:
The second-floor corridors were provided with exhaust ventilation, however, no outside air was provided to meet building code requirements. Extremely antiquated fin tube radiation and pneumatic controls.

Crawl Spaces:
The crawl space throughout building "B" is not provided with any form of vapor barrier nor is it provided with code required ventilation openings. Excessive dampness was noted throughout.

Building C

Common areas:
Common Area 1, (also known as a cafeteria), is provided with a standalone single zone rooftop heating and ventilating unit which is located on the first-floor roof adjacent to the area served. The unit is provided outside and return air dampers, a supply fan and filters, and is also provided with a steam heating coil which ties into the existing building steam and condensate distribution system. A galvanized steel supply and return ductwork system is provided above the ceiling for distribution of air throughout the entire space. Both the supply and return air registers are located adjacent to one another in the ceiling which is short cycling a percentage of the air reducing overall ventilation effectiveness. The entire system was installed during the 2000 renovation and with the exception of minor surface soiling the system is noted to be in good condition and operating as intended. It does appear that the amount of outside air provided for ventilation is undersized for the population of the space. Located along each exterior wall is a continuous length of fin tube radiation which ties into the low-pressure steam distribution system located in the crawl space. The exterior finish of the fin cover was noted to have extensive surface damage in soiling. The exterior doors were not provided with any means of draft protection or door heaters.

Serving area:
The serving area is provided with ceiling diffusers for make-up air and general area ventilation which is an extension from the heating and ventilation unit serving the adjacent common area. Exhaust ductwork and ceiling registers are located over the food line which is intended to control food odors however the amount of air provided as supply is well undersized for the area served in both the supply and return as located at the ceiling is short-circuiting a percentage of the supply air reducing the overall effectiveness of the air within the space. The ductwork and supply diffusers were upgraded in the 2000 renovation project.

Warehousing and custodial area:
The warehousing and custodial area was generally upgraded during the 2000 renovation to include new fin tube radiation as well as wall mounted classroom unit ventilators for each occupied area, each of which ties into the steam and condensate system located within the crawl space. A limited amount of exhaust ventilation was provided for existing toilets and storage rooms all of which appears to be code compliant. It was noted that there was slight surface soiling on much of the new equipment, and much of the ductwork is exposed within the spaces. Door entrances were provided with a combination of cabinet unit heaters and horizontal unit heaters for overall draft control and does appear to work adequately.

Stairways and vestibules:
The stairways and vestibules were provided with a limited amount of convection heat which ties into the existing low-pressure steam system located within the crawlspace. The convectors were not upgraded during the 2000 renovation many of which had surface damage and extensive soiling and in at least one case the heater had been removed in the doorway is unprotected.

Crawl Spaces:
The crawl space throughout building "C" is not provided with any form of vapor barrier nor is it provided with code required ventilation openings. Excessive dampness was noted throughout.

Stairways and vestibules:
The convectors were not upgraded during the 2000 renovation

many of which had surface damage and extensive soiling and in at least one case the heater had been removed and the doorway is unprotected.

Building D

Common areas:
Common Area 2, (also known as a cafeteria) is provided with a standalone single zone rooftop heating and ventilating unit which is located on the first-floor roof adjacent to the area served. The unit is provided with outside and return air dampers, a supply fan and filters, and is also provided with a steam heating coil which ties into the existing building steam and condensate distribution system.. A galvanized steel supply and return ductwork system is provided for distribution of air throughout the entire space. Both the supply and return air registers are located adjacent to one another in the ceiling which is short cycling a percentage of the air reducing overall ventilation effectiveness. The entire system was installed during the 2000 renovation and with the exception of minor surface soiling the system is noted to be in good condition and operating as intended. It does appear that the amount of outside air provided for ventilation is undersized for the population of the space. Located the one exterior wall is a continuous length of fin tube radiation which does not appear to have been upgraded during the recent renovation. The radiation ties into the low-pressure steam distribution system located in the crawl space. The exterior finish of the fin cover was noted to have extensive surface damage in soiling. The exterior doors were provided with draft protection door heaters at the ceiling and also ties into the low-pressure steam system located in the crawl space. The door heaters were noted to be in good condition.

Serving area:
The serving area is provided with multiple ceiling diffusers for make-up air and general area ventilation which is an extension from the heating and ventilation unit serving the adjacent common area. Exhaust ductwork and ceiling registers are located over the food line which is intended to control food odors and the amount of air provided as supply is adequate for the area served. Both the supply and returns registers located at the ceiling are short-circuiting a percentage of the supply air reducing the overall effectiveness of the air within the space. The ductwork and supply diffusers were upgraded in the 2000 renovation project and noted to be in good condition.

Kitchen area:
Gnerally speaking the kitchen area was not upgraded during the 2000 renovation and all existing convectors, fin tube radiation, exhaust systems, and (2) exhaust hoods appears to have been installed during the original construction of the space. One exhaust fan is suspended from the ceiling above and was not provided with any means of grease collection nor were access doors for ductwork cleaning installed. The exhaust hoods were provided with removable cartridge filters and incandescent vaportight lighting, however, were not provided with fire protection systems. All systems were noted to have surface soiling and slight damage and are somewhat antiquated, however, do appear to operate and maintain reasonable space temperature and ventilation control. All fin tube radiation and convectors tie into the existing steam system located in the crawl space. Make up air for the kitchen hoods is through a horizontal discharge 100% outside air, air handling unit located at the ceiling of an adjacent storage room. The unit is in a complete state of disrepair with

casing panels missing and is completely inoperative. Considering this condition, the exhaust hoods are not receiving the proper make up air and therefore code compliant exhaust from the hood is not being maintained.

Administration Area:

The administration area is provided with a new variable air volume supply system including galvanized sheetmetal supply ductwork with variable air volume boxes with hot water heating coils. Electronic controls are provided including modulating hot water valve and space sensors for control. Complaints were brought to our attention of widely varying temperatures and poor overall air-quality within the spaces. Return air is drawn back from ceiling return air registers through a galvanized sheet-metal return system to the rooftop unit. The close relationship of the supply and return registers is short cycling the supply within the space limiting the effectiveness of the air circulation within each space. A new rooftop HVAC unit was provided in the 2000 renovation which includes a direct expansion cooling coil and a hot water heating coil with a supply fan, filters, and a direct supply of outside and return air. The unit is also provided with a variable frequency drive which slows the supply fan in response to rising system pressures. We were advised that the heating system is required to operate during summer seasons to melt the ice which forms on the cooling coils which appears to be the result of a reduced airflow through the air handling unit. This condition should be investigated further to rebalance the system and provide the necessary controls to prevent the ice and reduce hot water system energy consumption. Also during the 2000 renovation the existing steam convectors were removed and new hot water fin tube radiation was installed in its place. The radiation was noted to be in good condition however, widely varying temperatures where indicated by the space occupants which does suggest poorly operating controls or possibly incorrectly designed air-conditioning air flows.

Corridors And Vestibules:

The communicating corridor outside of the administration area was not provided with any heating of ventilation air. The main vestibule was provided with wall mounted convectors which were installed during the original building construction which tie into the low-pressure steam distribution system in the crawl space. The convectors are had extensive surface soiling, slight damage, and are undersized for the application and area served.

Auditorium:

The auditorium is served by a single heating and ventilating and air conditioning unit located above the ceiling to the side of the stage area. The air-handling unit provides heated, ventilated, and air-conditioned air through an overhead distribution system which is of the galvanized sheet metal design. All ceiling diffusers located throughout the auditorium appear to be adequately spaced for the distribution of air and all return for the auditorium appears to be through individual return registers located at the base of the stage. The air-handling unit is provided with a source of outside ventilation air by wall mounted louvers and return air is drawn back directly at the air-handling unit by an adjacent return air fan where the two air streams are mixed and redistributed. The distance between the exhaust air louver and the outside air intake louver is not compliant with building code requirements and the adjacency of the two louvers could create cross contamination of air flows. It does appear that the entire volume of air being provided to the auditorium is adequate for the population and does appear to meet the code required amount of outside air. It does not

appear that any low wall exhaust or return air is drawn from the stage which could stratify supply air at the ceiling. The supply air handling unit and the return air fan where both replaced during the 2000 renovation, however, the entire distribution system is existing and installed during the original building construction. We could not determine if the existing ductwork was insulated, and is required, to prevent surface condensation on the ductwork. The stage area receives supply air from the same air handling unit which feeds the auditorium which could result in automatic temperature control problems relating to the extremely high heat gain associated with the lights of the stage and the inability to address the supply air temperature to compensate correctly. At the rear of the stage approximately 15 feet above the floor are a series of smoke relief louvers and dampers which were noted to be partially open. These louvers and dampers were also installed during the original building construction and were not upgraded during the renovation project. It was brought to our attention that peeling paint has been a nuisance occurrence which could be related to the constant introduction of a high vapor pressure through the partially open louvers at the stage and the formation of surface moisture on the ceiling from the adjacent cold air coming in contact with surfaces during air-conditioning seasons.

Classrooms:

The typical second-floor classrooms are provided with a wall mounted classroom unit ventilators which are the original equipment installed when the building was built in approximately 1962. The unit ventilators are provided with a wall mounted intake louver for the introduction of outside ventilation air which was upgraded during the 2000 renovation, filters, supply fan, and a steam heating coil with valve control. The unit ventilators provide a source of heated and ventilated air to the entire classroom area. A single wall mounted pneumatic thermostat controls the unit ventilator which was noted to be extremely antiquated. Also located in the classrooms are wall exhaust registers which were noted to be extremely antiquated. The exhaust registers tie into the existing galvanized sheet-metal exhaust ductwork. Groups of classrooms tie into various exhaust systems which travel vertically to the roof and terminat at roof mounted exhaust fans. All exhaust systems were operating and all exhaust fans were noted to be like new and in very good condition and appear to be maintaining code compliant ventilation requirements. During 2003, a renovation occurred to incorporate what is known as a hearing impaired area which took out of service the classroom unit ventilator in classroom D-213 and provided a new roof mounted HVAC unit controlled by a new electronic thermostat. An exposed ceiling galvanized ductwork supply distribution system provides supply air to the area. The new rooftop HVAC equipment is provided with direct expansion cooling coil and a gas-fired heat exchanger for heating, supply fan, filters, and a direct supply of outside and return air. The distribution system appears to be of adequate size and capacity for the area served. The ductwork is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork.

Art classrooms

The art classrooms are served by a combination of systems including air handling unit suspended from the ceiling of which appeared to be 100% recirculation air and air provided with direct expansion cooling, wall mounted in ceiling suspended classroom unit ventilators all of which were installed during the original building construction none of which appear to operate, and cast-iron radiation with non-electric self-contained control valves which tie into the low-pressure steam distribution system all of

which appear to have been disconnected from service. All systems were noted to have extensive surface soiling and damage in a mechanical systems in each of the spaces are generally in a state of disrepair. One art room is provided with a kiln with an overhead heat exhaust hood which is vented by a roof mounted exhaust fan through exposed galvanized sheetmetal. The system does not appear to operate.

Music classroom D217

The music classroom is served by an individual heating and ventilating and air conditioning unit located in an adjacent storage room suspended from the ceiling structure. The air-handling unit provides heated, ventilated, and air-conditioned air through an overhead distribution system which is of the galvanized sheet metal design. The air handling unit appears to be designed without economizer control and is provided only with a fixed amount of minimum outside ventilation air. This will require the associated condensing unit to be provided with low ambient control to allow four season air-conditioning which is required due to the heat rejection from the adjacent boiler chimney passing through the space. Return air is drawn back from ceiling return air registers through a galvanized sheet-metal return system to the rooftop unit. The close relationship of the supply and return registers is short cycling the supply within the space limiting the effectiveness of the air circulation within the space.

Classroom unit ventilators:

The majority of the classroom unit ventilators are original to when the building was constructed all of which were noted to be extremely antiquated, soiled, slightly damaged, and in a general state of disrepair. Many of the units had books and papers stacked over the discharge grille which is interfering with proper air flow and ventilation of the space.

Rooftop units:

The rooftop units are experiencing a reduced airflow resulting in ice formation and the need to run heating during summer seasons. The close relationship of supply diffusers to return air registers is resulting in a percentage of the total supply air as ineffective. Circulating hot water into the rooftop equipment could potentially freeze coil and piping during winter conditions. Generalized surface soiling on all diffusers and registers. The supply and return ductwork in the area of the rooftop equipment is exposed on the roof and to a varying degree the ductwork insulation has become dislodged from the system and is exposing the sheetmetal to weather conditions.

Ventilation:

Building code required amounts of both exhaust and supply ventilation air for all corridor areas not installed.

Vestibules:

Appropriate door heaters not installed.

Air handling units:

Intake and exhaust louvers for auditorium air handling equipment do not maintain appropriate separation distance to prevent cross-contamination of air streams. Could not determine if supply air ductwork is insulated. Partially open smoke relief dampers in stage area could be allowing vapor pressure to enter space causing condensation formation on ceiling. Music room air handling unit requires four season air-conditioning due to heat rejection of chimney running through space.

Kitchen:
Existing kitchen hoods are not provided with fire protection. All existing heating and ventilation equipment throughout kitchen was installed during the original building construction and is considered antiquated and in need of replacement.

Serving area
One serving area not provided with adequate supply and exhaust ventilation air.

Air Distribution systems
Close proximity of supply and return air systems is short-circuiting a percentage of the supply air reducing effectiveness of air distribution in all overhead systems.

Heating systems:
Many of the steam and hot water heating systems were not upgraded during the 2000 renovation of which the older equipment has reached its maximum serviceable life. Extensive surface contamination, soiling, and damage on fin tube and convector covers.

Crawl Spaces:
The crawl space throughout building "D" is not provided with any form of vapor barrier nor is it provided with code required ventilation openings. Excessive dampness was noted throughout.

Building E

Locker rooms:
Each locker room is typical in design and each includes a central floor mounted heating and ventilating unit which is of the of the 100% outside air design. Each unit is located within a former storage room and is provided with a supply fan, steam heating coil which ties into the existing low-pressure steam system located within the crawl space below, filter section, and a direct source of 100% outside air. Supply air is provided to the locker areas through an exposed uninsulated galvanized steel distribution system utilizing sidewall supply registers. 100% of the supply air provided to the space is exhausted in a separate exhaust air system utilizing exposed galvanized sheetmetal at the ceiling which communicates to a roof mounted exhaust fan. There is no means of capacity control or energy recovery associated with either system. The amount of air provided and exhausted to the area is code compliant and the overall condition appeared good and well ventilated. Also located in each space is a continuous length of fin tube radiation located along the exterior walls. It appears that all radiation was installed during the original building construction and was noted to have extensive surface soiling and damage. Control of all systems utilizes the existing pneumatic system all of which is antiquated and in need of replacement.
Each locker room office is also provided with a separate air handling system which provides heated ventilated and air-conditioned air to the physical education offices. It does appear that direct expansion refrigeration is provided for each unit, however, it was brought to our attention that it has never worked.

Fitness center:
The fitness center is served by an individual floor mounted heating and ventilating and air conditioning unit located in an adjacent storage room.

The air-handling unit provides heated, ventilated, and air-conditioned air through an overhead distribution system which is of the galvanized sheet metal design. 100% of the supply air provided to the space is exhausted in a separate exhaust air system utilizing exposed galvanized sheetmetal at the ceiling which communicates to a roof mounted exhaust fan. There is no means of capacity control or energy recovery associated with the system. The amount of air provided and exhausted to the area is code compliant and the overall condition appeared good and well ventilated. The close relationship of the supply and return registers at the ceiling is short cycling the supply within the space limiting the effectiveness of the air circulation within the space. The air handling unit is provided with a supply fan, steam heating coil which ties into the existing low-pressure steam system located within the crawl space below, filter section, and a direct source of 100% outside air. Control of the system utilizes the existing pneumatic system of which is antiquated and in need of replacement.

Gymnasium:

The gymnasium is served by an individual floor mounted heating and ventilating unit located in an adjacent storage room. The air-handling unit provides heated and ventilated air through an overhead distribution system which is of the galvanized sheet metal design. The amount of air provided and exhausted to the area is code compliant and the overall condition appeared good and well ventilated. The air handling unit is provided with a supply fan, steam heating coil which ties into the existing low-pressure steam system located within the crawl space below, filter section, and a direct source of outside air and return air through two individual wall mounted louvers located approximately 8 inches above the floor. Control of the system utilizes the existing pneumatic system of which is antiquated and in need of replacement. There is minimum exhaust ventilation control within the space, however, there was no pressure relief during economizer control. The exhaust registers associated with the minimum exhaust system are severely damaged and soiled. Also located within the gymnasium is fin tube radiation located approximately 12 feet above the floor along the exterior wall. The fin tube radiation was slightly damaged and dirty, however, it does assist in maintaining reasonable space temperature control. All overhead ductwork and fin tube radiation was installed during the original building construction and have exceeded their maximum serviceable life.

Radiation:

The fin tube radiation should be replaced and preferably removed if the proper heating and ventilation air distribution systems could be provided which would no longer require the fin tube radiation.

Locker room air handling:

The locker room air handling systems are of the 100% outside air design and are not provided with any capacity control or energy recovery. Air conditioning systems associated with office areas in locker rooms does not operate. Fin tube radiation had surface damage, is soiled and in need of replacement. Supply and exhaust systems located at the ceiling is short-circuiting and limiting overall air effectiveness.

Fitness air handling:

The fitness air handling systems are of the 100% outside air design and are not provided with any capacity control or energy recovery. Supply and exhaust systems located at the ceiling is short-circuiting and limiting overall air effectiveness.

Gymnasium air handling:

The gymnasium air handling systems are of the recirculation air design with minimum outside air exhaust fans. There is no pressure relief provided when system goes into higher amounts of outside air. Fin tube radiation along exterior wall is damaged and in need of replacement. Pneumatic control system is antiquated and in need of replacement. Sidewall diffusers providing air to space are soiled.

Building F

Fieldhouse:

The fieldhouse is served by a single floor mounted heating and ventilating unit located in a pit in an adjacent mechanical room. The air-handling unit provides heated and ventilated air through a buried distribution system serving floor diffusers around the perimeter boundary of the space. From what is visible, it does appear the underground system is of the galvanized sheet metal design. The floor registers were noted to have extensive damage in soiling and are in a general state of disrepair. The amount of air provided to the area is code compliant based on general population of the space, however, considering the overall volume of the building and the overall air changes appears to be very low. The air handling unit is provided with a supply fan, hot water heating coil which ties into the adjacent building "G" hot water system via a underground tunnel which passes between the two buildings, filter section, and a direct source of outside air through an exterior concrete chamber with the intake hood, and return air through a single wall mounted louvers located approximately 8 inches above the floor in the fieldhouse. The return air flows into the mechanical space which is utilized as a return air plenum which was noted to be extremely dirty and littered with debris. Control of the system utilizes the existing pneumatic system of which is antiquated and in need of replacement. There is minimum exhaust ventilation control within the space utilizing exhaust fans located over one exterior doorway which do not appear to operate. Pressure relief louvers were also installed over an adjacent doorway however were undersized for the overall volume of air provided to the space. It was also noted that the dampers on both the exhaust fans and the pressure relief louvers do not appear to operate. Destratification fans are also provided throughout the space which do assist in maintaining air motion, however, do very little in Providing adequate ventilation contro or air changes throughout the space.

Fieldhouse air handling:

The fieldhouse air handling system is of the recirculation air design with minimum outside air exhaust fans. There is inadequate relief provided when system goes into higher amounts of outside air. Pneumatic control system is antiquated and in need of replacement. Floor diffusers providing air to space are in complete disrepair, damaged, and very soiled. Mechanical space used as return air plenum is extremely dirty and littered with debris. Dampers on exhaust fans and pressure relief louvers do not appear to operate and all exhaust and relief air systems are extremely soiled. Under floor ductwork could be galvanized steel and considering high water table in area could be severely damaged. Overall volume of air provided to space does not appear to maintain adequate air changes.

Building G

Science classrooms:

The typical classrooms are provided with wall mounted classroom unit ventilators which are combination of new units upgraded in 2000 and existing when the building was built. The unit ventilators are provided with a wall mounted intake louver (which were upgraded on the units that were replaced in 2000) for the introduction of outside ventilation air, filters, supply fan, and a hot water heating coil with face and by-pass control. Many of the intake louvers located at the first-floor elevation are within 18 inches of grade which are not code compliant. The existing second-floor units receive their outside air from an intake louver located in a horizontal soffit overhanging the first-floor. The unit ventilators provide a source of heated and ventilated air to the entire classroom area. A single wall mounted pneumatic thermostat controls the unit ventilator which was noted to be extremely antiquated. The exhaust registers tie into the existing galvanized sheet-metal exhaust ductwork. Groups of classrooms tie into various exhaust systems which traveled vertically to the roof and terminates at roof mounted exhaust fans. All exhaust systems were operating and all exhaust fans were noted to be like new and in very good condition and appear to be maintaining code compliant ventilation requirements. The building also included fin tube radiation which was original to the building and not upgraded in 2000. The radiation cover was noted to have surface soiling, slight damage, and splice pieces missing creating very sharp edges to the building occupants. During the 2000 renovation, a new roof mounted HVAC unit with variable air volume control terminals was provided for the office areas on the second-floor and the science prep rooms on the first-floor. The variable air volume boxes are provided with hot water heating coils which tie into the original hot water supply and return piping system and are controlled by electronic wall mounted sensors. The rooftop HVAC equipment is provided with direct expansion cooling coil and a gas-fired furnace, with a supply fan, filters, and a direct supply of outside and return air. A variable frequency drive is provided to slow the supply fan in response to rising system pressures. The ductwork, to a varying degree, is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork.

In classrooms G227, G224, and G222 the classroom unit ventilators were not upgraded in the most recent renovation. During 2003, a renovation occurred to incorporate what is known as a hearing impaired area which took out of service the classroom unit ventilators in classrooms 205, 207, 209, and 242 and reused and existing roof mounted HVAC unit with variable air volume control terminals controlled by new electronic thermostats. The variable air volume boxes are provided with hot water heating coils which tie into the original hot water supply and return piping system. Exposed galvanized ductwork supply provides supply air to the areas. The rooftop HVAC equipment is provided with direct expansion cooling coil and a gas-fired furnace, with a supply fan, filters, and a direct supply of outside and return air. It does not appear that the unit is provided with a variable frequency drive to slow the supply fan in response to rising system pressures. The ductwork, to a varying degree, is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork. In classrooms205, 207, 209, and 242 the variable air volume equipment is reducing the total air flow to the space when temperatures are satisfied and could result in rising carbon dioxide levels above code required limitations due to the high population in each space.

In classrooms G227, G224, and G222 the classroom unit ventilators were not upgraded in the most recent renovation. The existing systems

include a ceiling suspended horizontal discharge classroom unit ventilators at approximately 15 feet above the floor. These three spaces are also provided with direct expansion cooling which are circuited to individual roof mounted air cooled condensing units. Also located within the space are exhaust registers located on the wall at the same general elevation. The close proximity an elevation of the supply and exhaust are short cycling and reducing the overall effectiveness of the air to the space. It was also noted that the equipment had surface soiling and was in below average condition.

Corridors:

The communicating corridors throughout the first and second floor areas were provided with a combination of supply and exhaust ventilation. The corridor areas are also air-conditioned utilizing variable air volume equipment which was part of an upgrade during a 2000 renovation. The variable air volume equipment is controlled by electronic wall mounted thermostats. The amount of ventilation provided is adequate to meet current building code requirements. The corridors are heated by convectors on the second-floor only all of which were noted to have severe soiling and damage. The convectors are controlled by pneumatic wall mounted thermostats of which do not appear to operate evidenced by the amount of heat generated when not required.

Pipe Tunnels:

A pipe total located under the building carries the heating piping associated with all of the terminal heating equipment located within the building. All piping within the crawl space appears to be schedule 40 black steel insulated with fiberglass insulation. Piping between the buildings is also an underground tunnel which allow the piping to travel from the boiler room located in building G to the adjacent remote buildings. From what was visible it did appear that the systems are adequate and did not leak, however, there was extensive surface soiling on the covering of the insulation.

Classrooms:

Approximately 50% of the classroom unit ventilators throughout the classroom spaces are extremely antiquated and were noted to be dirty and slightly damaged. The discharge grills on many of the units were covered by books and papers. Many of the intake louvers located at the first-floor elevation are within 18 inches of grade which are not code compliant. It does appear that the control system is controlling the hot water flow through the classroom unit ventilators, however, the pneumatic control system is extremely antiquated. The exhaust registers in all classrooms contained surface soiling many of which are covered with bookcases preventing adequate ventilation control.

Corridor:

Convectors located in corridors are slightly damaged, soiled, and very antiquated. Associated controls do not work correctly.

Rooftop units:

The close relationship of supply diffusers to return air registers is resulting in a percentage of the total supply air as ineffective. The supply and return ductwork in the area of the rooftop equipment is exposed on the roof and to a varying degree the ductwork insulation has become dislodged from the system and is exposing the sheetmetal to weather conditions.

Building H

Academic classrooms:

The typical classrooms are provided with wall mounted classroom unit ventilators which are combination of new units upgraded in 2000 and existing when the building was built. The unit ventilators are provided with a wall mounted intake louver (which were upgraded on the units that were replaced in 2000) for the introduction of outside ventilation air, filters, supply fan, and a hot water heating coil with face and bypass control. Many of the intake louvers located at the first-floor elevation are within 18 inches of grade which are not code compliant. The unit ventilators provide a source of heated and ventilated air to the entire classroom area. A single wall mounted pneumatic thermostat controls the unit ventilator which was noted to be extremely antiquated. It was also noted in a small number of locations self-contained thermostats were installed which appears to be the result of the failed pneumatic system in place. Exhaust registers, many of which were replaced during the 2000 renovation, tie into galvanized sheet-metal exhaust ductwork. Groups of classrooms tie into various exhaust systems which traveled vertically to the roof and terminates at roof mounted exhaust fans. All exhaust systems were operating and all exhaust fans were noted to be like new and in very good condition and appear to be maintaining code compliant ventilation requirements. The building also included fin tube radiation which was original to the building and not upgraded in 2000. The radiation cover was noted to have surface soiling, and slight damage.

During the 2000 renovation, a new roof mounted HVAC unit with variable air volume control terminals was provided for the office areas on the first and second-floor. The variable air volume boxes are provided with hot water heating coils which tie into the original hot water supply and return piping system and are controlled by electronic wall mounted sensors. The rooftop HVAC equipment is provided with direct expansion cooling coil and a gas-fired furnace, with a supply fan, filters, and a direct supply of outside and return air. A variable frequency drive is provided to slow the supply fan in response to rising system pressures. The ductwork, to a varying degree, is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork.

During 2003, a renovation occurred to incorporate what is known as a hearing impaired area which took out of service the classroom unit ventilators in classrooms H-202, H-203, H-206, and H-207, and (2) new single zone roof mounted HVAC unit controlled by new electronic thermostats was installed. Exposed galvanized ductwork supply provides supply air to the areas. The rooftop HVAC equipment is provided with direct expansion cooling coil and a gas-fired furnace, with a supply fan, filters, and a direct supply of outside and return air. It does appear that the unit is provided with a variable frequency drive to slow the supply fan in response to rising system pressures. The ductwork, to a varying degree, is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork

A computer classroom is installed on the first-floor as well as second-floor each of which are being provided with air-conditioning at this time. Each classroom is receiving wall mounted evaporators connected to a roof mounted air cooled condensing units which appears to be approximately 3 tons of refrigeration per classroom. The amount of air conditioning being installed does appear adequate for the heat generated within the space.

Corridors:

The communicating corridors throughout the first and second floor areas were provided with a combination of supply and exhaust ventilation. The corridor areas are also air-conditioned utilizing variable air volume equipment which was part of an upgrade during a 2000 renovation. The variable air volume equipment is controlled by electronic wall mounted thermostats. The amount of ventilation provided is adequate to meet current building code requirements, however, doorways which separate the corridor sections of each floor do isolate the corridors interfering with the ventilation flow. The corridors are heated by convectors on the second-floor only all of which were noted to have severe soiling and damage. The convectors are controlled by pneumatic wall mounted thermostats of which do not appear to operate evidenced by the amount of heat generated when not required. The intermediate corridor doors are also preventing adequate heating flow to all points within the corridors.

Pipe Tunnels:

A pipe total located under the building carries the heating piping associated with all of the terminal heating equipment located within the building. All piping within the crawl space appears to be schedule 40 black steel insulated with fiberglass insulation. Piping between the buildings is also an underground tunnel which allow the piping to travel from the boiler room located in building G to the adjacent remote buildings. From what was visible it did appear that the systems are adequate and did not leak, however, there was extensive surface soiling on the covering of the insulation.

Classrooms:

Approximately 50% of the classroom unit ventilators throughout the classroom spaces are extremely antiquated and were noted to be dirty and slightly damaged. The discharge grills on many of the units were covered by books and papers. Many of the intake louvers located at the first-floor elevation are within 18 inches of grade which are not code compliant. It does appear that the control system is controlling the hot water flow through the classroom unit ventilators, however, the pneumatic control system is extremely antiquated. The exhaust registers in all classrooms contained surface soiling many of which are covered with bookcases preventing adequate ventilation control. Non-electric self-contained control valves are incorporated for various pieces of heating equipment suggesting inoperative central control system.

Corridor:

Intermediate doors located in corridors is preventing adequate and complete heating and circulation of ventilation air. Convectors located in corridors are slightly damaged, soiled, and very antiquated. Associated controls do not work correctly.

Rooftop units:

The close relationship of supply diffusers to return air registers is resulting in a percentage of the total supply air as ineffective. The supply and return ductwork in the area of the rooftop equipment is exposed on the roof and to a varying degree the ductwork insulation has become dislodged from the system and is exposing the sheetmetal to weather conditions.

Building J

Academic classrooms:

The typical classrooms are provided with wall mounted classroom unit ventilators which are combination of new units upgraded in 2000 and existing when the building was built. The unit ventilators are provided with a wall mounted intake louver (which were upgraded on the units that were replaced in 2000) for the introduction of outside ventilation air, filters, supply fan, and a hot water heating coil with face and bypass control. Many of the intake louvers located at the first-floor elevation are within 18 inches of grade which are not code compliant. The unit ventilators provide a source of heated and ventilated air to the entire classroom area. A single wall mounted pneumatic thermostat controls the unit ventilator which was noted to be extremely antiquated. It was also noted in a small number of locations self-contained thermostats were installed which appears to be the result of the failed pneumatic system in place. Located in a number of the classroom in office areas where window style air-conditioning units all of which appeared to be undersized for the areas served. The unit was also noted to have surface soiling and some were slightly damaged. Exhaust registers, many of which were replaced during the 2000 renovation, tie into galvanized sheet-metal exhaust ductwork. Groups of classrooms tie into various exhaust systems which traveled vertically to the roof and terminates at roof mounted exhaust fans. All exhaust systems were operating and all exhaust fans were noted to be like new and in very good condition and appear to be maintaining code compliant ventilation requirements. The building also included fin tube radiation which was original to the building and not upgraded in 2000. The radiation cover was noted to have surface soiling, and slight damage.

During the 2000 renovation, a new roof mounted HVAC unit with variable air volume control terminals was provided for the office areas on the first and second-floor. The variable air volume boxes are provided with hot water heating coils which tie into the original hot water supply and return piping system and are controlled by electronic wall mounted sensors. The rooftop HVAC equipment is provided with direct expansion cooling coil and a gas-fired furnace, with a supply fan, filters, and a direct supply of outside and return air. A variable frequency drive is provided to slow the supply fan in response to rising system pressures. The ductwork, to a varying degree, is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork. The natural gas piping is also located exposed on the roof membrane as well.

During 2003, a renovation occurred to incorporate what is known as a hearing impaired area which took out of service the classroom unit ventilators in classrooms H-202, H-203, H-206, and H-207, and (2) new single zone roof mounted HVAC unit controlled by new electronic thermostats was installed. Exposed galvanized ductwork supply provides supply air to the areas. The rooftop HVAC equipment is provided with direct expansion cooling coil and a gas-fired furnace, with a supply fan, filters, and a direct supply of outside and return air. It does appear that the unit is provided with a variable frequency drive to slow the supply fan in response to rising system pressures. The ductwork, to a varying degree, is exposed on the roof and has experienced damage to the insulation which is exposing a galvanized steel ductwork

A computer classroom is installed on the first-floor as well as second-floor each of which are being provided with air-conditioning at this time. Each classroom is receiving wall mounted evaporators connected to a roof mounted air cooled condensing units which appears to be approximately 3 tons of refrigeration per classroom. The amount of air conditioning being installed does appear adequate for the heat

generated within the space.

Corridors:

The communicating corridors throughout the first and second floor areas were provided with a combination of supply and exhaust ventilation. The corridor areas are also air-conditioned utilizing variable air volume equipment which was part of an upgrade during a 2000 renovation. The variable air volume equipment is controlled by electronic wall mounted thermostats. The amount of ventilation provided is adequate to meet current building code requirements, however, doorways which separate the corridor sections of each floor do isolate the corridors interfering with the ventilation flow. The corridors are heated by convectors on the second-floor only all of which were noted to have severe soiling and damage. The convectors are controlled by pneumatic wall mounted thermostats of which do not appear to operate evidenced by the amount of heat generated when not required. The intermediate corridor doors are also preventing adequate heating flow to all points within the corridors.

Pipe Tunnels:

A pipe total located under the building carries the heating piping associated with all of the terminal heating equipment located within the building. All piping within the crawl space appears to be schedule 40 black steel insulated with fiberglass insulation. Piping between the buildings is also an underground tunnel which allow the piping to travel from the boiler room located in building G to the adjacent remote buildings. From what was visible it did appear that the systems are adequate and did not leak, however, there was extensive surface soiling on the covering of the insulation. It was noted in building J that there was an extensive water leak that has resulted in a wide expanse of water in the tunnel which appears to be related to either a pipe leak in the hot water system or possibly ground water infiltration.

Classrooms:

Approximately 50% of the classroom unit ventilators throughout the classroom spaces are extremely antiquated and were noted to be dirty and slightly damaged. The discharge grills on many of the units were covered by books and papers. Many of the intake louvers located at the first-floor elevation are within 18 inches of grade which are not code compliant.It does appear that the control system is controlling the hot water flow through the classroom unit ventilators, however, the pneumatic control system is extremely antiquated. The exhaust registers in all classrooms contained surface soiling many of which are covered with bookcases preventing adequate ventilation control. . Non-electric self-contained control valves are incorporated for various pieces of heating equipment suggesting inoperative central control system.

Corridor:

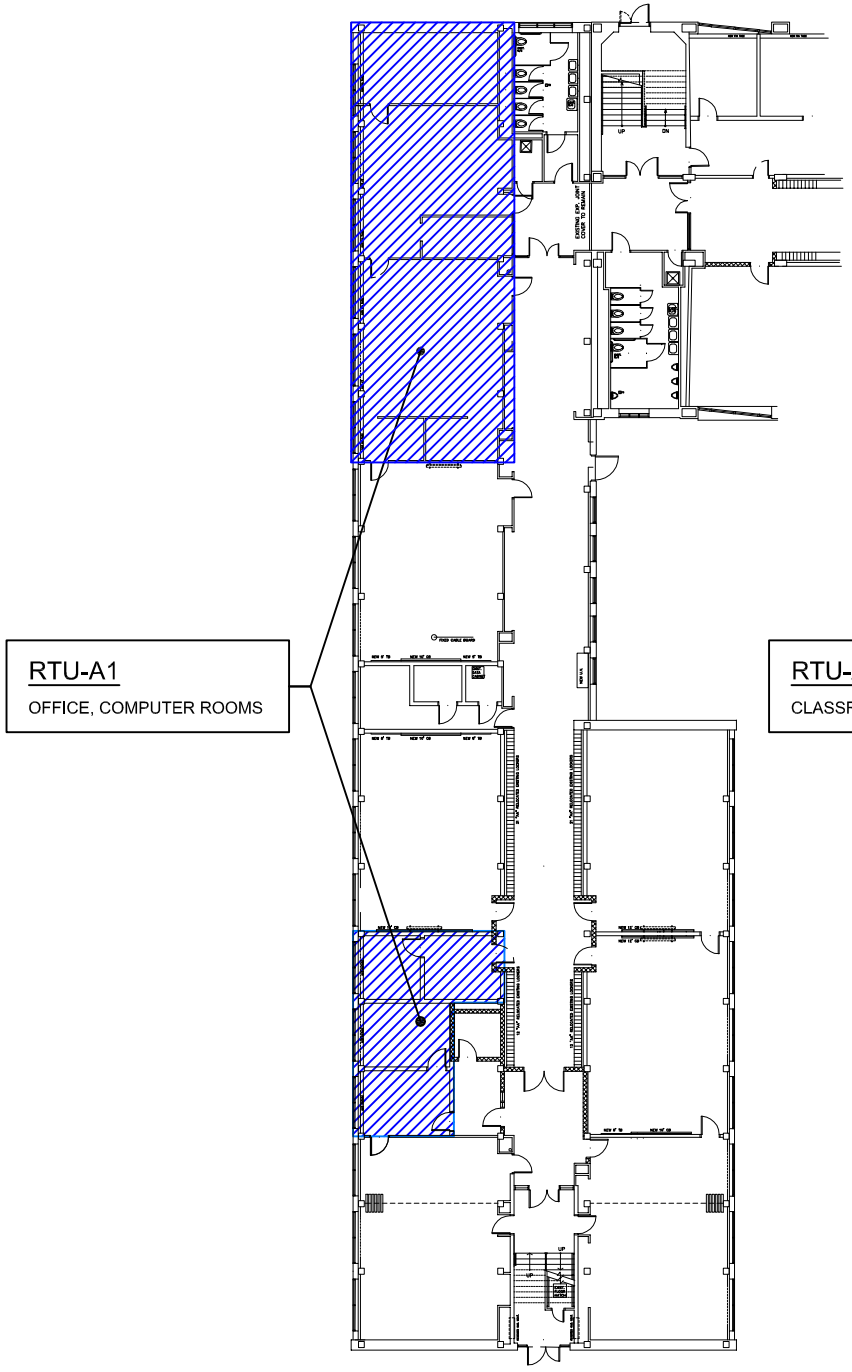
Intermediate doors located in corridors is preventing adequate and complete heating and circulation of ventilation air. Convectors located in corridors are slightly damaged, soiled, and very antiquated. Associated controls do not work correctly.

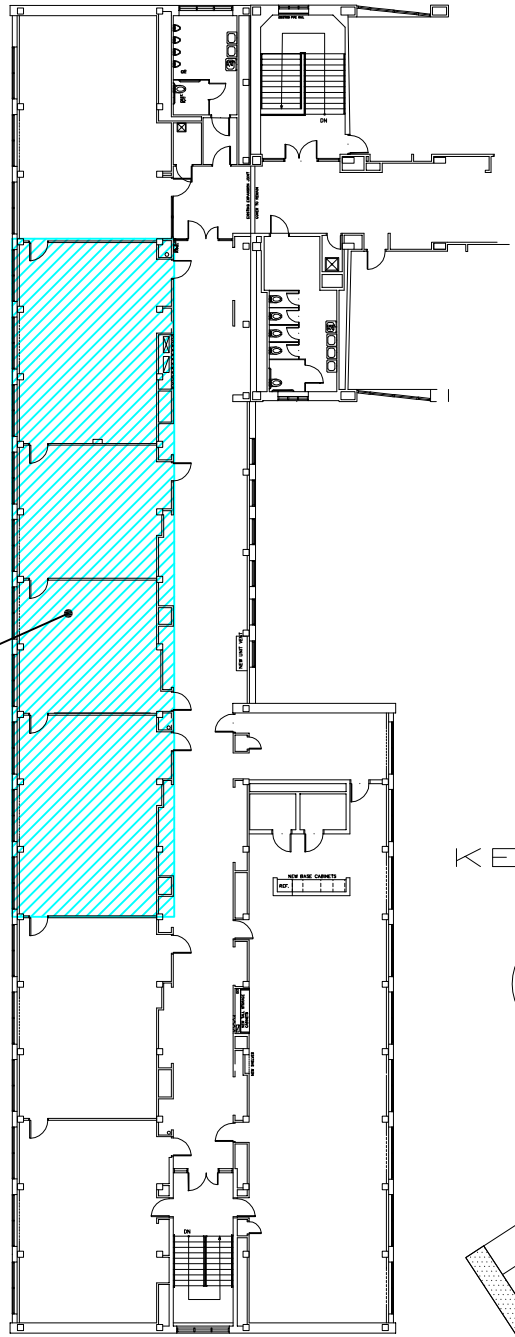
Rooftop units:

The close relationship of supply diffusers to return air registers is resulting in a percentage of the total supply air as ineffective. The supply and return ductwork in the area of the rooftop equipment is exposed on the roof and to a varying degree the

ductwork insulation has become dislodged from the system and is exposing the sheetmetal to weather conditions.

Graphics





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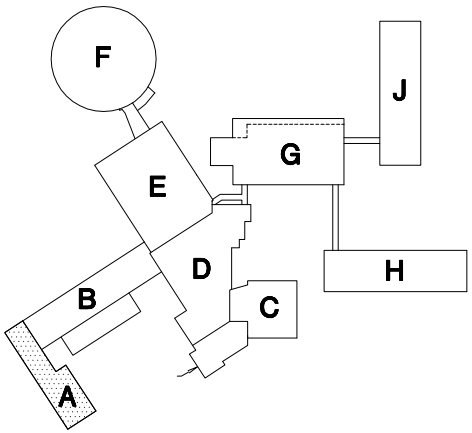
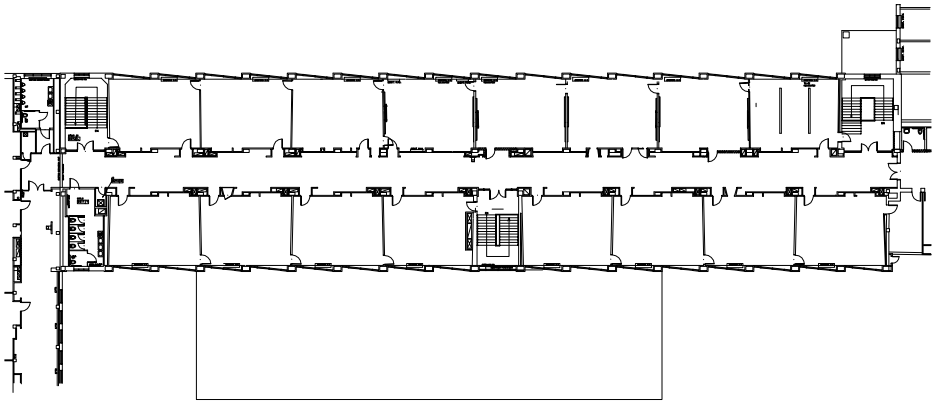


BUILDING-A FIRST FLOOR PLAN

SCALE = 1/32" = 1'-0"

BUILDING-A SECOND FLOOR PLAN

SCALE = 1/32" = 1'-0"



BUILDING - B SECOND FLOOR PLAN

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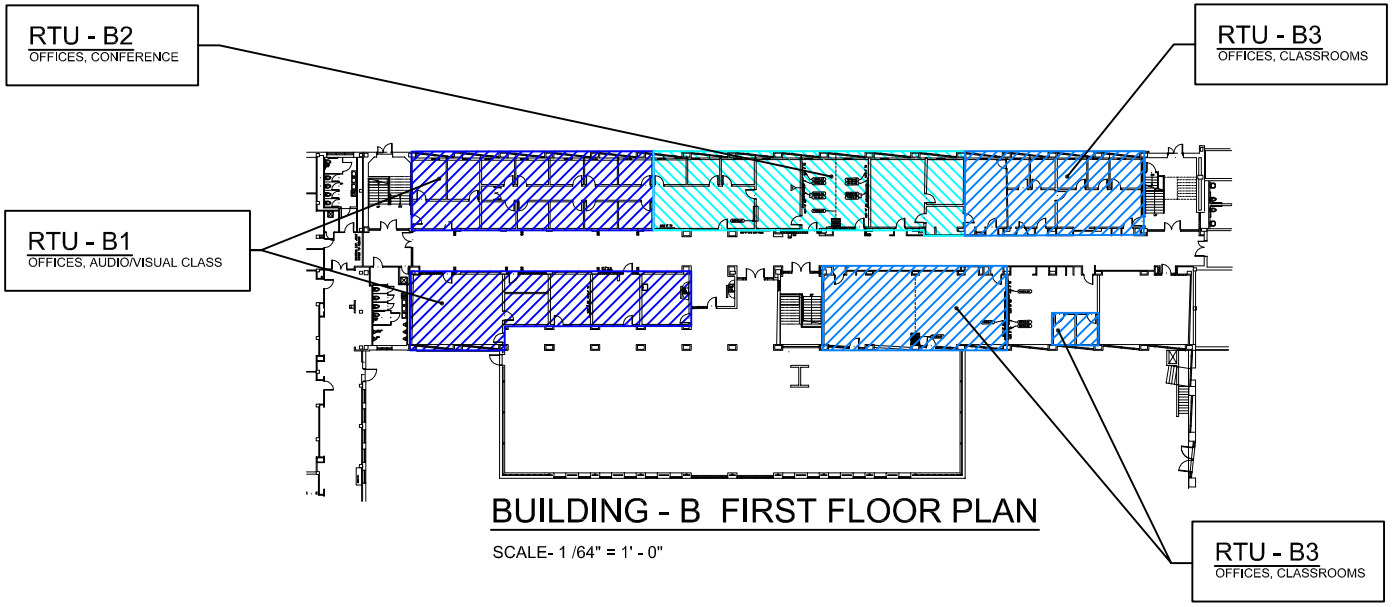

BUILDING - B FIRST FLOOR PLAN

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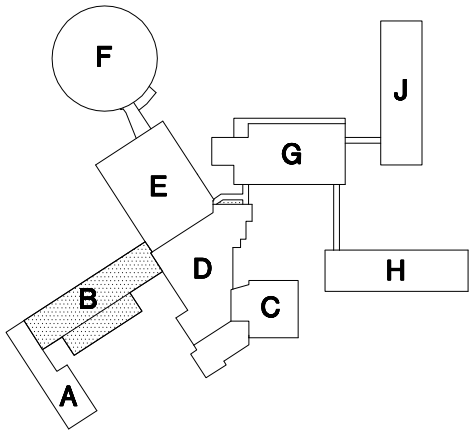

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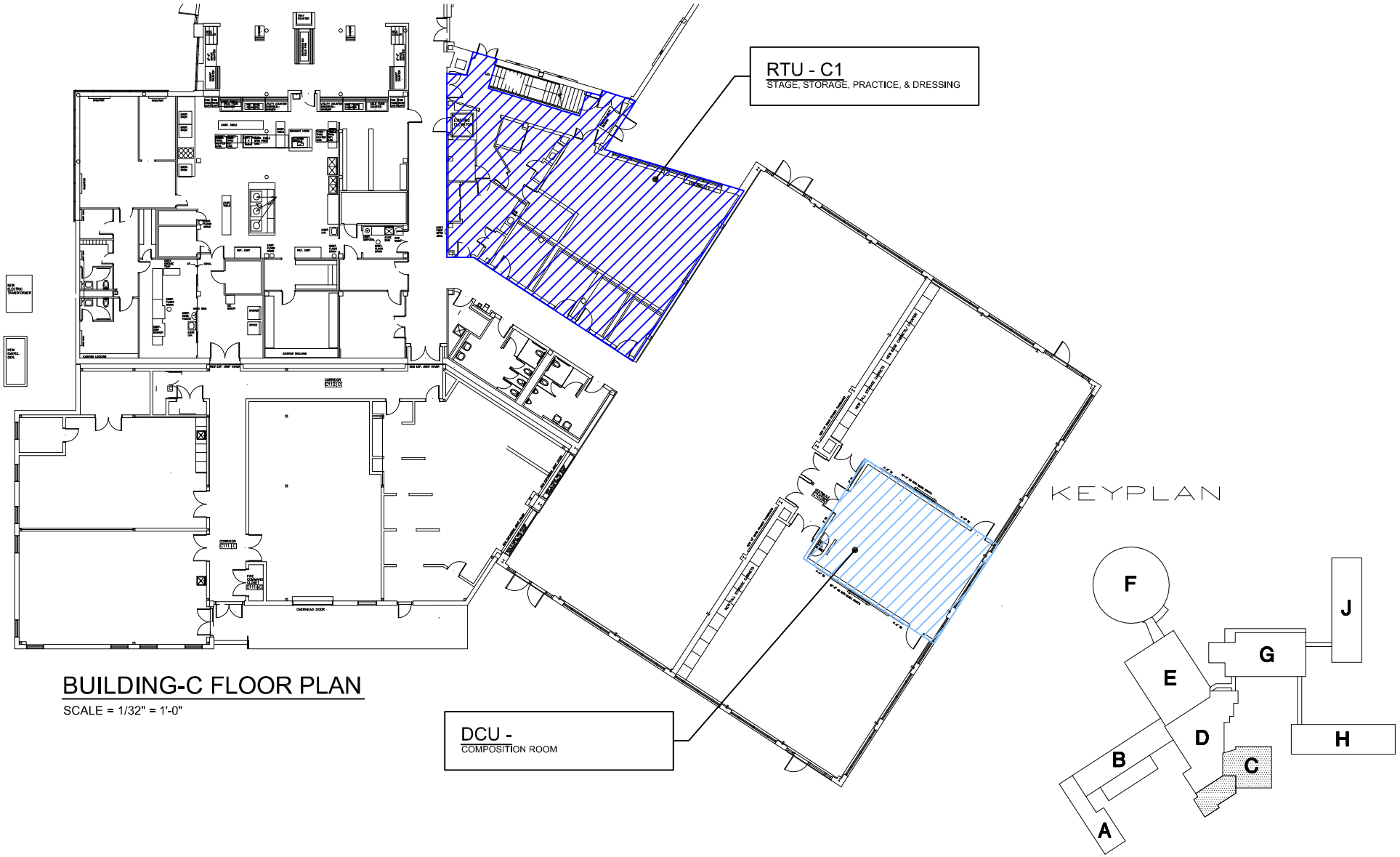

BUILDING-C FLOOR PLAN

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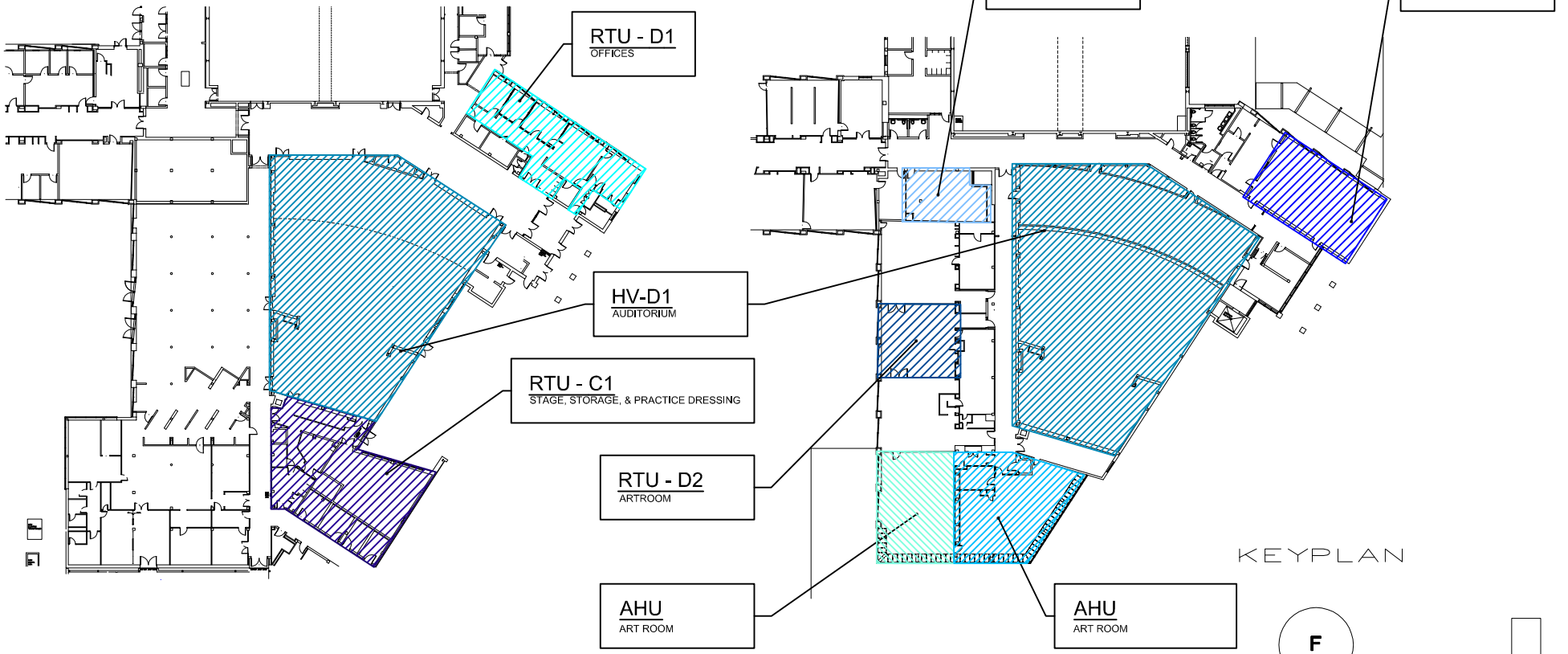


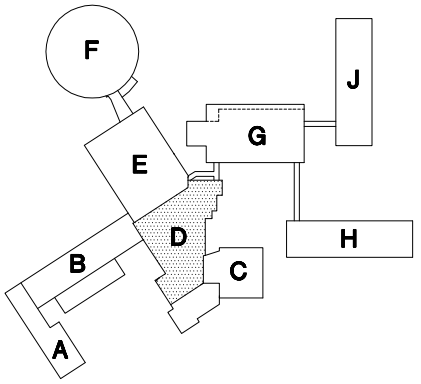
BUILDING-D FIRST FLOOR PLAN

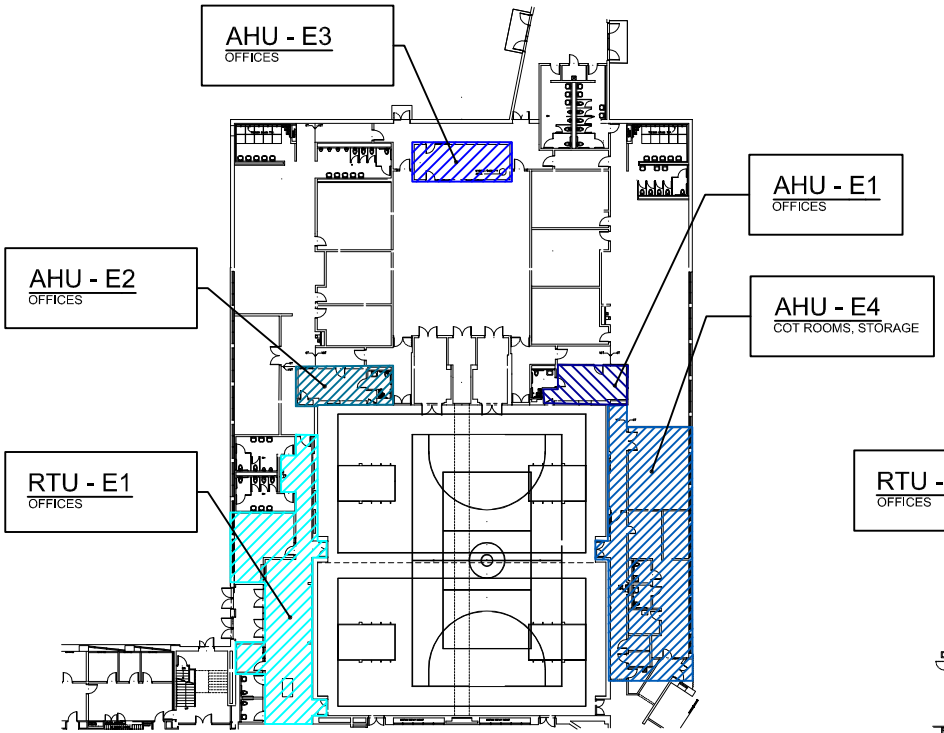
SCALE = 1/64" = 1'-0"

BUILDING-D SECOND FLOOR PLAN

SCALE = 1/64" = 1'-0"

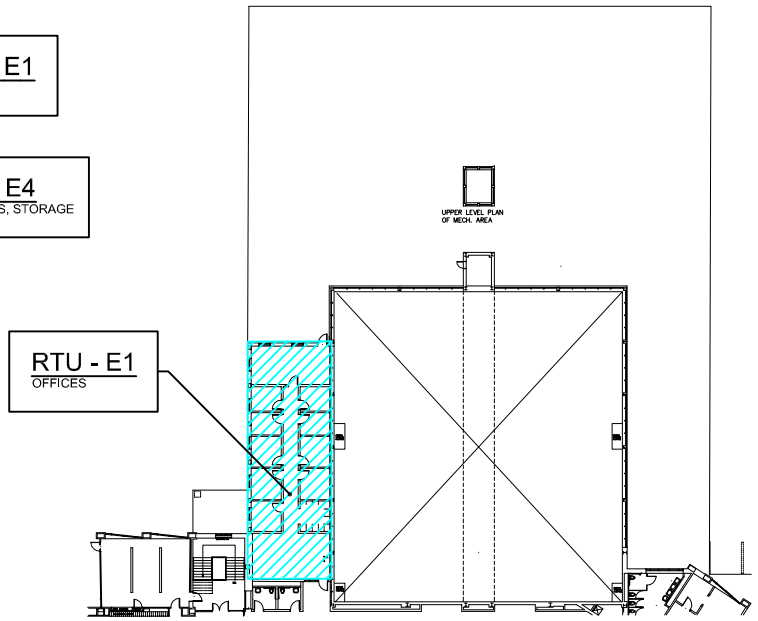
KEYPLAN





BUILDING-E FIRST FLOOR PLAN

SCALE = 1/64" = 1'-0"



BUILDING-E SECOND FLOOR PLAN

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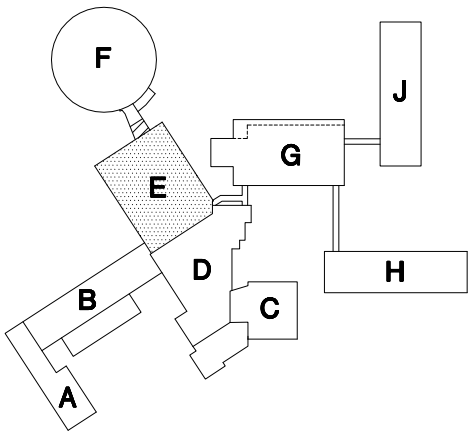
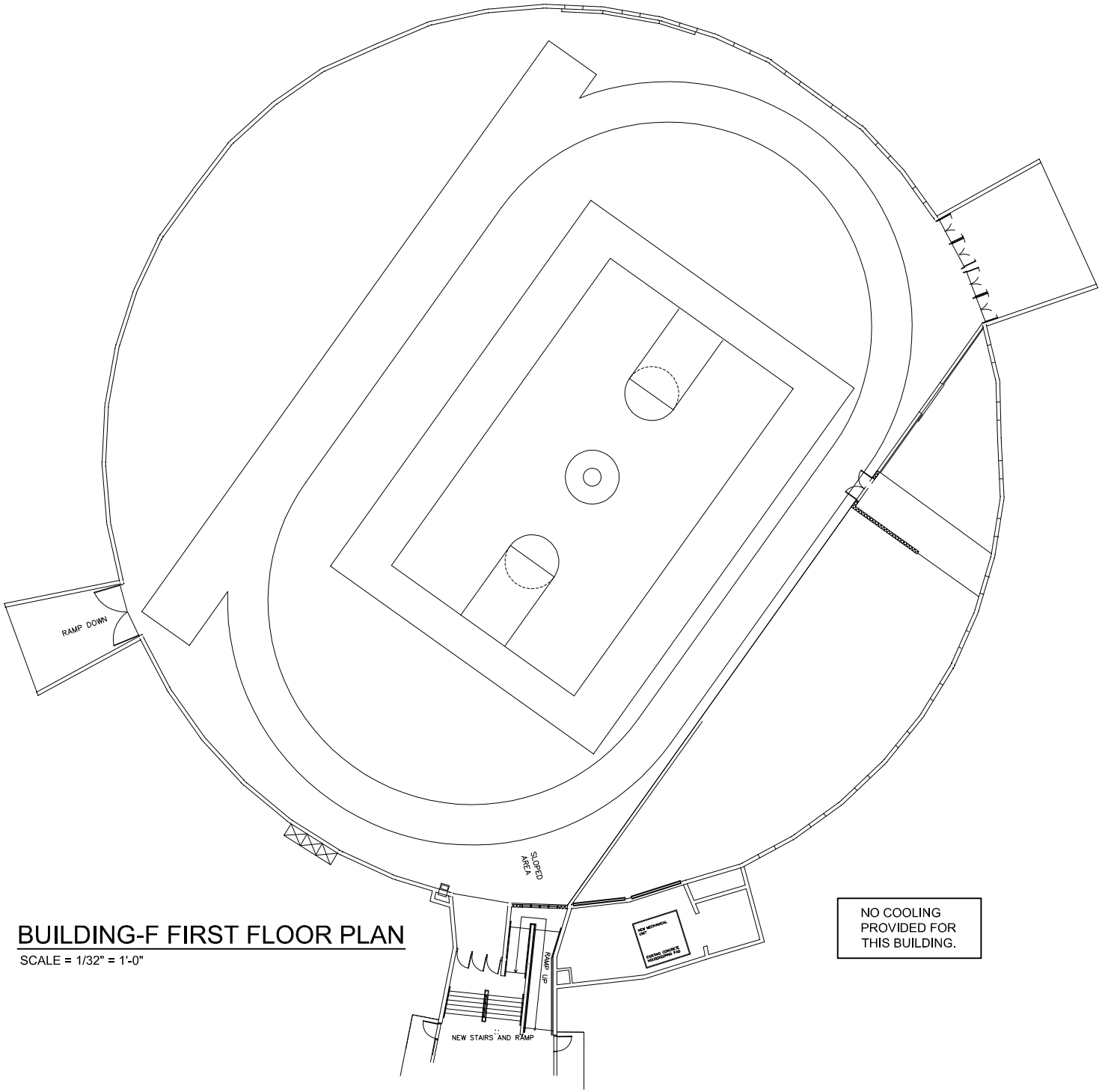


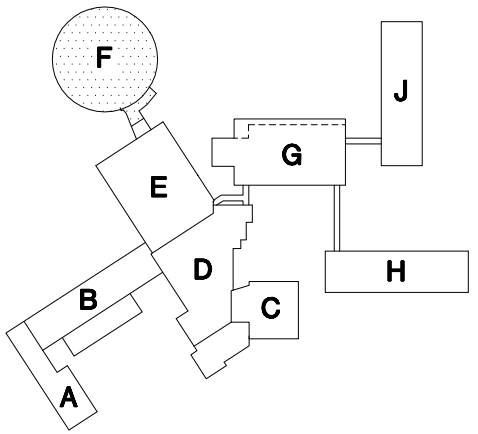


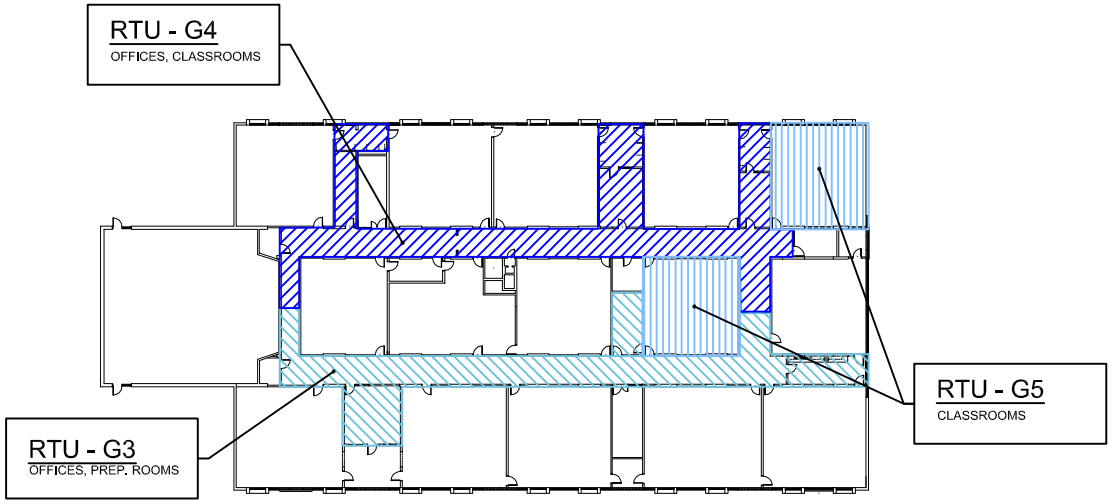
BUILDING-F FIRST FLOOR PLAN

SCALE = 1/32" = 1'-0"

NO COOLING PROVIDED FOR THIS BUILDING.

KEYPLAN





BUILDING-G SECOND FLOOR PLAN

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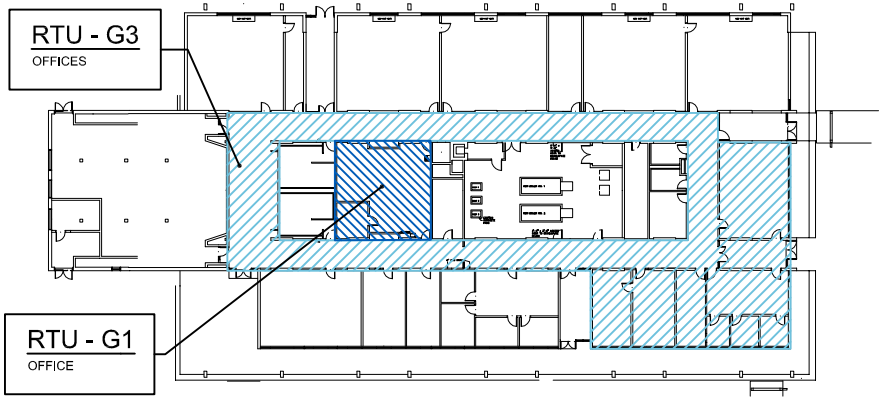

BUILDING-G FIRST FLOOR PLAN

SCALE = 1 / 64" = 1' - 0"

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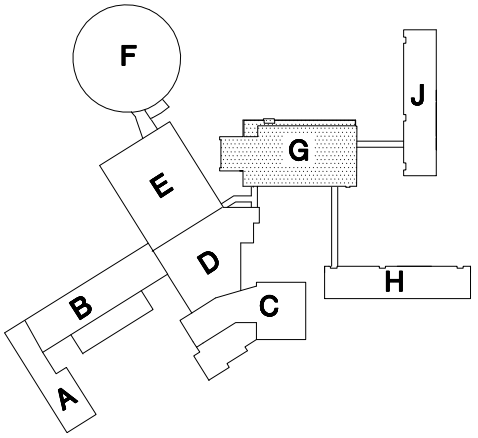
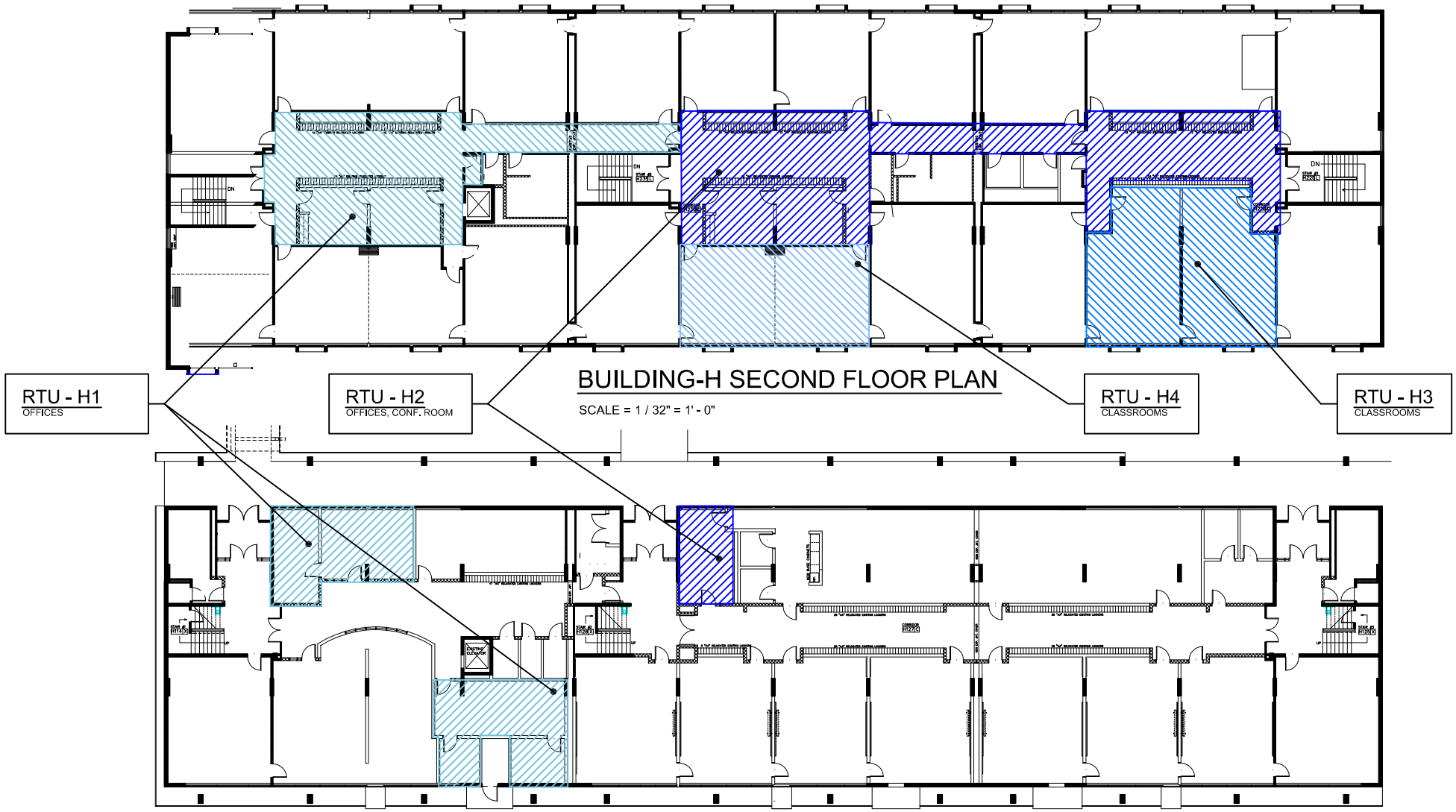


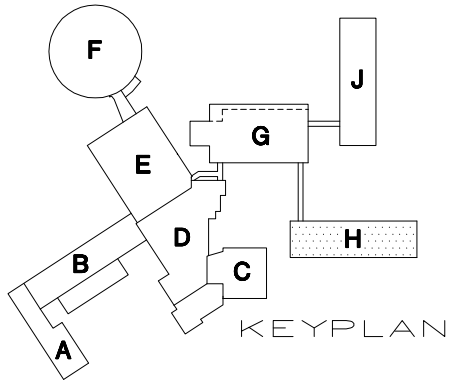


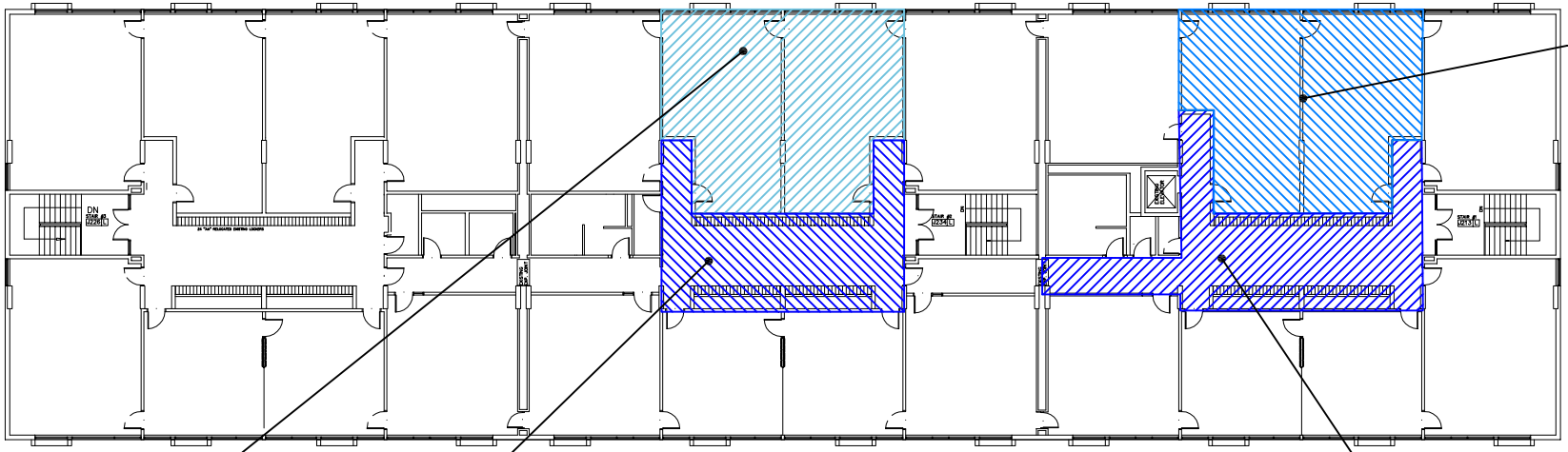
BUILDING-H SECOND FLOOR PLAN

SCALE = 1 / 32" = 1' - 0"

BUILDING-H FIRST FLOOR PLAN

SCALE = 1 / 32" = 1' - 0"





BUILDING-J SECOND FLOOR PLAN

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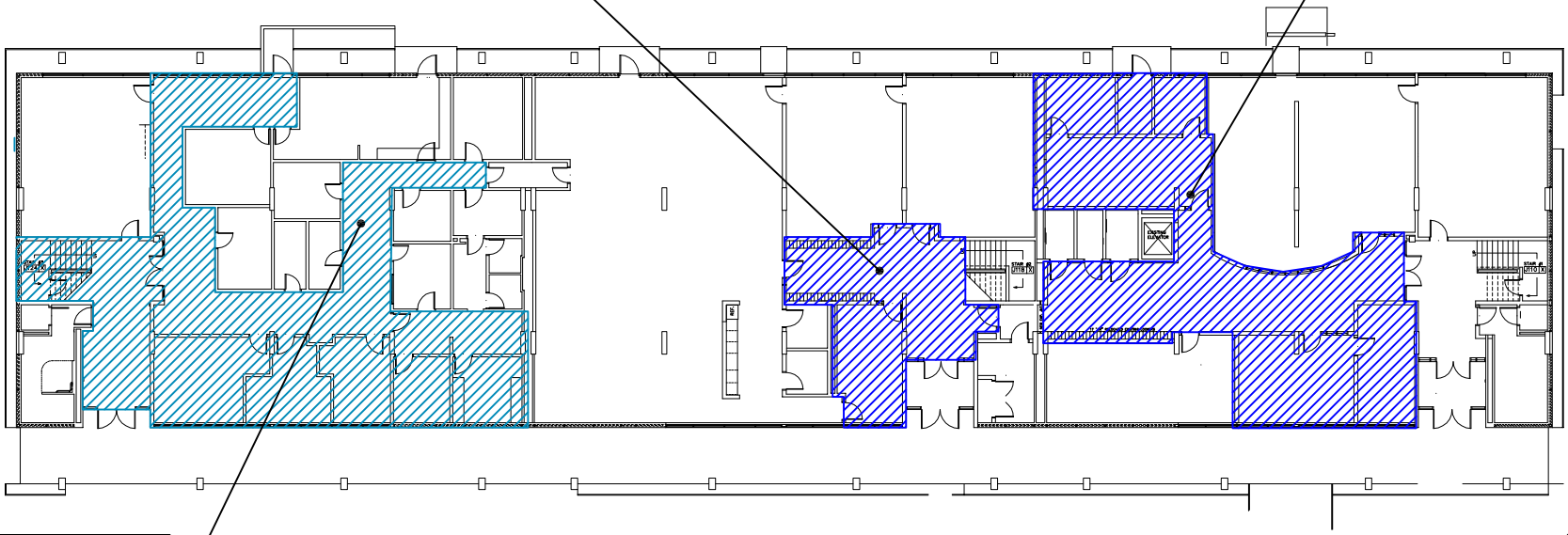

BUILDING-J FIRST FLOOR PLAN

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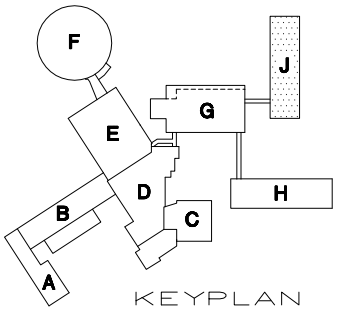


EXECUTIVE SUMMARY

Executive Summary

The goal of the lifecycle engineering economic analysis is to asses the performance of various mechanical systems in comparison to the existing mechanical system. The annual cost of electricity and gas for the presently installed system was given to Garcia Galuska DeSousa by the Town of Lexington.

Baseline Condition

The existing steam system and distribution equipment, and to a limited degree, the mechanical systems throughout the buildings, require upgrading to prevent a major system failure in the near future. The baseline condition represents the minimum recommended systems to achieve reasonable performance. They do not consider energy conservation techniques which are addressed separately in Options 1, 2, 3, and 4 which will enhance operating cost savings. However, the baseline condition does include boiler water reset and variable speed drives on the hot water pump motors.

Under consideration include the following baseline systems:

- Buildings A, B, C, D, E
    - Hot water boiler power plant (new)
    - Hot water heating coil unit ventilators (existing to remain, approximately 50 new between all buildings)
    - Hot water heating coil/DX cooling rooftop units with VAV (existing to remain)
    - Hot water heating coil heating and ventilating units (existing to remain)
- Building F
    - Hot water heating coil heating and ventilating units (existing to remain)
- Buildings G, H, J
    - Heating hot water boiler power plant (existing to remain)
    - Hot water heating coil unit ventilators (existing to remain, approximately 50 new between all buildings)
    - Gas-fired heating/DX cooling rooftop units with VAV (existing to remain)

Option 1, 2, 3, and 4

Each system option was modified to include energy conservation controls and techniques to decrease utility costs while also attempting to achieve the lowest construction cost. These options are described as follows:

- Option one analyzes the effectiveness of replacing the steam power plant supplying Buildings A, B, C, D, and E with a new heating hot water power plant. This power plant will consist of a gas-fired condensing boiler and a gas-fired high-efficiency non-condensing cast iron boiler with two circulation pumps with variable frequency drives. All steam piping and coils will be removed and replaced with a new heating hot water piping distribution system located above the first floor ceiling feeding new and existing hot water coils in the distribution equipment. The existing power plant supplying Buildings G, H, and J will remain. A new hot water distribution system will be installed above the ceiling in each building with new secondary pumps with variable frequency drives. In all buildings, all roof top units, air handling units, classroom unit ventilators, and heating and ventilating units will be provided with carbon dioxide detectors. The existing heating and ventilating units in Building E and F will be removed and replaced with new equipment including

energy recovery wheels. All nonfunctioning unit ventilators will be replaced and will also be provided with carbon dioxide sensors. The existing underground piping from Buildings G to H and G to J will be replaced with a pre-manufactured underground conduit system.

- Option two analyzes the effectiveness of relocating the existing heating hot water power plant from Building G to replace the steam power plant supplying Buildings A, B, C, D, and E. The relocated power plant will be provided with two new circulation pumps with variable frequency drives. All steam piping and coils will be removed and replaced with heating hot water piping distribution system located above the first floor ceiling feeding new and existing hot water coils in the distribution equipment. Buildings G, H, and J will each be provided with a new heating hot water power plant for each building. Each power plant will consist of a gas-fired condensing boiler and a gas-fired high-efficiency non-condensing cast iron boiler with two circulation pumps with variable frequency drives. In all buildings, all roof top units, air handling units, classroom unit ventilators, and heating and ventilating units will be provided with carbon dioxide detectors. The existing heating and ventilating units in Building E and F will be removed and replaced with new equipment including energy recovery wheels. All nonfunctioning unit ventilators will be replaced and will also be provided with carbon dioxide sensors.

- Option three analyzes the effectiveness of replacing the steam power plant supplying Buildings A, B, C, D, and E with a new heating hot water power plant. This power plant will consist of a gas-fired condensing boiler and a gas-fired high-efficiency non-condensing cast iron boiler with two circulation pumps with variable frequency drives. All steam piping and coils will be removed and replaced with a new heating hot water piping distribution system located above the first floor ceiling feeding new and existing hot water coils in the distribution equipment. The existing power plant supplying Buildings G, H, and J will remain. A new hot water distribution system will be installed above the ceiling in each building with new secondary pumps with variable frequency drives. In all buildings, all roof top units, air handling units, classroom unit ventilators, and heating and ventilating units will be provided with carbon dioxide detectors. The existing heating and ventilating units in Building E and F will be removed and replaced with new equipment including energy recovery wheels. All nonfunctioning unit ventilators will be replaced and will also be provided with carbon dioxide sensors. The existing underground piping from Buildings G to H and G to J will be replaced with a pre-manufactured underground conduit system. In addition a pre-manufactured underground conduit system will be installed between Buildings D to G for a cross connection of power plants.

- Option four analyzes the effectiveness of installing the baseline systems described above with the addition of demand ventilation. In all buildings, all roof top units, air handling units, classroom unit ventilators, and heating and ventilating units will be provided with carbon dioxide detectors.

Annual electrical and gas consumption was calculated thru the results of a thermal dynamic heat transfer analysis utilizing Department of Energy (DOE-2)/eQuest software with the architectural data provided by HMFH Architects and the Town of Lexington. Annual electrical and gas consumption for the existing condition was provided by the Town of Lexington.

Costs of electricity and gas were obtained directly from the Town of Lexington.

The simple payback is calculated in “simple” format considering the cost of maintenance and interest. Simple payback is calculated by dividing the additional cost of the option to the baseline option by the energy saved. Considering the project under review’s immense energy consumption and ownership is to remain unchanged, and also considering the unpredictable future costs of electricity and gas, those options which minimize consumed energy should be considered favorable when they fall within the reasonable time use of the building.

In addition, a “Building Life-Cycle” analysis was completed to project overall future worth of each option considered using standard industry discount, inflation, and interest rates.

Rebates are variable contributions from the local power companies which periodically change based on economic conditions. Presently rebates would be available for high-efficiency motors and variable frequency drives only.

The engineering economic analysis does not consider the speculative nature of rebates in their results.

Conclusion

In consideration of the enclosed analysis, this office recommends a mechanical system based on option four which results in a simple payback of 3 years when compared to the baseline system. Option four results in a significant energy savings as well as integrates the least expensive initial investment above the baseline system. A 25 year building lifecycle comparison between option four and the baseline systems results in a gross energy savings of $761,746. A comparison of the initial investment of option four and the baseline and the projected energy savings yields a total net savings of $650,196. In addition, a 25 year building lifecycle comparison between option four and the existing systems results in a gross energy savings of $8,740,481.

A phasing plan was developed which included input from the Facilities Department of the Town of Lexington and this office which prioritized the areas of the building which requires immediate attention as well as school schedules, and in descending order concluded a total of four phases of construction. A description and construction cost associated with each phase of construction is provided in the subsequent phasing plan.

It was designed so that each phase of construction could be standalone and can be implemented without a completely constructed project, perhaps as funds are appropriated, however, the overall energy saved as indicated in the energy economic analysis above will not be completely realized until the entire project is completed.

GARCIA • GALUSKA • DESOUSA
Consulting Engineers Inc.
370 Faunce Corner Road, Dartmouth, MA 02747-1217

PROJECT	Lexington H.S.
CALC BY	KL
CHK BY	EG
DATE	09/11/08

PAYBACK SUMMARY

OPTION	SYSTEM DESCRIPTION	GROSS CAPITAL INVESTMENT	ANNUAL ELEC. CONS. (KWH)	ANNUAL GAS CONS. (MBTU)	ANNUAL ELECTRIC COST	ANNUAL GAS COST	COMBINED UTILITY COST	ANNUAL MAINT. COST	DW HEAT & GAS COOK COST***	COMBINED ANNUAL EXPENSE	COMBINED EXPENSE SAVINGS*	SIR	SIMPLE PAYBACK (YEARS)**
Existing	**-**	-	2,363,760	28,678.3	$412,319	$453,064	$865,383	$108,750	-	$974,133	-	-	-
Baseline	**1. Replace existing steam power plant w/ new hot water power plant (non-condensing boilers) 2. Existing hot water power plant to remain 3. Update controls to DDC**	$4,148,623	1,796,997	7,449.2	$390,735	$124,966	$515,701	$87,000	$23,450	$626,151	$347,982	-	-
1	**1. Replace existing steam power plant w/ new hot water power plant (condensing & non-condensing boilers) 2. Existing hot water power plant to remain 3. Update controls to DDC 4. Replace H&V's w/ H&V's w/ ERV 5. Add demand ventilation to all UV's, RTU's, and AHU's.**	$5,396,465	1,817,631	3,823.4	$404,098	$63,903	$468,001	$87,000	$23,450	$578,451	$395,682	0.73	20
2	**1. Replace existing steam power plant w/ relocated existing hot water power plant 2. Install new hot water power plant (condensing & non-condensing boilers) in Bldgs. G, H, & J. 3. Update controls to DDC 4. Replace H&V's w/ H&V's w/ ERV 5. Install CO2 sensors for all UV's, RTU's, and AHU's.**	$5,477,195	1,817,631	3,823.4	$404,098	$63,903	$468,001	$87,000	$23,450	$578,451	$395,682	0.69	21
3	**1. Replace existing steam power plant w/ relocated existing hot water power plant 2. Install new hot water power plant (condensing & non-condensing boilers) in Bldgs. G, H, & J. 3. Update controls to DDC 4. Replace H&V's w/ H&V's w/ ERV 5. Install CO2 sensors for all UV's, RTU's, and AHU's. 6. Install underground conduit system between Buildings D to G for cross connection.**	$5,519,429	1,817,631	3,823.4	$404,098	$63,903	$468,001	$87,000	$23,450	$578,451	$395,682	0.66	22
4	**1. Replace existing steam power plant w/ new hot water power plant (non-condensing boilers) 2. Existing hot water power plant to remain 3. Update controls to DDC 4. Install CO2 sensors for all UV's, RTU's, AHU's, and H&V's.**	$4,260,173	1,778,491	4,919.8	$395,401	$82,230	$477,631	$87,000	$23,450	$588,081	$386,052	6.83	3

*Combined expense savings is the difference between the combined annual expense of the existing and system in comparison.
**Simple payback years is based upon BLCC5 Life Cycle Analysis.
***Historical data indicates approximately $0.07/ft² is related to energy consumption for domestic hot water and cooking for a typical high school building. Therefor at $0.07/ft² times 335,000 ft², the associated cost for domestic hot water and cooking results in $23,450.

Response to Retro-Commissioning Report

We have reviewed the HVAC Retro-Commissioning Report dated February 1, 2007 and generally concur with the opinions of the commissioning agent as they relate to the building systems and overall conditions.

Although to a large degree opinions are offered in the report which indicate remaining useful life of various systems, these opinions are not justified with supporting backup material and should not be relied upon as conclusive.

The commissioning report goes on to discuss estimated construction costs and energy savings of various improvements and modifications recommended for the various mechanical systems. These recommendations are not supported with detailed cost estimates of the proposed modifications of which we believe the estimated costs are considerably undervalued based on today's construction values. The indicated energy savings are also not supported with backup material verifying the claim thru an engineering economic analysis and therefore the indicated payback of the recommendations should be considered speculative at best.

Phasing Plan

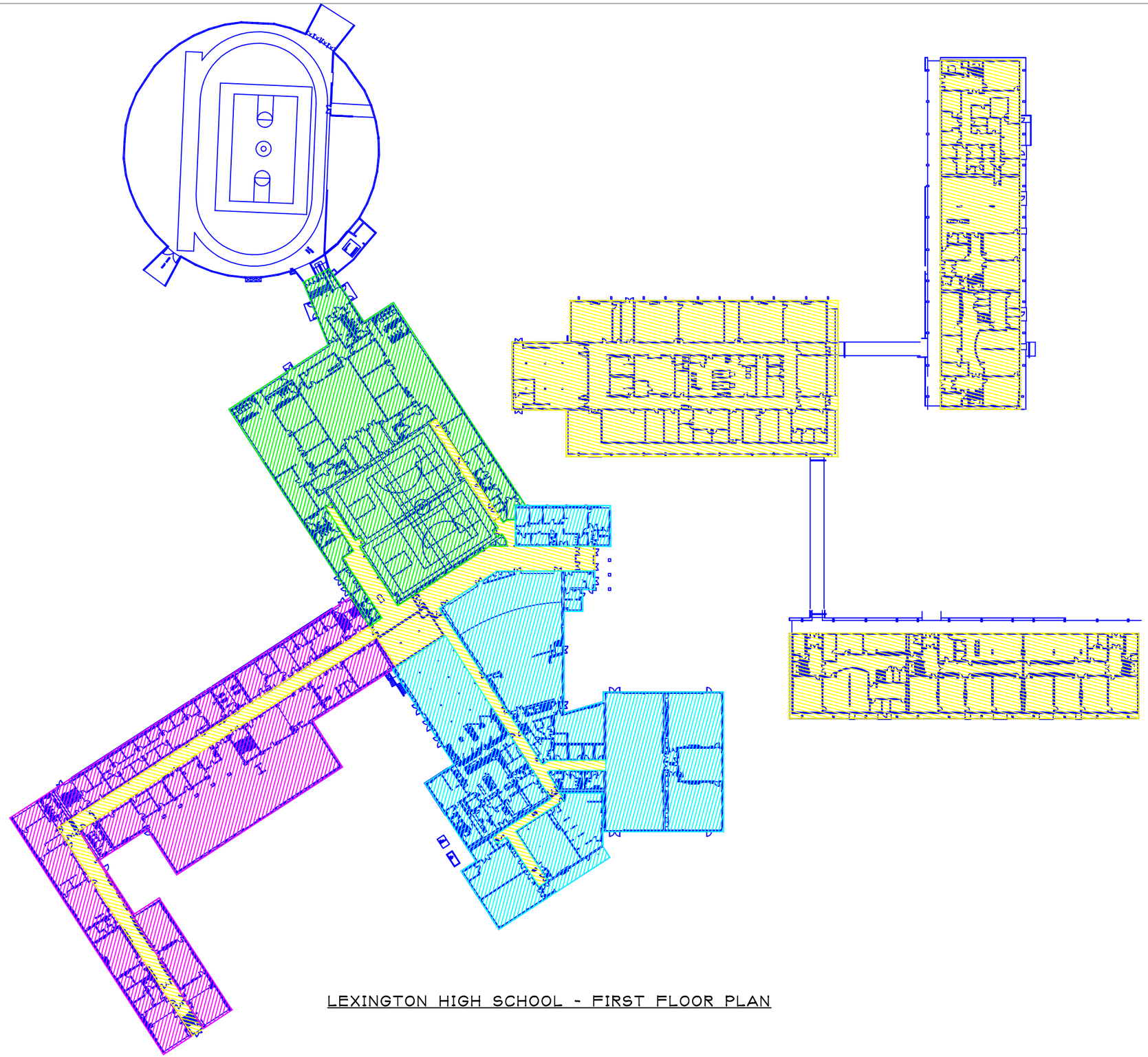
GARCIA • GALUSKA • DESOUSA
Consulting Engineers Inc.

370 Faunce Corner Road, Dartmouth, MA 02747-1217

PHASING SUMMARY

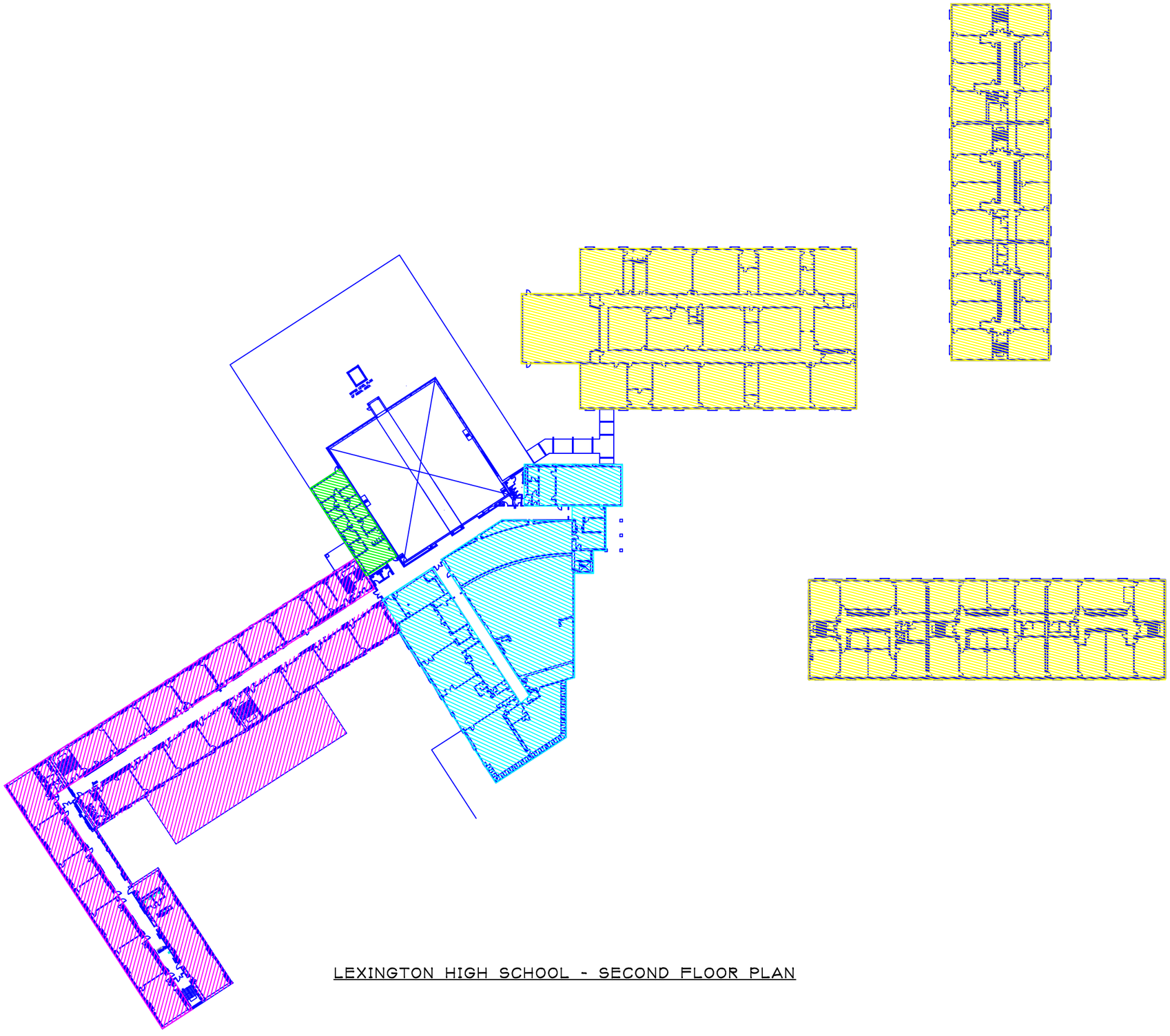
PHASE	CALENDER RANGE	DESCRIPTION	AREA	ANTICIPATED CONSTRUCTION COST	FEE*	TOTAL COST
1	6/01/09 - 10/01/09	New classroom unit ventilators. Tie into existing DDC control system. Reuse existing HW main and branch piping.	G, H, J	$2,000,000	$194,000	$2,194,000
		Upgrade existing RTU OA/RA damper feedback. New HW main piping.	A, B, C, D			
2	10/01/09 - 1/01/10	Replace (4) AHU w/ gas-fired ERV units and tied into existing ductwork. New HW terminal units tied into existing condesning HW piping system. All new equipment tied into existing DDC controls. Demolish all steam piping and equipment.	E	$526,000	$55,756	$581,756
3	1/01/10 - 6/01/10	Convert (1) steam. boiler to HW, (1) boiler to remain as steam. Add HW coils in supply duct mains. Upgrade steam terminal units to HW. Demolish all steam piping and equipment.	C, D	$400,000	$42,400	$442,400
4	6/01/10 - 10/01/10	Replace steam classroom unit ventilators and terminal units to HW and tie into HW mains provided in Phase 1. Tie all new equipment into exitsting DDC system. Upgrade existing RTU OA/RA damper feedback. Convert second steam boiler to HW. Demolish all steam piping and equipment.	A, B	$850,000	$85,000	$935,000
			TOTAL	$3,776,000	$377,156	$4,153,156

* Fee percentage varies for each phase. Phase one fee of 9.7%, Phase 2 & 3 of 10.6%, and Phase 4 of 10.0%.



LEXINGTON HIGH SCHOOL - FIRST FLOOR PLAN

GARCIA • GALUSKA • DESOUSA
Consulting Engineers Inc.
370 Faunce Corner Road, Dartmouth, MA 02747-1217



LEXINGTON HIGH SCHOOL - SECOND FLOOR PLAN

GARCIA • GALUSKA • DESOUSA
Consulting Engineers Inc.
370 Faunce Corner Road, Dartmouth, MA 02747-1217

Equipment List

GARCIA • GALUSKA • DESOUSA
Consulting Engineers Inc.
370 Faunce Corner Road, Dartmouth, MA 02747-1217

Legend

- To remain
- To be replaced
- Reccomended to be replaced
- Reccomended to be removed

Lexington High School Equipment List

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School	F-D11	Fan, Supply	Cook	Roof	
Lexington High School	F-D10	Fan, Supply	Cook	Roof	
Lexington High School		Roof Top Unit	AAON	Roof	
Lexington High School	RTU-B2	Roof Top Unit	AAON	Roof	
Lexington High School		Roof Top Unit	Goodman	Roof	
Lexington High School		Roof Top Unit	Cold Zone	Roof	
Lexington High School	RTU A-1	Roof Top Unit	AAON	Roof	
Lexington High School	RTU-B1	Roof Top Unit	AAON	Roof	
Lexington High School	RTU-B3	Roof Top Unit	AAON	Roof	
Lexington High School	RTU-D2	Roof Top Unit	AAON	Roof	
Lexington High School	D-1	Roof Top Unit	AAON	Roof	
Lexington High School	D-3	Roof Top Unit	AAON	Roof	
Lexington High School	E-1	Roof Top Unit	AAON	Roof	
Lexington High School		Roof Top Unit	Amana Refrigeration	Roof	
Lexington High School	RTU C-1	Roof Top Unit	AAON	Roof	
Lexington High School	HVC-4	Heating and Ventilation Unit	McQuay	Roof	
Lexington High School	HVC-2	Heating and Ventilation Unit	McQuay	Roof	
Lexington High School	HVC-1	Heating and Ventilation Unit	McQuay	Roof	
Lexington High School	HV C-3	Heating and Ventilation Unit	McQuay	Roof	
Lexington High School	H&V-B1	Heating and Ventilation Unit	McQuay	Roof	
Lexington High School	H&V D-1	Heating and Ventilation Unit	McQuay	Roof	
Lexington High School		Heat Pump	Mitsubishi	Roof	
Lexington High School	F-C5	Exhaust Fan	Cook	Roof	Roof
Lexington High School	FC-8	Exhaust Fan	Cook	Roof	Roof
Lexington High School		Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D12	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D14	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D16	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-E1	Exhaust Fan	Cook	Roof	Roof

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School	F-E8	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-E5	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-E3	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-E2	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D9	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D8	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D7	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D6	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D2	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D5	Exhaust Fan	McQuay	Roof	Roof
Lexington High School	FC-7	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D4	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-B3	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F.E. 6	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F.E. 7	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-B1	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-A1	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-A2	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-A3	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-A4	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D1	Exhaust Fan	Greenheck	Roof	Roof
Lexington High School	F-B2	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-D3	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-C2	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-C4	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-C6	Exhaust Fan	Cook	Roof	Roof
Lexington High School	F-C3	Exhaust Fan	Cook	Roof	Roof
Lexington High School	AHU D-1	Air Handling Unit	McQuay	Roof	
Lexington High School	AHU-D2	Air handling Unit	AAON	Roof	
Lexington High School		A/C Unit	N/A	Roof	
Lexington High School		Split AC	Trane	Roof	
Lexington High School		Split AC	Trane	Roof	
Lexington High School		Air Cooled Condenser Unit	AAON	Roof	
Lexington High School	ACCU-E1	Air Cooled Condenser Unit	AAON	Roof	
Lexington High School	ACCU-D4	Air Cooled Condenser Unit	McQuay	Roof	
Lexington High School		Air Cooled Condenser Unit	AAON	Roof	
Lexington High School	ACCU-D2	Air Cooled Condenser Unit	AAON	Roof	

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School	ACCU-1	Air Cooled Condenser Unit	AAON	Roof	
Lexington High School	ACCU-D3	Air Cooled Condenser Unit	AAON	Roof	
Lexington High School		Emergency Generator, Diesel	Kohler	Ground	
Lexington High School		Pump Fuel Oil	Oberdorfer	Ground	
Lexington High School		Pump Fuel Oil	Oberdorfer	Ground	
Lexington High School		Building Automation System-DDC	Johnson Controls		
Lexington High School		Unit Heater	Modine	Boiler Room	
Lexington High School		Tank, Boiler Feed	Skidmore	Boiler Room	
Lexington High School		Pump, Sump, Duplex	Weil	Boiler Room	
Lexington High School	P-1	Pump	TACO	Boiler Room	
Lexington High School		Pump	TACO	Boiler Room	
Lexington High School		Pump Hot Water Circulating	Bell and Gossett	Boiler Room	
Lexington High School		Pump Hot Water Circulating	Bell and Gossett	Boiler Room	
Lexington High School		Pump Circulating Pump	Bell and Gossett	Boiler Room	
Lexington High School		Pump Circulating Pump	Bell and Gossett	Boiler Room	
Lexington High School		Pump Circulating Pump	Bell and Gossett	Boiler Room	
Lexington High School		Fan, Boiler Combustion Air	Marathon	Boiler Room	
Lexington High School		Fan, Boiler Combustion Air	Auburn Stoker	Boiler Room	
Lexington High School		Fan, Boiler Combustion Air	Marathon	Boiler Room	
Lexington High School		Fan, Boiler Combustion Air	Auburn Stoker	Boiler Room	
Lexington High School		Expansion Tank	TACO	Boiler Room	
Lexington High School		Expansion Tank	Amtrol	Boiler Room	
Lexington High School		Domestic Hot Water Heater, Gas Fired	PVI	Boiler Room	
Lexington High School		Domestic Hot Water Heater, Gas Fired	PVI	Boiler Room	
Lexington High School		Domestic Hot Water Heater	Burnham	Boiler Room	
Lexington High School		Boiler, LP Steam, Gas Fired	HB Smith	Boiler Room	
Lexington High School		Boiler, LP Steam, Gas Fired	HB Smith	Boiler Room	
Lexington High School		Air Compressor	Harris Equipment	Boiler Room	
Lexington High School		Air Compressor	Harris Equipment	Boiler Room	
Lexington High School		Unit Ventilator	Nesbitt	Classroom	224
Lexington High School		Unit Ventilator	AAF	Corridor	
Lexington High School		Unit Ventilator	Nesbitt	Teacher's Room	245
Lexington High School		Unit Ventilator	Nesbitt	Classroom	229
Lexington High School		Unit Ventilator	Nesbitt	Classroom	231
Lexington High School		Unit Ventilator	Nesbitt	Classroom	232
Lexington High School		Unit Ventilator	Nesbitt	Classroom	214
Lexington High School		Unit Ventilator	Nesbitt	Classroom	243

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School		Unit Ventilator	Nesbitt	Classroom	230
Lexington High School		Unit Ventilator	Nesbitt	Classroom	246
Lexington High School		Unit Ventilator	Nesbitt	Classroom	227
Lexington High School		Unit Ventilator	Nesbitt	Classroom	211
Lexington High School		Unit Ventilator	Nesbitt	Classroom	240
Lexington High School		Unit Ventilator	Nesbitt	Classroom	239
Lexington High School		Unit Ventilator	Nesbitt	Classroom	234
Lexington High School		Unit Ventilator	Nesbitt	Classroom	228
Lexington High School		Unit Ventilator	Nesbitt	Classroom	241
Lexington High School		Unit Ventilator	Nesbitt	Classroom	235
Lexington High School		Unit Ventilator	Nesbitt	Classroom	210
Lexington High School		Unit Ventilator	Nesbitt	Classroom	210
Lexington High School		Unit Ventilator	Nesbitt	Classroom	242
Lexington High School		Unit Ventilator	Nesbitt	Classroom	244
Lexington High School		Unit Ventilator	AAF	Classroom	221
Lexington High School		Unit Ventilator	Nesbitt	Teacher's Room	245
Lexington High School		Unit Ventilator	Nesbitt	Classroom	233
Lexington High School		Unit Ventilator	Nesbitt	Classroom	225
Lexington High School		Unit Ventilator	Nesbitt	Classroom	226
Lexington High School		Unit Ventilator	Nesbitt	Classroom	209
Lexington High School		Unit Ventilator	Nesbitt	Classroom	239
Lexington High School		Unit Ventilator	Nesbitt	Classroom	212
Lexington High School		Unit Ventilator	Nesbitt	Teacher's Room	245
Lexington High School		Unit Ventilator	Nesbitt	Classroom	223
Lexington High School		Air Handling Unit	Trane/American Standard		209
Lexington High School		Air Handling Unit	Trane/American Standard		210
Lexington High School		Unit Ventilator	AAF	Corridor	416
Lexington High School		Unit Ventilator	N/A	Classroom	164
Lexington High School		Unit Ventilator	Nesbitt		166
Lexington High School		Unit Ventilator	Nesbitt		171
Lexington High School		Unit Ventilator	Nesbitt	Classroom	145
Lexington High School		Unit Ventilator	Nesbitt		167
Lexington High School		Unit Ventilator	Nesbitt		169
Lexington High School		Unit Ventilator	Nesbitt		174
Lexington High School		Unit Ventilator	Nesbitt		173
Lexington High School		Unit Ventilator	Nesbitt	Classroom	143
Lexington High School		Refrigerator, Walk	BOHN	Kitchen	

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School		Refrigerator, Walk	Copeland	Kitchen	
Lexington High School		Refrigerator, Walk	BOHN	Kitchen	
Lexington High School	HV-F1	Heating and Ventilation Unit	McQuay	Mechanical Room	926D
Lexington High School	HV-E1	Heating and Ventilation Unit	McQuay	Mechanical Room, Gym	
Lexington High School	HV-E3	Heating and Ventilation Unit	McQuay	Mechanical Room, Gym	
Lexington High School		Freezer, Walk-in	Cold Zone	Kitchen	
Lexington High School		Exhaust Fan	Cook	Field House	
Lexington High School		Exhaust Fan	Cook	Field House	
Lexington High School		Exhaust Fan	Cook	Field House	
Lexington High School		Exhaust Fan	Cook	Field House	
Lexington High School		Cabinet Unit Heater		Corridor	174
Lexington High School		Cabinet Unit Heater		Corridor	174
Lexington High School		Cabinet Unit Heater		Lobby/Connector	
Lexington High School	E-3	Air Handling Unit	AAON		912
Lexington High School	AHU-E2	Air Handling Unit	AAON	Coridor	906
Lexington High School	E-2	Air Handling Unit	AAON		906
Lexington High School - J		Building Automation System-Local	Johnson Controls		
Lexington High School - J		Building Automation System-DDC	Johnson Controls		
Lexington High School - J		Unit Ventilator	Trane	Classroom	824
Lexington High School - J		Unit Ventilator	Trane	Classroom	830
Lexington High School - J		Unit Ventilator	Trane	Classroom	803
Lexington High School - J		Unit Ventilator	Trane	Classroom	831
Lexington High School - J		Unit Ventilator	Trane	Classroom	825
Lexington High School - J		Unit Ventilator	Trane	Classroom	828
Lexington High School - J		Unit Ventilator	Trane	Classroom	823
Lexington High School - J		Unit Ventilator	Trane	Classroom	827
Lexington High School - J		Unit Ventilator	Trane	Classroom	801
Lexington High School - J		Unit Ventilator	Trane	Classroom	807
Lexington High School - J		Unit Ventilator	Trane	Classroom	821
Lexington High School - J		Unit Ventilator	Trane	Classroom	820
Lexington High School - J		Unit Ventilator	Trane	Classroom	819
Lexington High School - J		Unit Ventilator	Trane	Classroom	818
Lexington High School - J		Unit Ventilator	Trane	Classroom	826
Lexington High School - J		Unit Ventilator	Trane	Classroom	817
Lexington High School - J		Unit Ventilator	Trane	Classroom	816
Lexington High School - J		Unit Ventilator	Trane	Classroom	810
Lexington High School - J		Unit Ventilator	Trane	Classroom	808

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School - J		Unit Ventilator	Trane	Classroom	802
Lexington High School - J		Unit Ventilator	Trane	Classroom	829
Lexington High School - J		Unit Ventilator	Trane	Classroom	800
Lexington High School - J		Unit Ventilator	Trane	Classroom	809
Lexington High School - J		Unit Ventilator	Trane	Classroom	822
Lexington High School - J	RTU-J3	Roof Top Unit	Aaon	Roof	
Lexington High School - J	RTU-J2	Roof Top Unit	Aaon	Roof	
Lexington High School - J	RTU-J1	Roof Top Unit	Aaon	Roof	
Lexington High School - J	F-J6	Exhaust Fan	Cook	Roof	
Lexington High School - J	F-J8	Exhaust Fan	Cook	Roof	
Lexington High School - J	F-J7	Exhaust Fan	Cook	Roof	
Lexington High School - J	F-J5	Exhaust Fan	Cook	Roof	
Lexington High School - J	F-J4	Exhaust Fan	Cook	Roof	
Lexington High School - J	F-J10	Exhaust Fan	Cook	Roof	
Lexington High School - J	F-J9	Exhaust Fan	Cook	Roof	
Lexington High School - J	ACCU-J1	Air Cooled Condenser Unit	AAON	Roof	
Lexington High School - J	ACCU-J2	Air Cooled Condenser Unit	AAON	Roof	
Lexington High School - J		Cabinet Unit Heater		Hall at 823	
Lexington High School - J		Cabinet Unit Heater		Elevator Lobby/Hall to 803	
Lexington High School - J		Cabinet Unit Heater		Hall to 810	
Lexington High School - J		Window Air Conditioner	Amana		816
Lexington High School - J		Unit Ventilator	Trane	Classroom	714
Lexington High School - J		Unit Ventilator	Trane	Classroom	715
Lexington High School - J		Unit Ventilator	Trane	Faculty	713
Lexington High School - J		Unit Ventilator	Trane	Faculty	713
Lexington High School - J		Unit Ventilator	Trane	Classroom	712
Lexington High School - J		Unit Ventilator	Trane		700
Lexington High School - J		Unit Ventilator	Trane	Classroom	710
Lexington High School - J		Unit Ventilator	AAF	Lab	703
Lexington High School - J		Unit Ventilator	AAF	Lab	703
Lexington High School - J		Unit Ventilator	Trane	Classroom	714
Lexington High School - J		Unit Ventilator	Trane	Classroom	712
Lexington High School - J		Unit Ventilator	Trane	Vestibule	714
Lexington High School - J		Unit Ventilator	Trane		704
Lexington High School - J		Unit Ventilator	Trane	Kitchen	714l
Lexington High School - J		Cabinet Unit Heater		Entrance	
Lexington High School - J		Cabinet Unit Heater		Hall	

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School - J		Cabinet Unit Heater		Vestibule	
Lexington High School - J		Cabinet Unit Heater		Stair	
Lexington High School - J		Window Air Conditioner	Quasar		714
Lexington High School - J		Window Air Conditioner	Sharp		714C
Lexington High School - J		Window Air Conditioner	Sharp		714D
Lexington High School - J		Window Air Conditioner	Emerson		714O
Lexington High School - H	F-H4	Exhaust Fan	Cook		
Lexington High School - H		Building Automation System-DDC	Johnson Controls		
Lexington High School - H		Building Automation System-Local	Johnson Controls		
Lexington High School - H		Unit Ventilator	Trane	Health services	625
Lexington High School - H		Unit Ventilator	Trane	Classroom	633
Lexington High School - H		Unit Ventilator	Trane	Language Lab	617
Lexington High School - H		Unit Ventilator	Trane	Lanuage Lab	617
Lexington High School - H		Unit Ventilator	Trane	Classroom	616
Lexington High School - H		Unit Ventilator	Trane	Health Services	607
Lexington High School - H		Unit Ventilator	Trane	Classroom	615
Lexington High School - H		Unit Ventilator	Trane	Classroom	611
Lexington High School - H		Unit Ventilator	Trane	Classroom	624
Lexington High School - H		Unit Ventilator	Trane	Classroom	614
Lexington High School - H		Unit Ventilator	Trane	Classroom	613
Lexington High School - H		Unit Ventilator	Trane	Classroom	612
Lexington High School - H		Unit Ventilator	Trane	Classroom	610
Lexington High School - H		Unit Ventilator	Trane	Classroom	610
Lexington High School - H		Unit Ventilator	Trane	Classroom	606
Lexington High School - H		Unit Ventilator	Trane	Classroom	605
Lexington High School - H		Unit Ventilator	Trane	Office	600A
Lexington High School - H		Unit Ventilator	Trane	Classroom	601
Lexington High School - H		Unit Ventilator	Trane	Classroom	604
Lexington High School - H		Unit Ventilator	Trane	Classroom	634
Lexington High School - H		Unit Ventilator	Trane	Classroom	618
Lexington High School - H		Unit Ventilator	Trane	Classroom	632
Lexington High School - H		Unit Ventilator	Trane	Classroom	628
Lexington High School - H		Unit Ventilator	Trane	Classroom	627
Lexington High School - H		Unit Ventilator	Trane	Health Services	626
Lexington High School - H		Unit Ventilator	AAF	Office	600
Lexington High School - H	RTU-H2	Roof Top Unit	Aaon	Roof	
Lexington High School - H	RTU-H3	Roof Top Unit	Aaon	Roof	

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School - H	RTU-H1	Roof Top Unit	Aaon	Roof	
Lexington High School - H	RTU-H4	Roof Top Unit	Aaon	Roof	
Lexington High School - H	F-H9	Exhaust Fan	Cook	Roof	
Lexington High School - H	F-H8	Exhaust Fan	Cook	Roof	
Lexington High School - H	F-H7	Exhaust Fan	Cook	Roof	
Lexington High School - H	F-H5	Exhaust Fan	Cook	Roof	
Lexington High School - H	F-H10	Exhaust Fan	Cook	Roof	
Lexington High School - H	F-H11	Exhaust Fan	Cook	Roof	
Lexington High School - H	F-H6	Exhaust Fan	Cook	Roof	
Lexington High School - H	ACCU-H2	Air Cooled Condenser Unit	AAON	Roof	
Lexington High School - H	ACCU-H1	Air Cooled Condenser Unit	AAON	Roof	
Lexington High School - H		Cabinet Unit Heater		Outside 619	
Lexington High School - H		Cabinet Unit Heater	Carrier	Outside 631	
Lexington High School - H		Cabinet Unit Heater		Outside 623	
Lexington High School - H		Unit Ventilator	Trane	Classroom	512
Lexington High School - H		Unit Ventilator	AAF	Classroom	503
Lexington High School - H		Unit Ventilator	AAF	Classroom	503
Lexington High School - H		Unit Ventilator	AAF		504
Lexington High School - H		Unit Ventilator	AAF	Resource Room	519
Lexington High School - H		Unit Ventilator	Trane	Classroom	510
Lexington High School - H		Unit Ventilator	Trane		500
Lexington High School - H		Unit Ventilator	Trane	Faculty	513
Lexington High School - H		Unit Ventilator	AAF	Classroom	513
Lexington High School - H		Unit Ventilator	Trane	Classroom	517
Lexington High School - H		Unit Ventilator	AAF	Classroom	516
Lexington High School - H		Unit Ventilator	AAF	Classroom	515
Lexington High School - H		Unit Ventilator	Trane	Classroom	518
Lexington High School - H		Unit Ventilator	Trane	Classroom	514
Lexington High School - H		Unit Ventilator	Trane	Classroom	520
Lexington High School - H		Cabinet Unit Heater		Vestibule	
Lexington High School - H		Cabinet Unit Heater		Lobby	
Lexington High School - H		Cabinet Unit Heater		Stair	
Lexington High School - H		Cabinet Unit Heater		Vestibule	
Lexington High School - G		Building Automation System-Local	Johnson Controls		
Lexington High School - G		Building Automation System-DDC	Johnson Controls		
Lexington High School - G	PG1	Pump	Taco	Boiler Room	
Lexington High School - G	PG2	Pump	Taco	Boiler Room	

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School - G	PG3	Pump	Taco	Boiler Room	
Lexington High School - G	HVG-1	Heating and Ventilation Unit	McQuay	Boiler Room	
Lexington High School - G	-2	Expansion Tank	N/A	Boiler Room	
Lexington High School - G	-1	Expansion Tank	N/A	Boiler Room	
Lexington High School - G		Expansion Tank, Domestic Hot Water	Amtrol	Boiler Room	
Lexington High School - G		Expansion Tank, Domestic Hot Water	Amtrol	Boiler Room	
Lexington High School - G	-4	Expansion Tank	N/A	Boiler Room	
Lexington High School - G	-5	Expansion Tank	N/A	Boiler Room	
Lexington High School - G	-3	Expansion Tank	N/A	Boiler Room	
Lexington High School - G		Exhaust Fan		Crawl Space	
Lexington High School - G	WH-1	Domestic Hot Water Heater, Gas Fired	PVI	Boiler Room	
Lexington High School - G	WH-2	Domestic Hot Water Heater, Gas Fired	PVI	Boiler Room	
Lexington High School - G	B-G2	Boiler, Hot Water, Gas Fired	Burnham	Boiler Room	
Lexington High School - G	B-G1	Boiler, Hot Water, Gas Fired	Burnham	Boiler Room	
Lexington High School - G	B-G3	Boiler, Hot Water, Gas Fired	Burnham	Boiler Room	
Lexington High School - G		Air Separator	Bell & Gossett	Boiler Room	
Lexington High School - G		Air Compressor	Emglo	Boiler Room	
Lexington High School - G		Air Dryer	Johnson	Boiler Room	
Lexington High School - G		VAV Box	Nailor	Stair	
Lexington High School - G		VAV Box	Nailor	Prep Room	406
Lexington High School - G		VAV Box	Nailor	Prep Room	406
Lexington High School - G		Unit Ventilator	Trane	Classroom	420
Lexington High School - G		Unit Ventilator	Trane	Classroom	407
Lexington High School - G		Unit Ventilator	Trane	Classroom	403
Lexington High School - G		Unit Ventilator	Trane	Classroom	405
Lexington High School - G		Unit Ventilator	Trane	Classroom	404
Lexington High School - G		Unit Ventilator	Trane	Classroom	400
Lexington High School - G		Unit Ventilator	Trane	Classroom	417
Lexington High School - G		Unit Ventilator	Trane	Classroom	411
Lexington High School - G		Unit Ventilator	Trane	Prep	402A
Lexington High School - G		Unit Ventilator	Trane	Classroom	408
Lexington High School - G		Unit Ventilator	Trane	Classroom	415
Lexington High School - G		Unit Ventilator	Trane	Classroom	402
Lexington High School - G		Unit Ventilator	AAF	Classroom	416
Lexington High School - G		Unit Ventilator	AAF	Classroom	414
Lexington High School - G	RTU-G3	Roof Top Unit	Aaon	Roof	
Lexington High School - G	RTU-G1	Roof Top Unit	Aaon	Roof	

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School - G	RTU-G4	Roof Top Unit	Aaon	Roof	
Lexington High School - G	RTU-G5	Roof Top Unit	Aaon	Roof	
Lexington High School - G	F-G5	Exhaust Fan	Centrimaster	Roof	
Lexington High School - G	F-G21	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G4	Exhaust Fan	Centrimaster	Roof	
Lexington High School - G		Chimney Fan	Exhausto	Roof, Upper	
Lexington High School - G	F-G28	Exhaust Fan	Cook	Roof, Upper	
Lexington High School - G	F-G27	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G16	Exhaust Fan	Centrimaster	Roof	
Lexington High School - G	F-G17	Exhaust Fan	Centrimaster	Roof	
Lexington High School - G	F-G15	Exhaust Fan	Centrimaster	Roof	
Lexington High School - G	F-G19	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G20	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G18	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G14	Exhaust Fan	Centrimaster	Roof	
Lexington High School - G	F-G13	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G26	Exhaust Fan	Cook	Roof, Upper	
Lexington High School - G	F-G12	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G10	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G25	Exhaust Fan	Cook	Roof, Upper	
Lexington High School - G		Chimney Fan	Exhausto	Roof, Upper	
Lexington High School - G	F-G11	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G3	Exhaust Fan	Centrimaster	Roof	
Lexington High School - G	F-G9	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G8	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G7	Exhaust Fan	Cook	Roof	
Lexington High School - G	F-G6	Exhaust Fan	Centrimaster	Roof	
Lexington High School - G	F-G22	Exhaust Fan	Cook	Roof	
Lexington High School - G	ACCU-2	Air Cooled Condenser Unit	AAON	Roof	
Lexington High School - G	ACCU-1	Air Cooled Condenser Unit	AAON	Roof	
Lexington High School - G	ACCU-3	Air Cooled Condenser Unit	AAON	Roof	
Lexington High School - G		Unit Ventilator	AAF	Classroom	319
Lexington High School - G		Unit Ventilator	Trane	Classroom	303
Lexington High School - G		Unit Ventilator	AAF	Classroom	325
Lexington High School - G		Unit Ventilator	AAF	Classroom	317
Lexington High School - G		Unit Ventilator	AAF	Classroom	315
Lexington High School - G		Unit Ventilator	AAF	Classroom	313

Location	Equip. Tag	Equip. Description	Manufacturer Name	Room Name	Room Number
Lexington High School - G		Unit Ventilator	AAF	Classroom	321
Lexington High School - G		Unit Ventilator	Trane	Faculty	300
Lexington High School - G		Unit Ventilator	Trane	Classroom	301
Lexington High School - F		Building Automation System-DDC	Johnson Controls		
Lexington High School - F		Building Automation System-Local	Johnson Controls		
Lexington High School - F		Air Handling Unit	McQuay	Mechanical Room	
Lexington High School - F		Exhaust Fan Wall	Cook	Field House	
Lexington High School - F		Exhaust Fan Wall	Cook	Field House	
Lexington High School - F		Exhaust Fan Wall	Cook	Field House	
Lexington High School - F		Exhaust Fan Wall	Cook	Field House	

LIFE CYCLE ANALYSES

NIST BLCC 5.3-07: Comparative Analysis

Consistent with Federal Life Cycle Cost Methodology and Procedures, 10 CFR, Part 436, Subpart A

Base Case: Baseline

Alternative: Option 1

General Information

File Name:	C:\Program Files\BLCC5\projects\Lexington H.S..xml
Date of Study:	Fri Aug 15 09:30:49 EDT 2008
Project Name:	Lexington High School
Project Location:	Massachusetts
Analysis Type:	FEMP Analysis, Energy Project
Analyst:	Keith Lane
Base Date:	January 1, 2009
Service Date:	January 1, 2009
Study Period:	25 years 0 months(January 1, 2009 through December 31, 2033)
Discount Rate:	5%
Discounting Convention:	End-of-Year

Comparison of Present-Value Costs

PV Life-Cycle Cost

	Base Case	Alternative	Savings from Alternative
Initial Investment Costs:			
Capital Requirements as of Base Date	$4,148,623	$5,396,465	-$1,247,842
Future Costs:			
Energy Consumption Costs	$8,957,884	$8,047,683	$910,202
Energy Demand Charges	$0	$0	$0
Energy Utility Rebates	$0	$0	$0
Water Costs	$0	$0	$0
Recurring and Non-Recurring OM&R Costs	$1,508,019	$1,508,019	$0
Capital Replacements	$0	$0	$0
Residual Value at End of Study Period	$0	$0	$0
Subtotal (for Future Cost Items)	$10,465,903	$9,555,701	$910,202
Total PV Life-Cycle Cost	$14,614,526	$14,952,166	-$337,640

Net Savings from Alternative Compared with Base Case

PV of Non-Investment Savings	$910,202
- Increased Total Investment	$1,247,842
Net Savings	-$337,640

Savings-to-Investment Ratio (SIR)

SIR = 0.73

SIR is lower than 1.0; project alternative is not cost effective.

Adjusted Internal Rate of Return

AIRR = 3.68%

AIRR is lower than your discount rate; project alternative is not cost effective.

Payback Period

Estimated Years to Payback (from beginning of Service Period)

Discounted Payback never reached during study period.

Simple Payback occurs in year 20

Energy Savings Summary

Energy Savings Summary (in stated units)

Energy Type	Average Annual Consumption: Base Case	Alternative	Savings	Life-Cycle Savings
Electricity	1,796,997.0 kWh	1,817,631.0 kWh	-20,634.0 kWh	-515,779.4 kWh
Natural Gas	74,492.0 Therm	38,234.0 Therm	36,258.0 Therm	906,325.9 Therm

Energy Savings Summary (in MBtu)

Energy Type	Average Annual Consumption: Base Case	Alternative	Savings	Life-Cycle Savings
Electricity	6,131.6 MBtu	6,202.0 MBtu	-70.4 MBtu	-1,759.9 MBtu
Natural Gas	7,449.2 MBtu	3,823.4 MBtu	3,625.8 MBtu	90,632.9 MBtu

Emissions Reduction Summary

Energy Type	Average Annual Emissions: Base Case	Alternative	Reduction	Life-Cycle Reduction
Electricity				
CO2	1,590,687.33 kg	1,608,952.38 kg	-18,265.05 kg	-456,563.77 kg
SO2	3,864.95 kg	3,909.33 kg	-44.38 kg	-1,109.33 kg
NOx	3,338.56 kg	3,376.89 kg	-38.33 kg	-958.24 kg
Natural Gas				
CO2	393,493.10 kg	201,965.52 kg	191,527.58 kg	4,787,534.15 kg
SO2	3,175.61 kg	1,629.93 kg	1,545.69 kg	38,636.91 kg
NOx	463.77 kg	238.03 kg	225.73 kg	5,642.52 kg
Total:				
CO2	1,984,180.43 kg	1,810,917.89 kg	173,262.53 kg	4,330,970.38 kg
SO2	7,040.56 kg	5,539.25 kg	1,501.31 kg	37,527.58 kg
NOx	3,802.32 kg	3,614.93 kg	187.40 kg	4,684.28 kg

NIST BLCC 5.3-07: Comparative Analysis

Consistent with Federal Life Cycle Cost Methodology and Procedures, 10 CFR, Part 436, Subpart A

Base Case: Baseline

Alternative: Option 2

General Information

File Name:	C:\Program Files\BLCC5\projects\Lexington H.S..xml
Date of Study:	Fri Aug 15 09:32:15 EDT 2008
Project Name:	Lexington High School
Project Location:	Massachusetts
Analysis Type:	FEMP Analysis, Energy Project
Analyst:	Keith Lane
Base Date:	January 1, 2009
Service Date:	January 1, 2009
Study Period:	25 years 0 months(January 1, 2009 through December 31, 2033)
Discount Rate:	5%
Discounting Convention:	End-of-Year

Comparison of Present-Value Costs

PV Life-Cycle Cost

	Base Case	Alternative	Savings from Alternative
Initial Investment Costs:			
Capital Requirements as of Base Date	$4,148,623	$5,477,195	-$1,328,572
Future Costs:			
Energy Consumption Costs	$8,957,884	$8,047,683	$910,202
Energy Demand Charges	$0	$0	$0
Energy Utility Rebates	$0	$0	$0
Water Costs	$0	$0	$0
Recurring and Non-Recurring OM&R Costs	$1,508,019	$1,508,019	$0
Capital Replacements	$0	$0	$0
Residual Value at End of Study Period	$0	$0	$0
Subtotal (for Future Cost Items)	$10,465,903	$9,555,701	$910,202
Total PV Life-Cycle Cost	$14,614,526	$15,032,896	-$418,370

Net Savings from Alternative Compared with Base Case

PV of Non-Investment Savings	$910,202
- Increased Total Investment	$1,328,572
Net Savings	-$418,370

Savings-to-Investment Ratio (SIR)

SIR = 0.69

SIR is lower than 1.0; project alternative is not cost effective.

Adjusted Internal Rate of Return

AIRR = 3.42%

AIRR is lower than your discount rate; project alternative is not cost effective.

Payback Period

Estimated Years to Payback (from beginning of Service Period)

Discounted Payback never reached during study period.

Simple Payback occurs in year 21

Energy Savings Summary

Energy Savings Summary (in stated units)

Energy Type	Average Annual Consumption: Base Case	Alternative	Savings	Life-Cycle Savings
Electricity	1,796,997.0 kWh	1,817,631.0 kWh	-20,634.0 kWh	-515,779.4 kWh
Natural Gas	74,492.0 Therm	38,234.0 Therm	36,258.0 Therm	906,325.9 Therm

Energy Savings Summary (in MBtu)

Energy Type	Average Annual Consumption: Base Case	Alternative	Savings	Life-Cycle Savings
Electricity	6,131.6 MBtu	6,202.0 MBtu	-70.4 MBtu	-1,759.9 MBtu
Natural Gas	7,449.2 MBtu	3,823.4 MBtu	3,625.8 MBtu	90,632.9 MBtu

Emissions Reduction Summary

Energy Type	Average Annual Emissions: Base Case	Alternative	Reduction	Life-Cycle Reduction
Electricity				
CO2	1,590,687.33 kg	1,608,952.38 kg	-18,265.05 kg	-456,563.77 kg
SO2	3,864.95 kg	3,909.33 kg	-44.38 kg	-1,109.33 kg
NOx	3,338.56 kg	3,376.89 kg	-38.33 kg	-958.24 kg
Natural Gas				
CO2	393,493.10 kg	201,965.52 kg	191,527.58 kg	4,787,534.15 kg
SO2	3,175.61 kg	1,629.93 kg	1,545.69 kg	38,636.91 kg
NOx	463.77 kg	238.03 kg	225.73 kg	5,642.52 kg
Total:				
CO2	1,984,180.43 kg	1,810,917.89 kg	173,262.53 kg	4,330,970.38 kg
SO2	7,040.56 kg	5,539.25 kg	1,501.31 kg	37,527.58 kg
NOx	3,802.32 kg	3,614.93 kg	187.40 kg	4,684.28 kg

NIST BLCC 5.3-07: Comparative Analysis

Consistent with Federal Life Cycle Cost Methodology and Procedures, 10 CFR, Part 436, Subpart A

Base Case: Baseline

Alternative: Option 3

General Information

File Name:	C:\Program Files\BLCC5\projects\Lexington H.S..xml
Date of Study:	Fri Aug 15 09:33:00 EDT 2008
Project Name:	Lexington High School
Project Location:	Massachusetts
Analysis Type:	FEMP Analysis, Energy Project
Analyst:	Keith Lane
Base Date:	January 1, 2009
Service Date:	January 1, 2009
Study Period:	25 years 0 months(January 1, 2009 through December 31, 2033)
Discount Rate:	5%
Discounting Convention:	End-of-Year

Comparison of Present-Value Costs

PV Life-Cycle Cost

	Base Case	Alternative	Savings from Alternative
Initial Investment Costs:			
Capital Requirements as of Base Date	$4,148,623	$5,519,429	-$1,370,806
Future Costs:			
Energy Consumption Costs	$8,957,884	$8,047,683	$910,202
Energy Demand Charges	$0	$0	$0
Energy Utility Rebates	$0	$0	$0
Water Costs	$0	$0	$0
Recurring and Non-Recurring OM&R Costs	$1,508,019	$1,508,019	$0
Capital Replacements	$0	$0	$0
Residual Value at End of Study Period	$0	$0	$0
Subtotal (for Future Cost Items)	$10,465,903	$9,555,701	$910,202
Total PV Life-Cycle Cost	$14,614,526	$15,075,130	-$460,604

Net Savings from Alternative Compared with Base Case

PV of Non-Investment Savings	$910,202
- Increased Total Investment	$1,370,806
Net Savings	-$460,604

Savings-to-Investment Ratio (SIR)

SIR = 0.66

SIR is lower than 1.0; project alternative is not cost effective.

Adjusted Internal Rate of Return

AIRR = 3.29%

AIRR is lower than your discount rate; project alternative is not cost effective.

Payback Period

Estimated Years to Payback (from beginning of Service Period)

Discounted Payback never reached during study period.

Simple Payback occurs in year 22

Energy Savings Summary

Energy Savings Summary (in stated units)

Energy Type	Average Annual Consumption: Base Case	Alternative	Savings	Life-Cycle Savings
Electricity	1,796,997.0 kWh	1,817,631.0 kWh	-20,634.0 kWh	-515,779.4 kWh
Natural Gas	74,492.0 Therm	38,234.0 Therm	36,258.0 Therm	906,325.9 Therm

Energy Savings Summary (in MBtu)

Energy Type	Average Annual Consumption: Base Case	Alternative	Savings	Life-Cycle Savings
Electricity	6,131.6 MBtu	6,202.0 MBtu	-70.4 MBtu	-1,759.9 MBtu
Natural Gas	7,449.2 MBtu	3,823.4 MBtu	3,625.8 MBtu	90,632.9 MBtu

Emissions Reduction Summary

Energy Type	Average Annual Emissions: Base Case	Alternative	Reduction	Life-Cycle Reduction
Electricity				
CO2	1,590,687.33 kg	1,608,952.38 kg	-18,265.05 kg	-456,563.77 kg
SO2	3,864.95 kg	3,909.33 kg	-44.38 kg	-1,109.33 kg
NOx	3,338.56 kg	3,376.89 kg	-38.33 kg	-958.24 kg
Natural Gas				
CO2	393,493.10 kg	201,965.52 kg	191,527.58 kg	4,787,534.15 kg
SO2	3,175.61 kg	1,629.93 kg	1,545.69 kg	38,636.91 kg
NOx	463.77 kg	238.03 kg	225.73 kg	5,642.52 kg
Total:				
CO2	1,984,180.43 kg	1,810,917.89 kg	173,262.53 kg	4,330,970.38 kg
SO2	7,040.56 kg	5,539.25 kg	1,501.31 kg	37,527.58 kg
NOx	3,802.32 kg	3,614.93 kg	187.40 kg	4,684.28 kg

NIST BLCC 5.3-07: Comparative Analysis

Consistent with Federal Life Cycle Cost Methodology and Procedures, 10 CFR, Part 436, Subpart A

Base Case: Baseline

Alternative: Option 4

General Information

File Name:	C:\Program Files\BLCC5\projects\Lexington H.S..xml
Date of Study:	Mon Aug 18 08:31:42 EDT 2008
Project Name:	Lexington High School
Project Location:	Massachusetts
Analysis Type:	FEMP Analysis, Energy Project
Analyst:	Keith Lane
Base Date:	January 1, 2009
Service Date:	January 1, 2009
Study Period:	25 years 0 months(January 1, 2009 through December 31, 2033)
Discount Rate:	5%
Discounting Convention:	End-of-Year

Comparison of Present-Value Costs

PV Life-Cycle Cost

	Base Case	Alternative	Savings from Alternative
Initial Investment Costs:			
Capital Requirements as of Base Date	$4,148,623	$4,260,173	-$111,550
Future Costs:			
Energy Consumption Costs	$8,957,884	$8,196,139	$761,746
Energy Demand Charges	$0	$0	$0
Energy Utility Rebates	$0	$0	$0
Water Costs	$0	$0	$0
Recurring and Non-Recurring OM&R Costs	$1,508,019	$1,508,019	$0
Capital Replacements	$0	$0	$0
Residual Value at End of Study Period	$0	$0	$0
Subtotal (for Future Cost Items)	$10,465,903	$9,704,157	$761,746
Total PV Life-Cycle Cost	$14,614,526	$13,964,330	$650,196

Net Savings from Alternative Compared with Base Case

PV of Non-Investment Savings	$761,746
- Increased Total Investment	$111,550
Net Savings	$650,196

Savings-to-Investment Ratio (SIR)

SIR = 6.83

Adjusted Internal Rate of Return

AIRR = 13.39%

Payback Period

Estimated Years to Payback (from beginning of Service Period)

Simple Payback occurs in year	3
Discounted Payback occurs in year	3

Energy Savings Summary

Energy Savings Summary (in stated units)

Energy Type	Average Annual Consumption: Base Case	Alternative	Life-Cycle Savings: Savings	Savings
Electricity	1,796,997.0 kWh	1,778,491.0 kWh	18,506.0 kWh	462,586.7 kWh
Natural Gas	74,492.0 Therm	49,198.0 Therm	25,294.0 Therm	632,263.4 Therm

Energy Savings Summary (in MBtu)

Energy Type	Average Annual Consumption: Base Case	Alternative	Life-Cycle Savings: Savings	Savings
Electricity	6,131.6 MBtu	6,068.5 MBtu	63.1 MBtu	1,578.4 MBtu
Natural Gas	7,449.2 MBtu	4,919.8 MBtu	2,529.4 MBtu	63,226.6 MBtu

Emissions Reduction Summary

Energy Type	Average Annual Emissions: Base Case	Alternative	Life-Cycle Reduction: Reduction	Reduction
Electricity				
CO2	1,590,687.33 kg	1,574,305.96 kg	16,381.36 kg	409,478.01 kg
SO2	3,864.95 kg	3,825.14 kg	39.80 kg	994.92 kg
NOx	3,338.56 kg	3,304.18 kg	34.38 kg	859.42 kg
Natural Gas				
CO2	393,493.10 kg	259,881.24 kg	133,611.86 kg	3,339,839.17 kg
SO2	3,175.61 kg	2,097.32 kg	1,078.29 kg	26,953.56 kg
NOx	463.77 kg	306.29 kg	157.47 kg	3,936.29 kg
Total:				
CO2	1,984,180.43 kg	1,834,187.21 kg	149,993.22 kg	3,749,317.18 kg
SO2	7,040.56 kg	5,922.47 kg	1,118.09 kg	27,948.48 kg
NOx	3,802.32 kg	3,610.47 kg	191.85 kg	4,795.71 kg

NIST BLCC 5.3-07: Comparative Analysis

Consistent with Federal Life Cycle Cost Methodology and Procedures, 10 CFR, Part 436, Subpart A

Base Case: Existing

Alternative: Option 4

General Information

File Name:	C:\Program Files\BLCC5\projects\Lexington H.S..xml
Date of Study:	Thu Sep 11 15:14:52 EDT 2008
Project Name:	Lexington High School
Project Location:	Massachusetts
Analysis Type:	FEMP Analysis, Energy Project
Analyst:	Keith Lane
Base Date:	January 1, 2009
Service Date:	January 1, 2009
Study Period:	25 years 0 months(January 1, 2009 through December 31, 2033)
Discount Rate:	5%
Discounting Convention:	End-of-Year

Comparison of Present-Value Costs

PV Life-Cycle Cost

	Base Case	Alternative	Savings from Alternative
Initial Investment Costs:			
Capital Requirements as of Base Date	$0	$4,260,173	-$4,260,173
Future Costs:			
Energy Consumption Costs	$16,936,620	$8,196,139	$8,740,481
Energy Demand Charges	$0	$0	$0
Energy Utility Rebates	$0	$0	$0
Water Costs	$0	$0	$0
Recurring and Non-Recurring OM&R Costs	$1,885,023	$1,508,019	$377,005
Capital Replacements	$0	$0	$0
Residual Value at End of Study Period	$0	$0	$0
Subtotal (for Future Cost Items)	$18,821,643	$9,704,157	$9,117,486
Total PV Life-Cycle Cost	$18,821,643	$13,964,330	$4,857,313

Net Savings from Alternative Compared with Base Case

PV of Non-Investment Savings	$9,117,486
- Increased Total Investment	$4,260,173
Net Savings	$4,857,313

Savings-to-Investment Ratio (SIR)

SIR = 2.14

Adjusted Internal Rate of Return

AIRR = 8.25%

Payback Period

Estimated Years to Payback (from beginning of Service Period)

Simple Payback occurs in year	8
Discounted Payback occurs in year	10

Energy Savings Summary

Energy Savings Summary (in stated units)

Energy Type	Average Annual Consumption Base Case	Alternative	Savings	Life-Cycle Savings
Electricity	2,363,760.0 kWh	1,778,491.0 kWh	585,269.0 kWh	14,629,722.0 kWh
Natural Gas	286,783.0 Therm	49,198.0 Therm	237,585.0 Therm	5,938,811.9 Therm

Energy Savings Summary (in MBtu)

Energy Type	Average Annual Consumption Base Case	Alternative	Savings	Life-Cycle Savings
Electricity	8,065.5 MBtu	6,068.5 MBtu	1,997.0 MBtu	49,918.7 MBtu
Natural Gas	28,678.4 MBtu	4,919.8 MBtu	23,758.6 MBtu	593,883.4 MBtu

Emissions Reduction Summary

Energy Type	Average Annual Emissions Base Case	Alternative	Reduction	Life-Cycle Reduction
Electricity				
CO2	2,092,381.39 kg	1,574,305.96 kg	518,075.42 kg	12,950,112.55 kg
SO2	5,083.93 kg	3,825.14 kg	1,258.79 kg	31,465.32 kg
NOx	4,391.52 kg	3,304.18 kg	1,087.34 kg	27,179.89 kg
Natural Gas				
CO2	1,514,889.27 kg	259,881.24 kg	1,255,008.03 kg	31,370,905.75 kg
SO2	12,225.63 kg	2,097.32 kg	10,128.31 kg	253,173.11 kg
NOx	1,785.43 kg	306.29 kg	1,479.13 kg	36,973.30 kg
Total:				
CO2	3,607,270.66 kg	1,834,187.21 kg	1,773,083.45 kg	44,321,018.30 kg
SO2	17,309.56 kg	5,922.47 kg	11,387.10 kg	284,638.43 kg
NOx	6,176.95 kg	3,610.47 kg	2,566.48 kg	64,153.19 kg

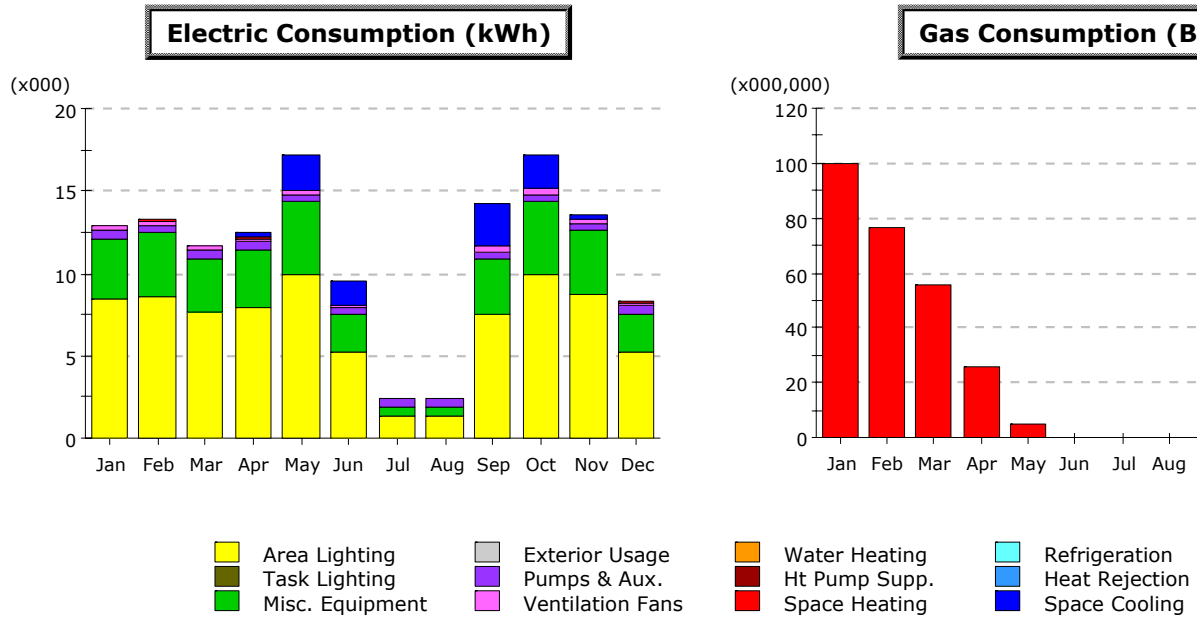
ENERGY PROFILES

GARCIA • GALUSKA • DESOUSA
Consulting Engineers Inc.
370 Faunce Corner Road, Dartmouth, MA 02747-1217

PROJECT	Lexington H.S.
CALC BY	KL
CHK BY	EG
DATE	08/12/08

BASELINE CONSUMPTION SUMMARY

Building	ANNUAL ELEC. CONS. (KWH)	ANNUAL GAS CONS. (MBTU)	ANNUAL ELECTRIC COST	ANNUAL GAS COST	COMBINED UTILITY COST	ANNUAL MAINT. COST	COMBINED ANNUAL EXPENSE
A	135,050	370.3	$30,009	$6,189	$36,198	$5,800	$41,998
B	238,460	599.9	$52,986	$10,027	$63,013	$9,600	$72,613
C	95,027	634.7	$21,115	$10,608	$31,723	$8,200	$39,923
D	283,720	1,458.2	$63,043	$24,372	$87,415	$9,000	$96,415
E	237,490	2,228.0	$52,989	$37,239	$90,228	$14,800	$105,028
F	151,460	858.7	$33,655	$14,352	$48,007	$2,000	$50,007
G	277,760	526.9	$61,718	$8,807	$70,525	$13,600	$84,125
H	187,440	423.7	$32,653	$7,542	$40,195	$12,400	$52,595
J	190,590	348.8	$42,567	$5,830	$48,397	$11,600	$59,997
TOTAL	1,796,997	7,449.2	$390,735	$124,966	$515,701	$87,000	$602,701



Electric Consumption (kWh x000)

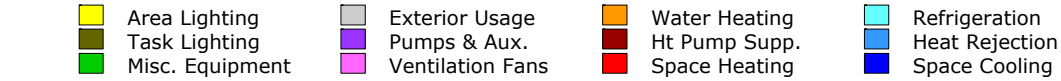
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.02	-	0.02	0.34	2.16	1.41	-	-	2.53	2.08	0.20	0.06	8.82
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.05	0.04	0.03	0.02	0.00	0.00	-	-	0.00	0.00	0.02	0.04	0.20
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.30	0.29	0.22	0.21	0.31	0.17	-	-	0.33	0.36	0.25	0.17	2.60
Pumps & Aux.	0.51	0.47	0.51	0.48	0.45	0.43	0.44	0.44	0.43	0.46	0.49	0.51	5.63
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.67	3.78	3.33	3.48	4.35	2.28	0.58	0.58	3.31	4.35	3.82	2.30	35.83
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	8.39	8.65	7.61	7.96	9.96	5.21	1.33	1.33	7.56	9.96	8.74	5.25	81.97
Total	12.94	13.23	11.72	12.49	17.24	9.49	2.36	2.36	14.16	17.22	13.51	8.32	135.05

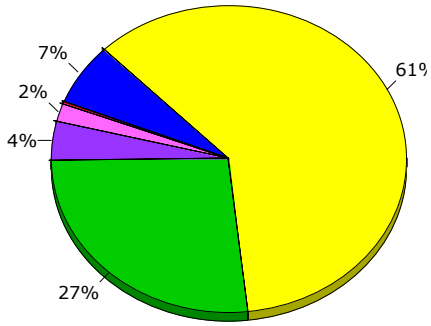
Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	100.15	76.42	55.76	26.08	4.64	0.08	-	-	0.08	4.32	36.15	66.62	370.31
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	100.15	76.42	55.76	26.08	4.64	0.08	-	-	0.08	4.32	36.15	66.62	370.31

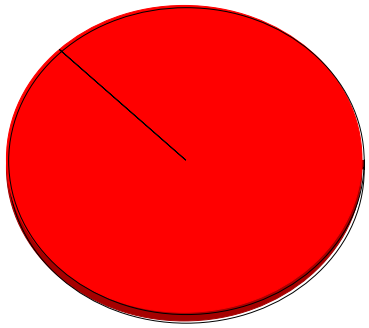
Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	8.82	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.20	370.31	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	2.60	-	-	-
Pumps & Aux.	5.63	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	35.83	-	-	-
Task Lights	-	-	-	-
Area Lights	81.97	-	-	-
Total	135.05	370.31	-	-



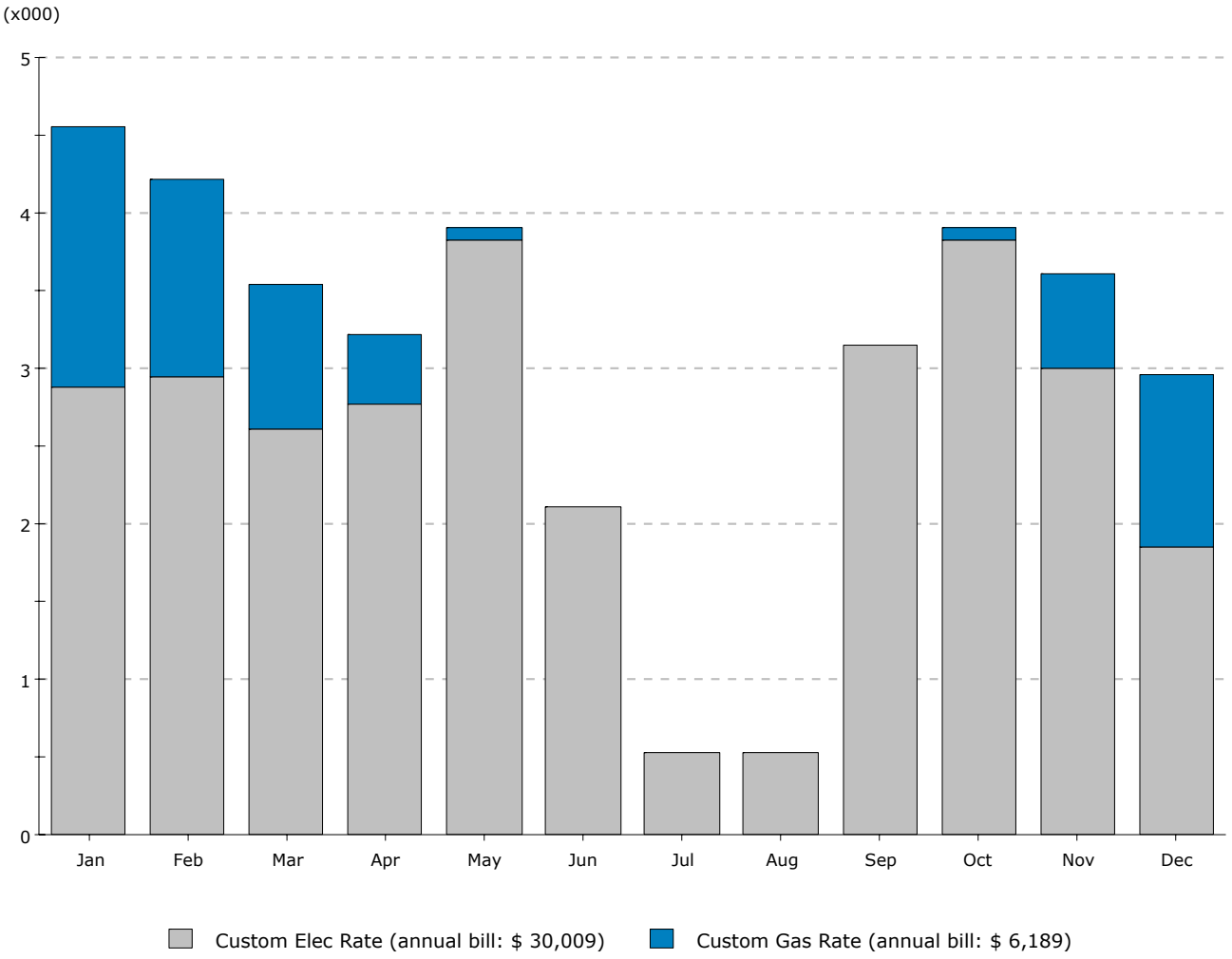


Electricity

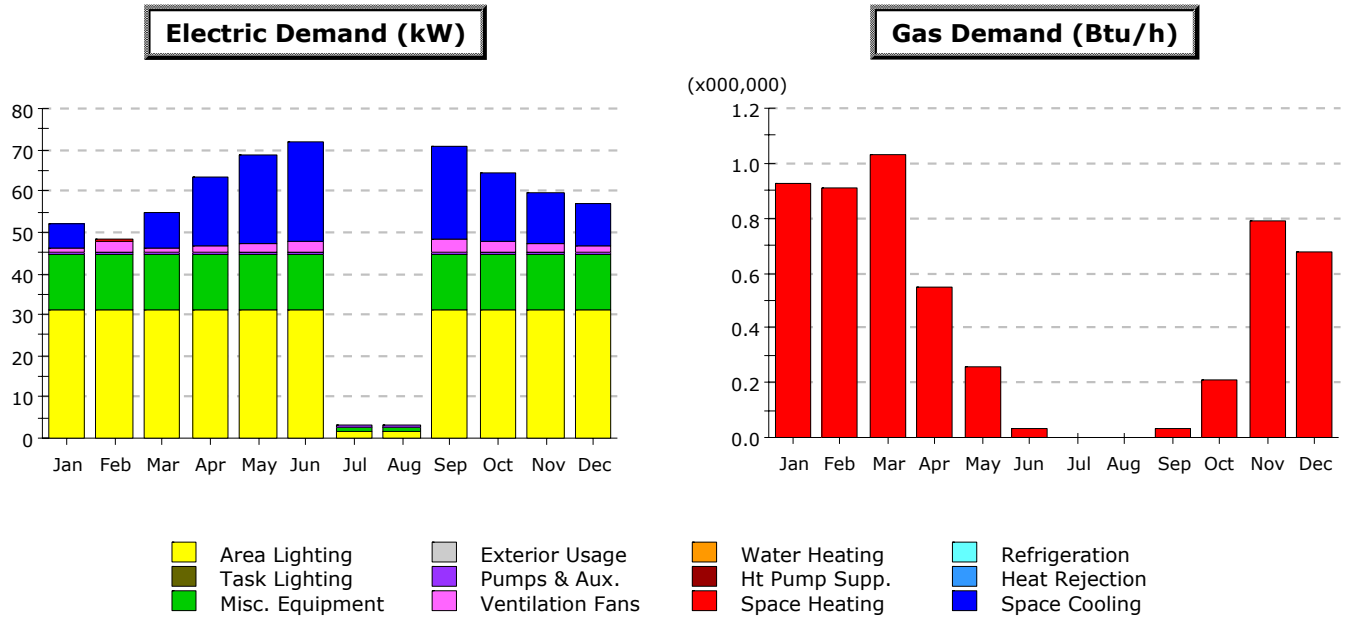


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 36,198



Electric Demand (kW)

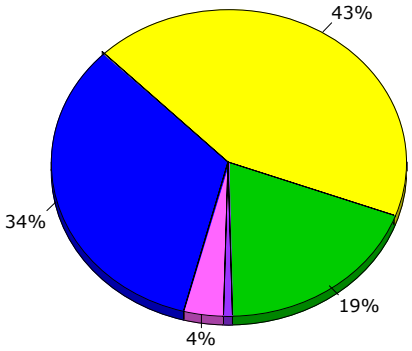
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	5.79	-	8.21	16.41	21.83	24.13	-	-	22.88	16.95	12.66	10.44	139.29
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.03	0.30	0.02	-	-	-	-	-	-	-	-	0.01	0.36
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.01	2.59	1.20	1.65	1.82	2.54	-	-	3.06	2.38	1.91	1.53	19.69
Pumps & Aux.	0.59	0.69	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	7.22
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	13.50	13.50	13.50	13.50	13.50	13.50	0.81	0.81	13.50	13.50	13.50	13.50	136.62
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	31.08	31.08	31.08	31.08	31.08	31.08	1.86	1.86	31.08	31.08	31.08	31.08	314.51
Total	52.00	48.16	54.60	63.23	68.83	71.84	3.27	3.27	71.11	64.50	59.74	57.15	617.69

Gas Demand (Btu/h x000,000)

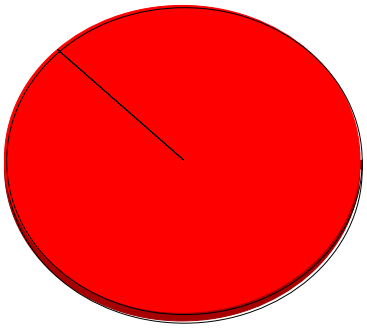
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.92	0.91	1.03	0.55	0.26	0.03	-	-	0.03	0.21	0.79	0.68	5.40
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	0.92	0.91	1.03	0.55	0.26	0.03	-	-	0.03	0.21	0.79	0.68	5.40

Annual Peak Demand by Enduse

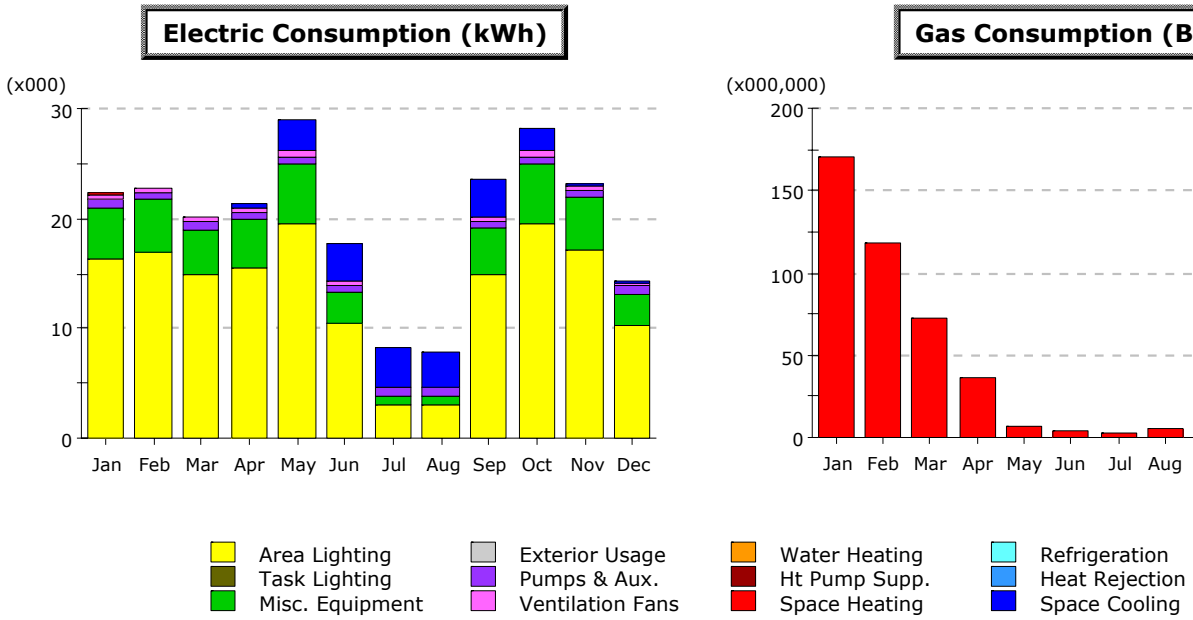
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	24.13	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,032.5	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	2.54	-	-	-
Pumps & Aux.	0.59	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	13.50	-	-	-
Task Lights	-	-	-	-
Area Lights	31.08	-	-	-
Total	71.84	1,032.5	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

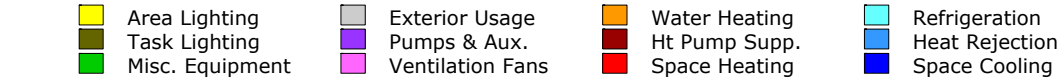
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.04	-	0.03	0.45	2.98	3.38	3.46	3.13	3.39	2.10	0.23	0.06	19.25
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.09	0.06	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.07	0.33
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.46	0.42	0.32	0.34	0.49	0.32	0.12	0.12	0.41	0.45	0.38	0.25	4.07
Pumps & Aux.	0.72	0.65	0.72	0.69	0.69	0.66	0.68	0.68	0.66	0.70	0.69	0.72	8.27
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.60	4.75	4.17	4.36	5.46	2.93	0.88	0.88	4.18	5.46	4.79	2.87	45.35
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	16.39	16.91	14.85	15.54	19.46	10.37	3.02	3.02	14.85	19.46	17.07	10.24	161.19
Total	22.29	22.79	20.13	21.40	29.09	17.67	8.17	7.85	23.49	28.18	23.20	14.20	238.46

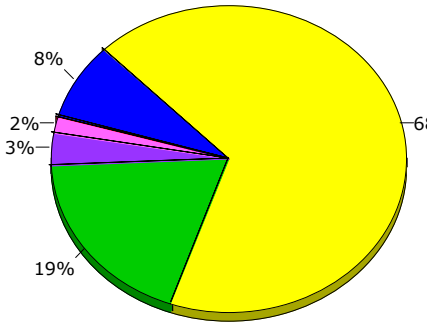
Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	171.14	118.25	72.32	35.83	6.45	4.24	2.60	4.86	2.37	10.10	57.82	113.93	599.90
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	171.14	118.25	72.32	35.83	6.45	4.24	2.60	4.86	2.37	10.10	57.82	113.93	599.90

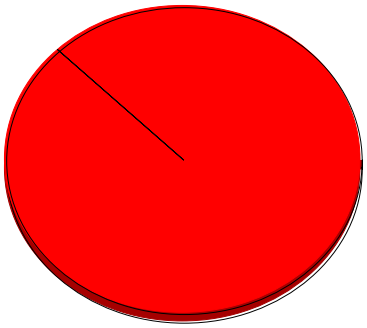
Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	19.25	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.33	599.90	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	4.07	-	-	-
Pumps & Aux.	8.27	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	45.35	-	-	-
Task Lights	-	-	-	-
Area Lights	161.19	-	-	-
Total	238.46	599.90	-	-



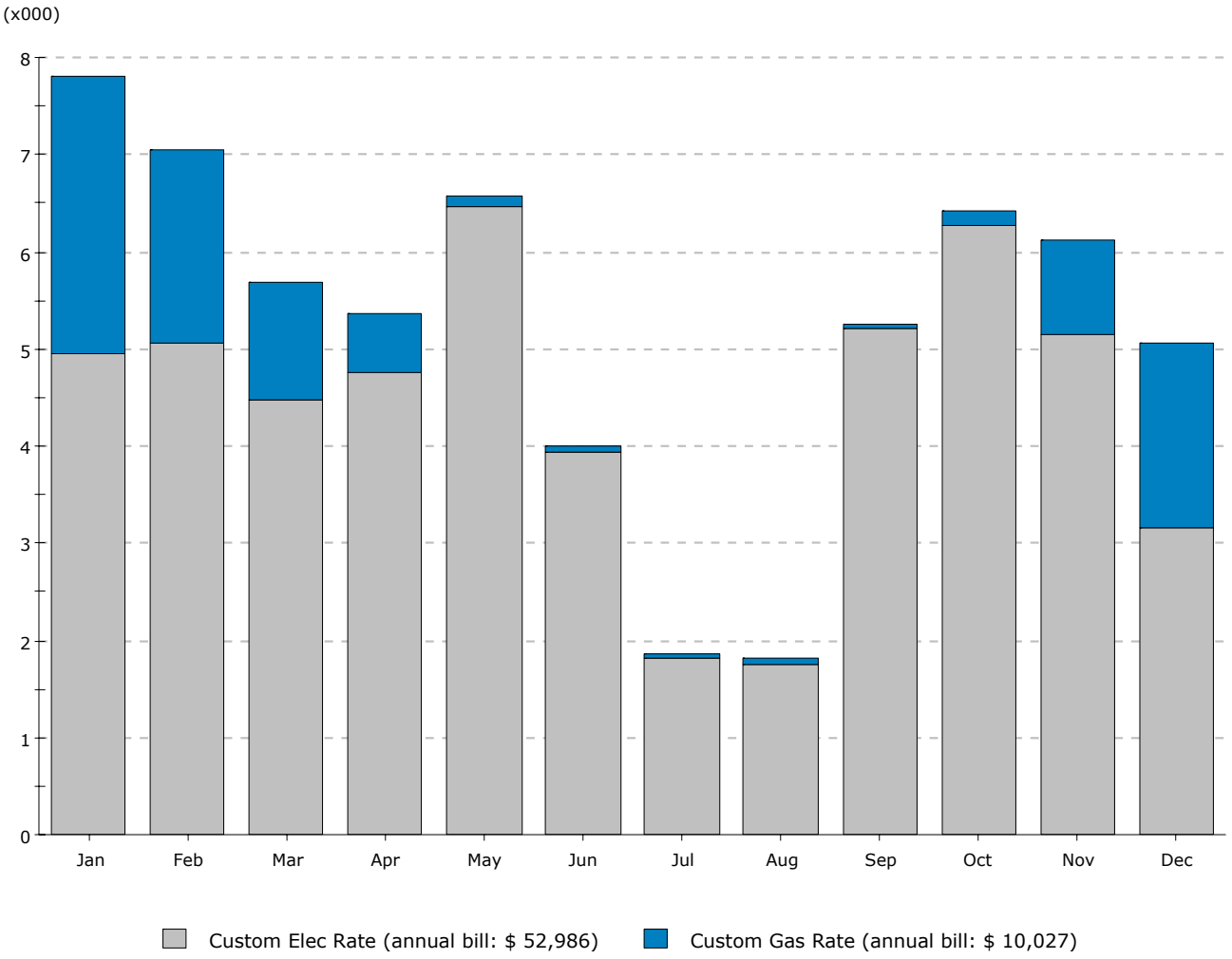


Electricity

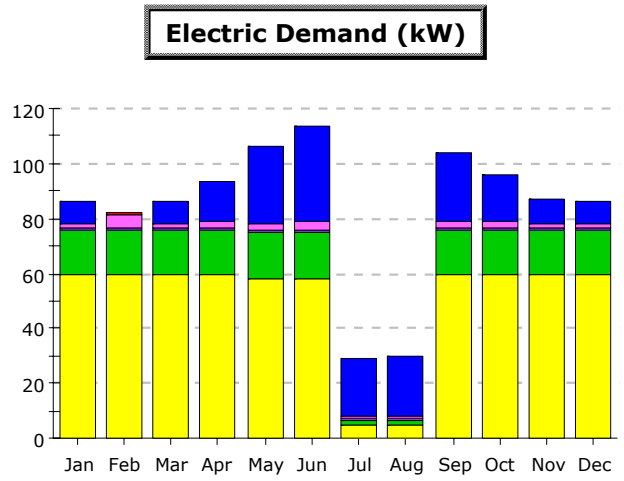


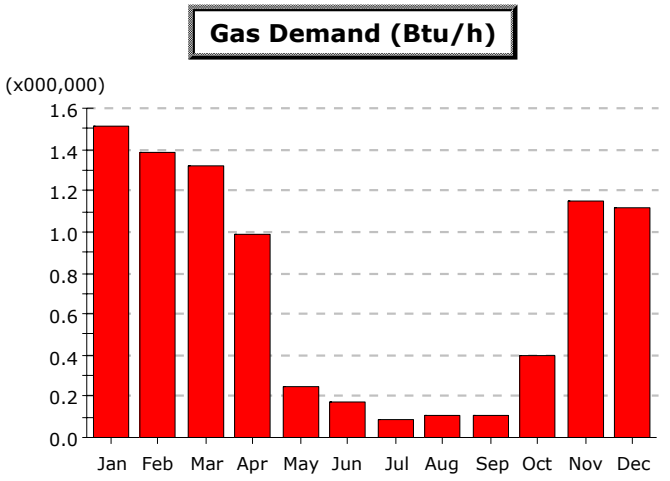
Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 63,013





Electric Demand (kW)

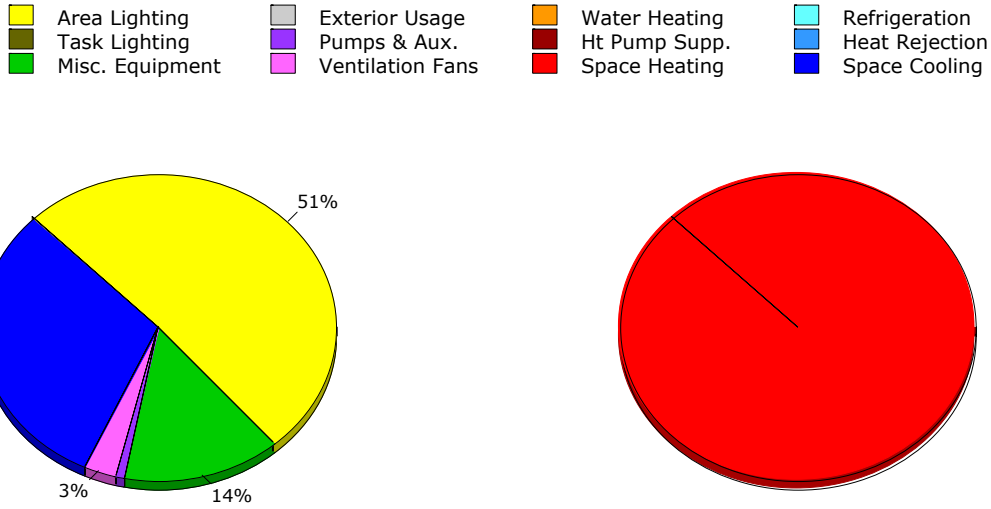
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	7.50	-	7.50	15.20	28.36	35.16	21.51	21.68	24.27	17.15	8.68	7.65	194.66
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.07	0.48	0.03	-	-	-	-	-	-	-	-	0.03	0.61
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.60	4.52	1.60	1.78	2.33	3.26	0.59	0.60	2.47	1.91	1.64	1.60	23.92
Pumps & Aux.	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	11.08
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	16.51	16.51	16.51	16.51	16.25	16.25	1.45	1.47	16.51	16.51	16.51	16.51	167.47
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	59.34	59.34	59.34	59.34	58.34	58.34	4.91	5.05	59.34	59.34	59.34	59.34	601.36
Total	85.94	81.81	85.90	93.74	106.20	113.94	29.38	29.72	103.51	95.82	87.09	86.05	999.11

Gas Demand (Btu/h x000,000)

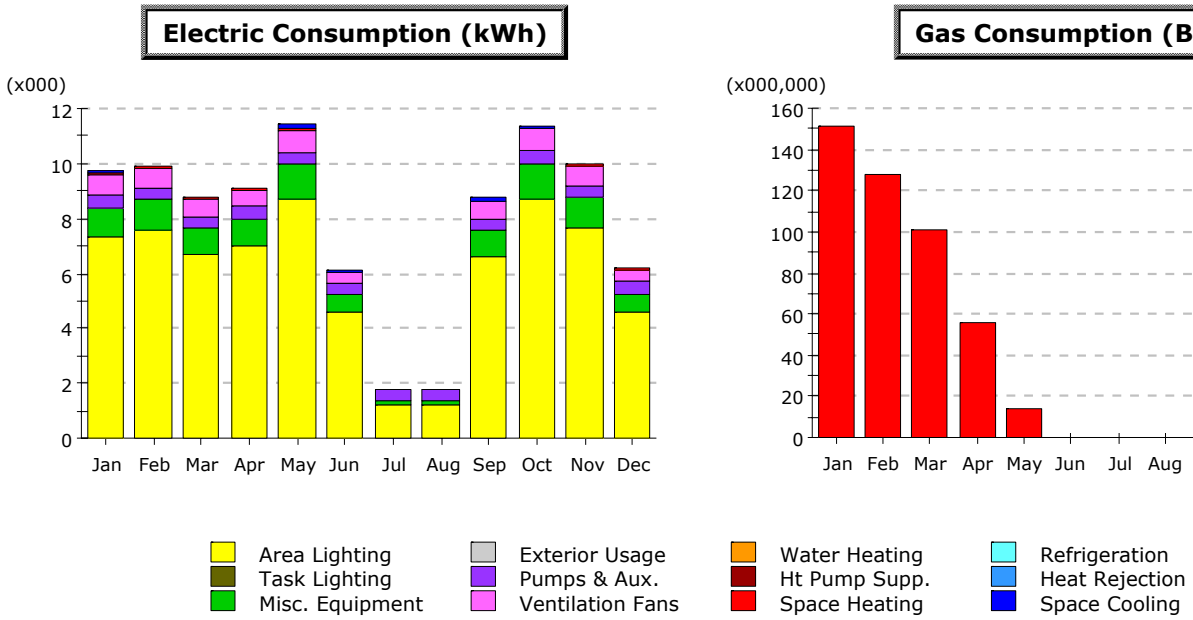
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.51	1.39	1.32	0.99	0.25	0.17	0.09	0.11	0.10	0.40	1.15	1.11	8.59
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.51	1.39	1.32	0.99	0.25	0.17	0.09	0.11	0.10	0.40	1.15	1.11	8.59

Annual Peak Demand by Enduse

	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	35.16	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,511.5	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.26	-	-	-
Pumps & Aux.	0.92	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	16.25	-	-	-
Task Lights	-	-	-	-
Area Lights	58.34	-	-	-
Total	113.94	1,511.5	-	-



Electricity **Natural Gas**



Electric Consumption (kWh x000)

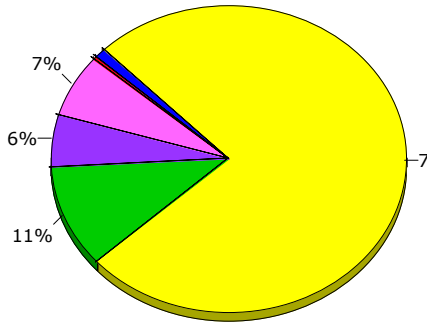
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.08	0.06	0.03	0.04	0.18	0.13	-	-	0.18	0.14	0.02	0.01	0.88
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.08	0.07	0.05	0.03	0.01	0.00	-	-	0.00	0.01	0.04	0.05	0.34
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.70	0.72	0.61	0.63	0.81	0.37	-	-	0.59	0.81	0.71	0.39	6.33
Pumps & Aux.	0.47	0.42	0.47	0.45	0.44	0.42	0.43	0.43	0.42	0.44	0.45	0.47	5.29
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	1.06	1.09	0.96	1.00	1.26	0.66	0.17	0.17	0.95	1.26	1.10	0.66	10.35
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	7.36	7.59	6.67	6.97	8.73	4.57	1.17	1.17	6.63	8.73	7.66	4.61	71.85
Total	9.74	9.94	8.79	9.12	11.43	6.15	1.77	1.77	8.77	11.39	9.98	6.19	95.03

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	151.86	128.32	100.80	55.73	13.87	0.32	-	-	0.73	16.95	76.80	89.27	634.65
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	151.86	128.32	100.80	55.73	13.87	0.32	-	-	0.73	16.95	76.80	89.27	634.65

Annual Energy Consumption by Enduse

	Electricity kWh	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	877	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	336	634.65	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	6,329	-	-	-
Pumps & Aux.	5,290	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	10,347	-	-	-
Task Lights	-	-	-	-
Area Lights	71,849	-	-	-
Total	95,027	634.65	-	-



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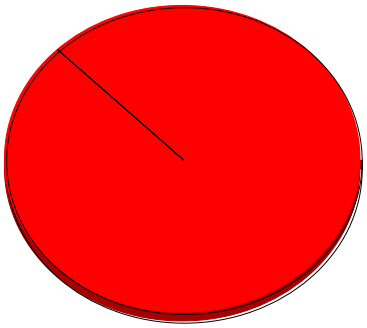
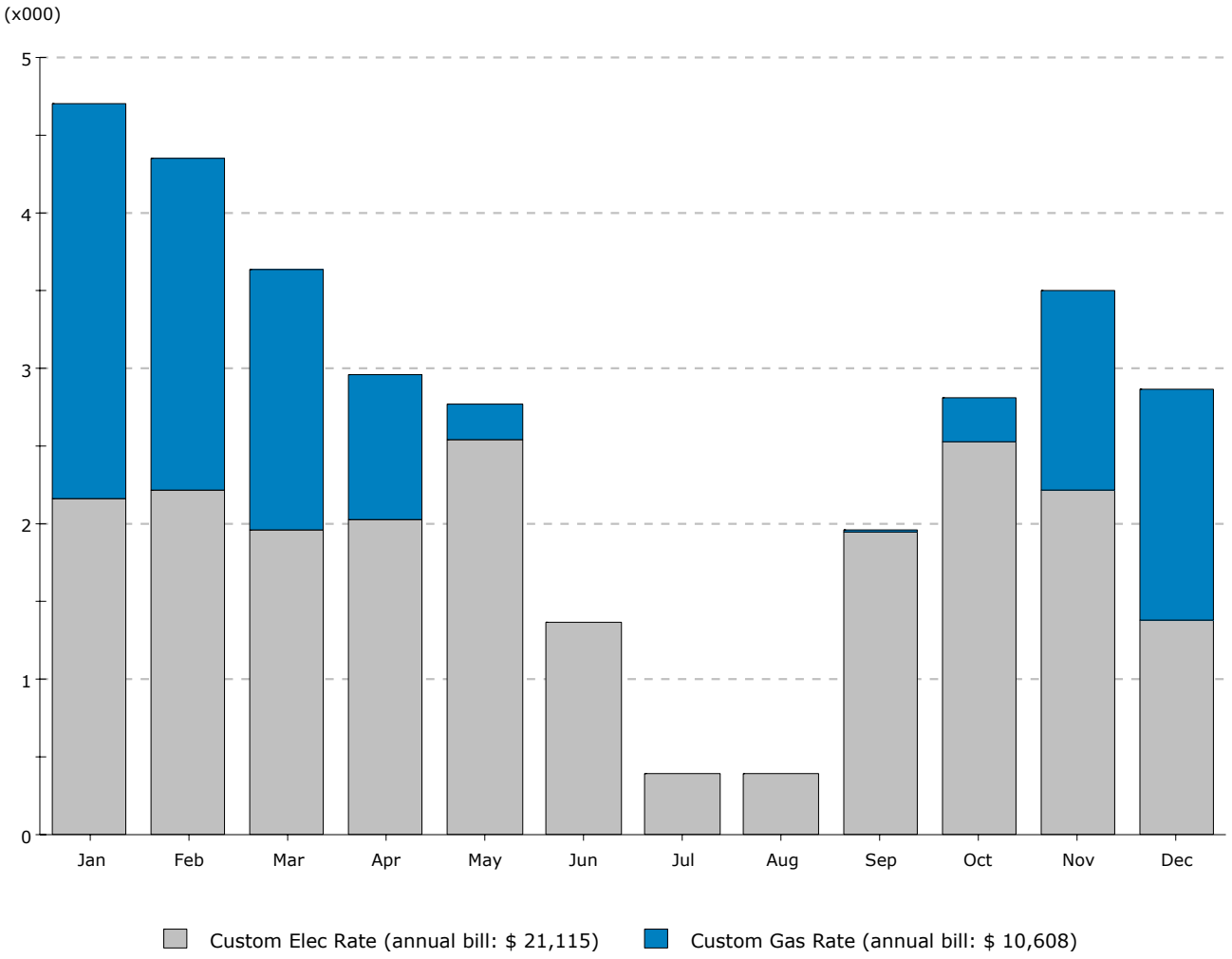
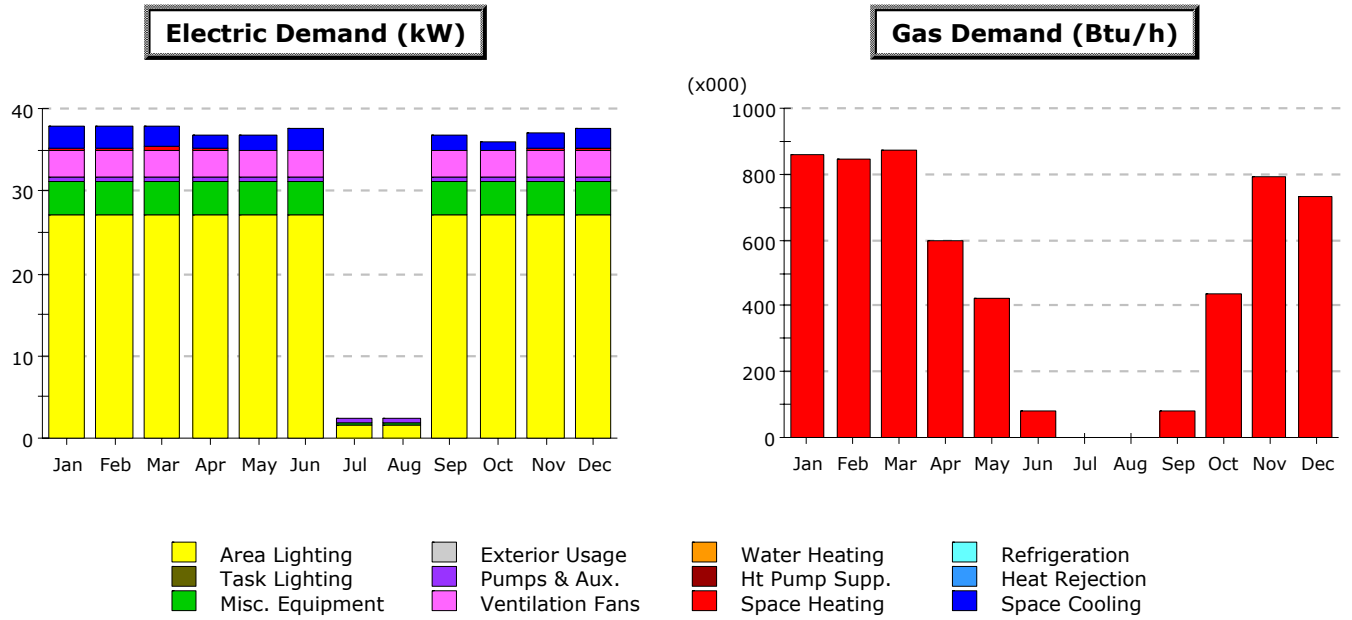


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 31,723



Electric Demand (kW)

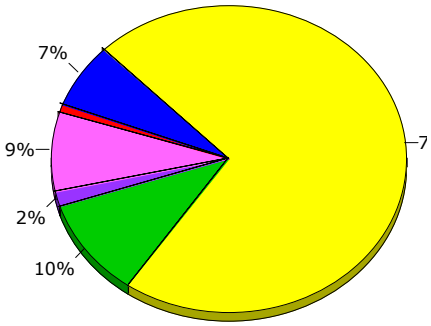
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	2.59	2.48	2.59	1.65	1.96	2.77	-	-	1.81	1.12	1.93	2.34	21.25
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.30	0.28	0.31	0.24	-	-	-	-	-	-	0.26	0.27	1.66
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	3.24	3.24	3.24	3.19	3.07	3.14	-	-	3.10	3.06	3.20	3.24	31.72
Pumps & Aux.	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	6.96
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.94	3.94	3.94	3.94	3.92	3.92	0.23	0.23	3.92	3.92	3.94	3.94	39.77
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	27.24	27.24	27.24	27.24	27.24	27.24	1.63	1.63	27.24	27.24	27.24	27.24	275.69
Total	37.89	37.76	37.90	36.84	36.77	37.65	2.45	2.45	36.65	35.92	37.16	37.62	377.06

Gas Demand (Btu/h x000)

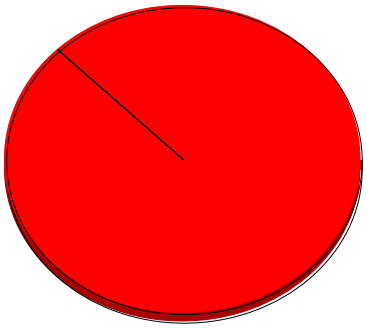
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	861.5	844.2	875.6	596.9	422.2	78.0	-	-	77.4	432.9	789.9	730.3	5,708.9
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	861.5	844.2	875.6	596.9	422.2	78.0	-	-	77.4	432.9	789.9	730.3	5,708.9

Annual Peak Demand by Enduse

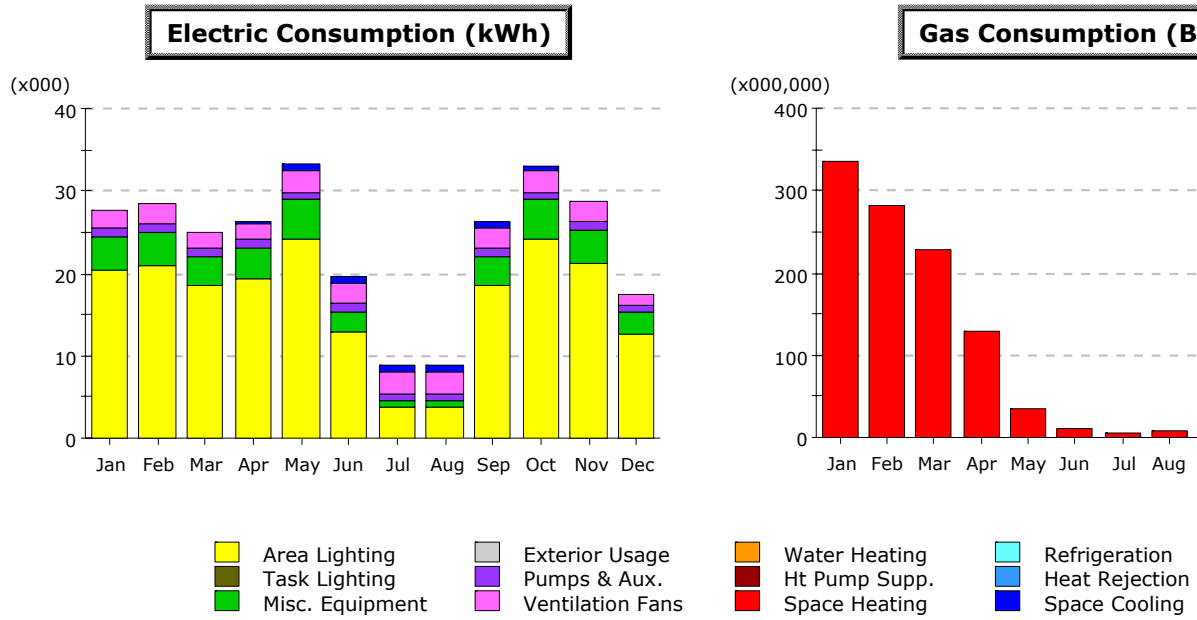
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	2.59	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.31	875.59	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.24	-	-	-
Pumps & Aux.	0.58	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	3.94	-	-	-
Task Lights	-	-	-	-
Area Lights	27.24	-	-	-
Total	37.90	875.59	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

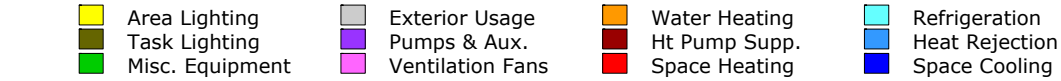
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.01	-	0.01	0.13	0.68	0.79	0.90	0.82	0.74	0.49	0.08	0.02	4.67
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	2.29	2.38	1.99	2.10	2.73	2.43	2.60	2.59	2.46	2.71	2.35	1.29	27.93
Pumps & Aux.	1.05	0.95	1.05	1.00	0.99	0.95	0.98	0.98	0.95	1.00	1.00	1.05	11.93
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.00	4.13	3.62	3.79	4.75	2.54	0.76	0.76	3.63	4.75	4.17	2.50	39.41
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	20.32	20.97	18.42	19.27	24.14	12.84	3.70	3.70	18.41	24.14	21.17	12.70	199.78
Total	27.67	28.43	25.09	26.30	33.29	19.55	8.94	8.85	26.19	33.10	28.78	17.54	283.72

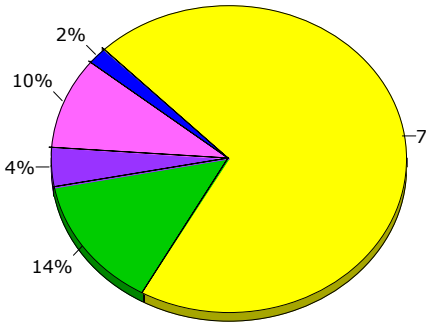
Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	336.1	281.5	227.4	129.5	34.6	11.0	5.3	6.8	8.6	48.5	169.4	199.6	1,458.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	336.1	281.5	227.4	129.5	34.6	11.0	5.3	6.8	8.6	48.5	169.4	199.6	1,458.2

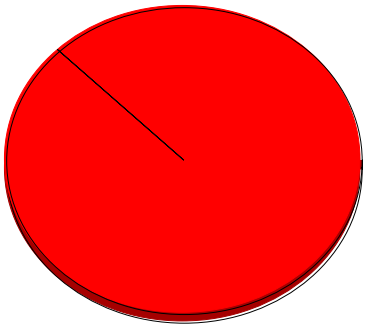
Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	4.67	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,458.2	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	27.93	-	-	-
Pumps & Aux.	11.93	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	39.41	-	-	-
Task Lights	-	-	-	-
Area Lights	199.78	-	-	-
Total	283.72	1,458.2	-	-



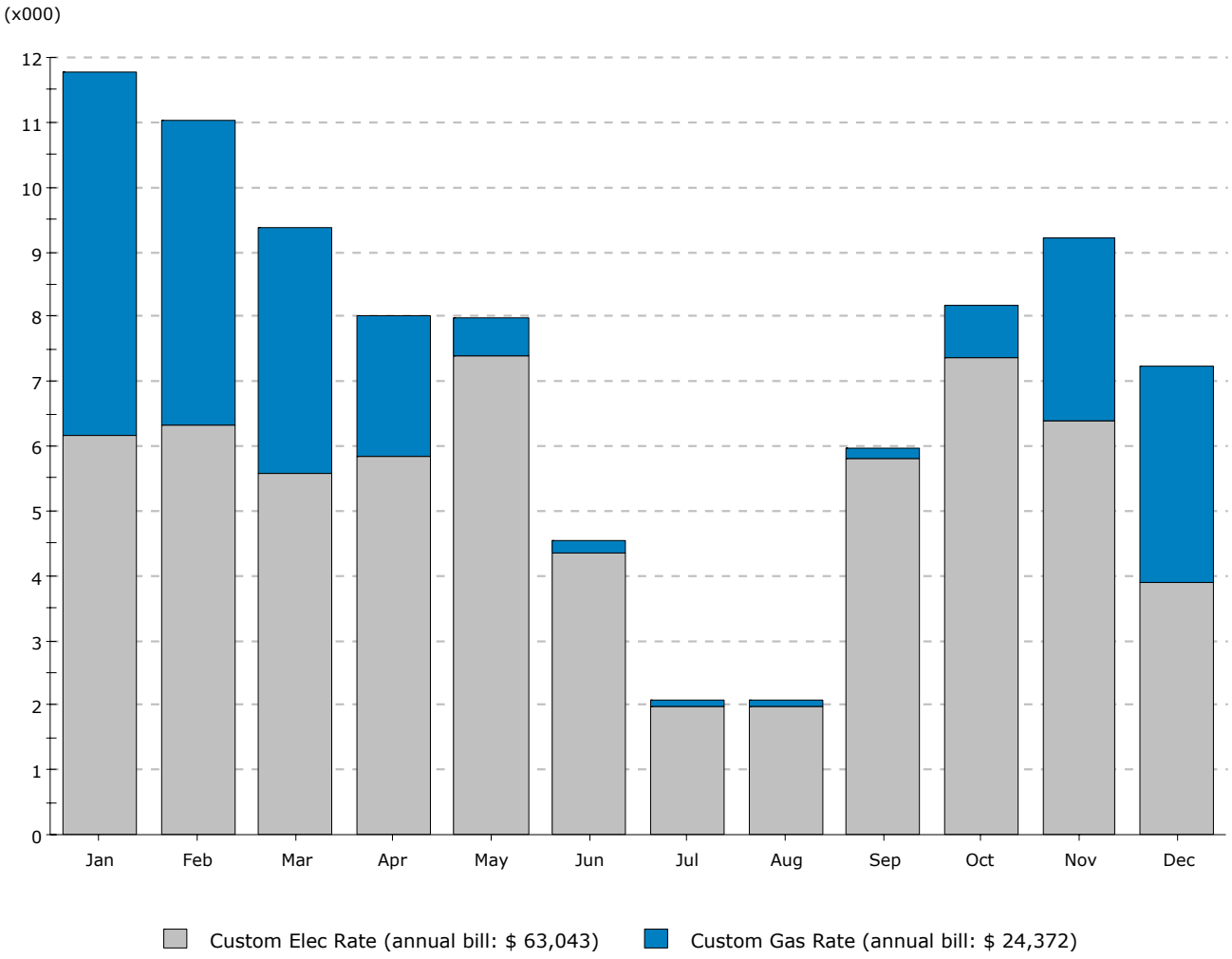


Electricity

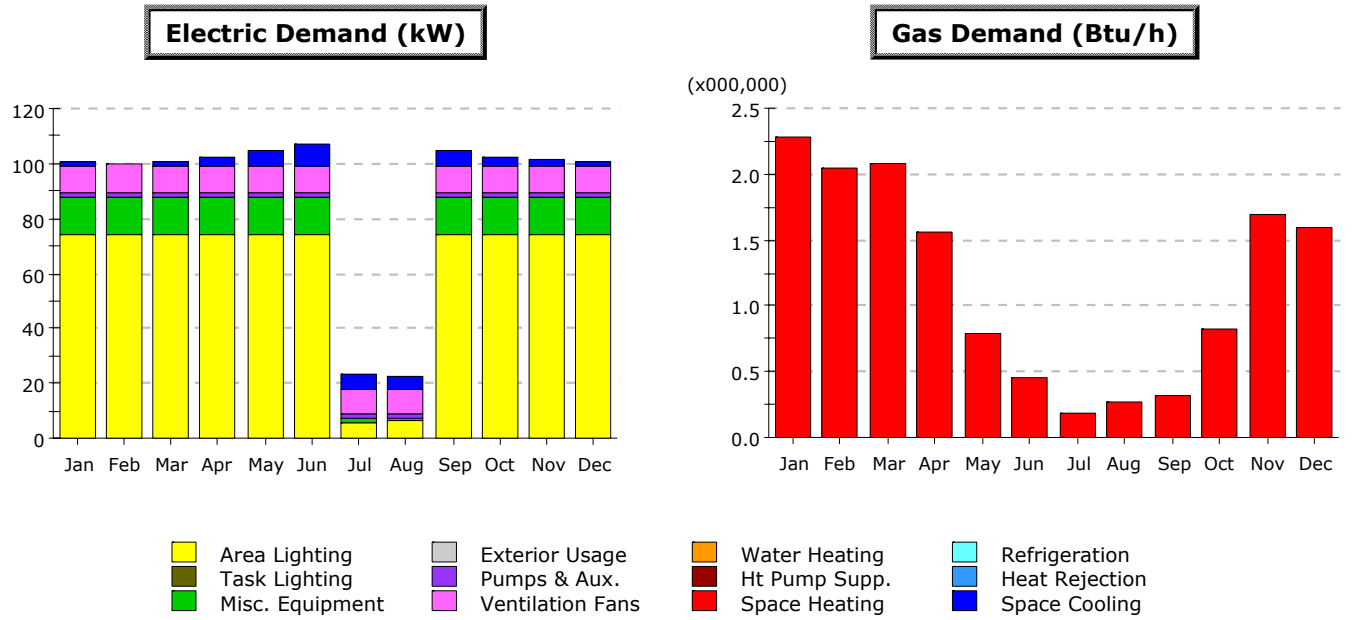


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 87,415



Electric Demand (kW)

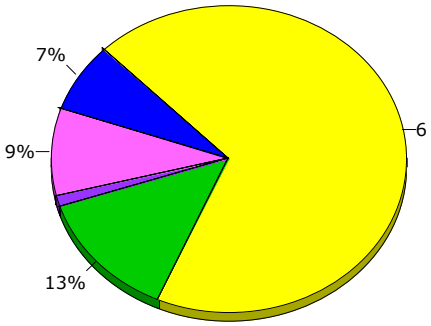
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.8	-	1.8	3.5	5.8	7.7	5.9	4.9	5.7	3.5	2.2	1.8	44.7
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	9.5	10.2	9.5	9.6	9.7	10.0	9.3	9.2	9.8	9.6	9.6	9.5	115.5
Pumps & Aux.	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	15.9
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	14.4	14.4	14.4	14.4	14.4	14.4	1.2	1.3	14.4	14.4	14.4	14.4	146.2
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	73.7	73.7	73.7	73.7	73.7	73.7	5.9	6.1	73.7	73.7	73.7	73.7	749.5
Total	100.8	99.7	100.8	102.5	105.0	107.1	23.6	22.8	104.9	102.5	101.2	100.8	1,071.7

Gas Demand (Btu/h x000,000)

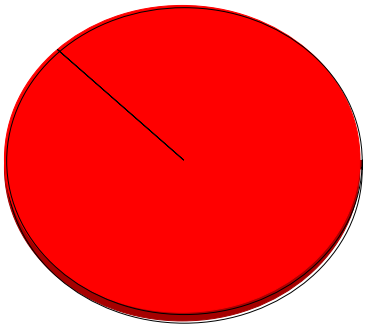
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	2.29	2.04	2.09	1.57	0.78	0.46	0.18	0.27	0.31	0.82	1.70	1.60	14.11
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2.29	2.04	2.09	1.57	0.78	0.46	0.18	0.27	0.31	0.82	1.70	1.60	14.11

Annual Peak Demand by Enduse

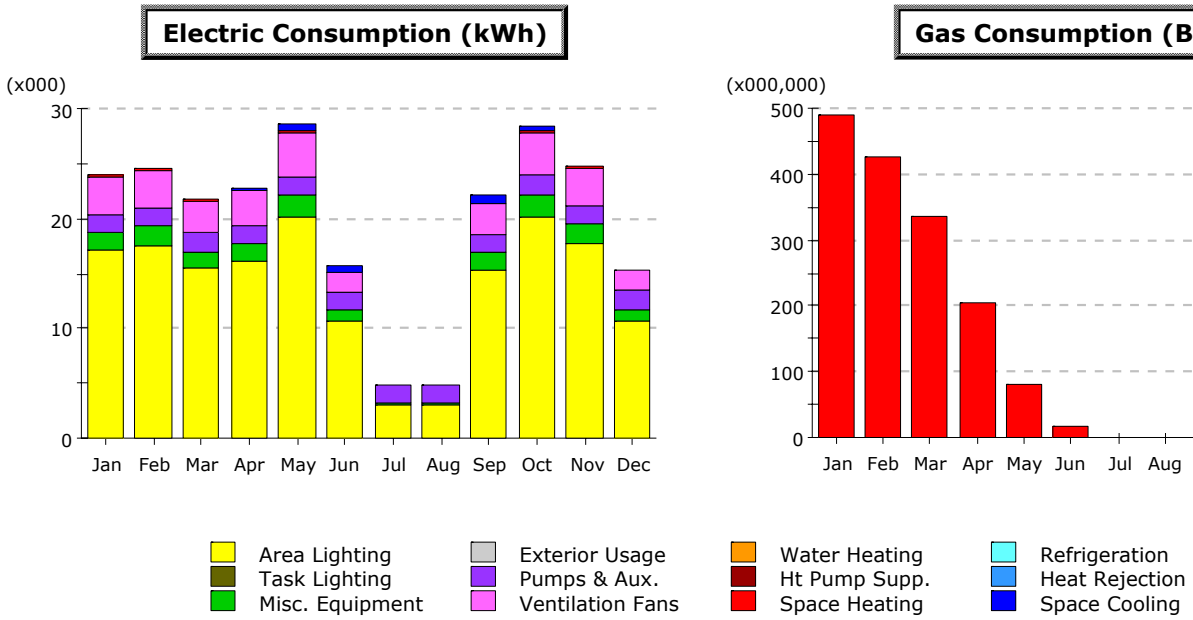
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	7.71	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	2,290.2	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	9.97	-	-	-
Pumps & Aux.	1.31	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	14.37	-	-	-
Task Lights	-	-	-	-
Area Lights	73.74	-	-	-
Total	107.11	2,290.2	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

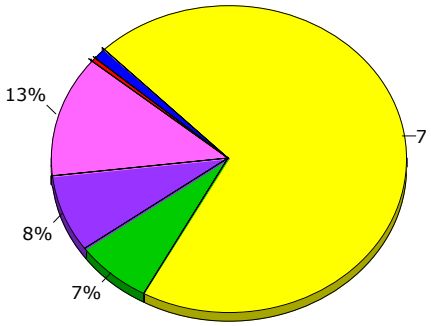
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.01	-	0.00	0.09	0.63	0.47	-	-	0.73	0.46	0.05	0.01	2.45
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.25	0.23	0.19	0.12	0.05	0.01	-	-	0.01	0.06	0.16	0.15	1.23
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	3.30	3.46	2.91	3.09	4.01	1.84	-	-	2.94	4.00	3.45	1.84	30.82
Pumps & Aux.	1.70	1.54	1.70	1.63	1.64	1.57	1.63	1.63	1.58	1.65	1.63	1.70	19.59
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	1.70	1.75	1.54	1.61	2.01	1.06	0.28	0.28	1.53	2.01	1.77	1.06	16.60
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	17.02	17.55	15.42	16.13	20.20	10.67	2.92	2.92	15.38	20.20	17.73	10.64	166.80
Total	23.97	24.53	21.75	22.67	28.54	15.63	4.84	4.84	22.17	28.38	24.79	15.39	237.49

Gas Consumption (Btu x000,000)

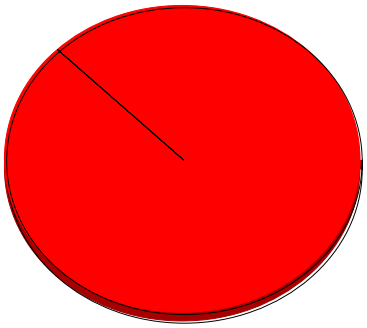
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	489.3	425.8	335.9	204.8	80.3	17.5	-	-	20.3	107.5	286.9	259.9	2,228.0
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	489.3	425.8	335.9	204.8	80.3	17.5	-	-	20.3	107.5	286.9	259.9	2,228.0

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	2.45	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	1.23	2,228.0	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	30.82	-	-	-
Pumps & Aux.	19.59	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	16.60	-	-	-
Task Lights	-	-	-	-
Area Lights	166.80	-	-	-
Total	237.49	2,228.0	-	-

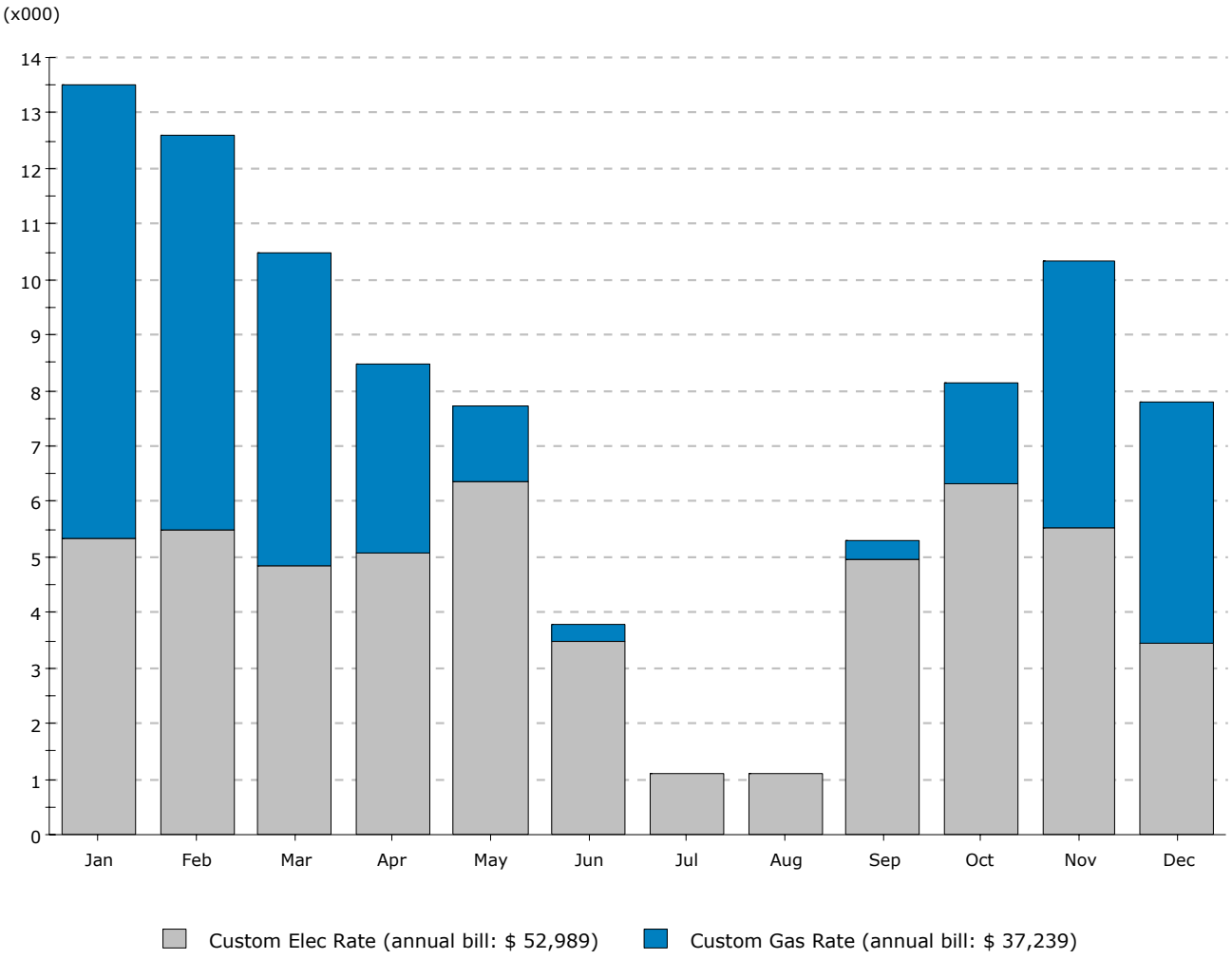


Electricity

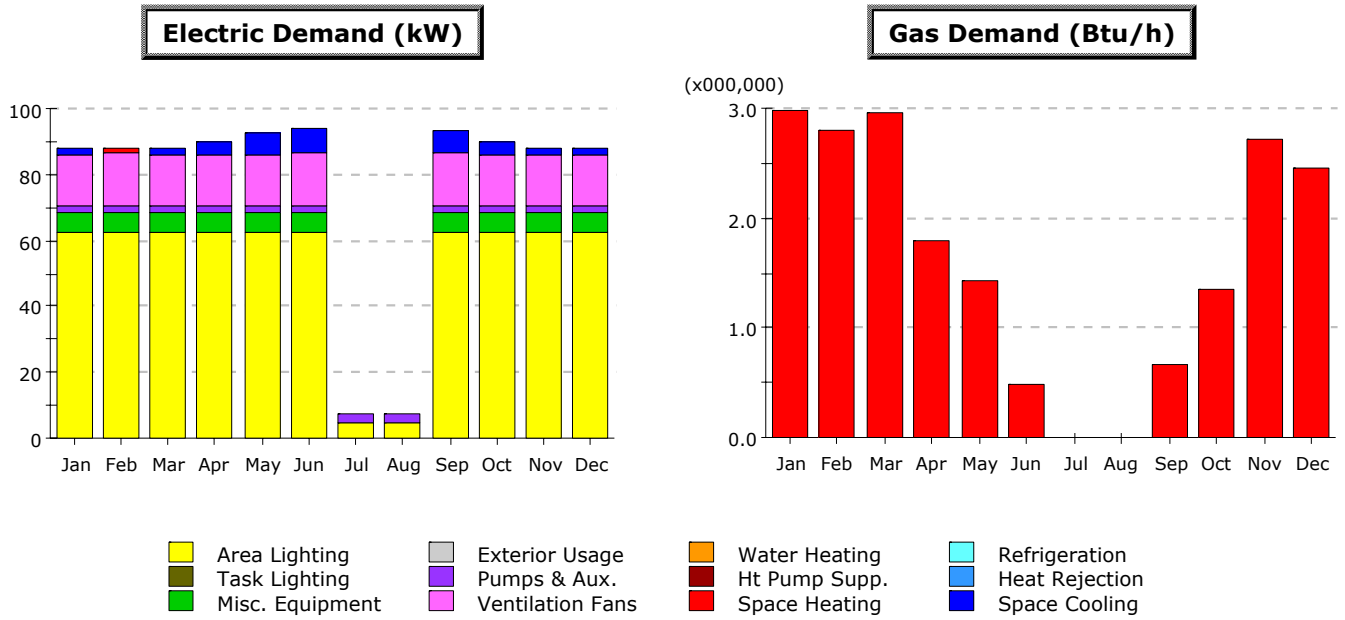


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 90,228



Electric Demand (kW)

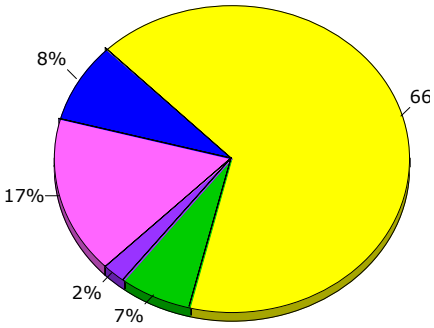
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.62	-	1.62	3.95	6.66	7.93	-	-	6.74	4.33	2.28	1.62	36.74
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.41	1.14	0.34	-	-	-	-	-	-	-	0.12	0.38	2.40
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	15.10	15.83	15.11	15.21	15.37	15.64	-	-	15.61	15.24	15.16	15.10	153.37
Pumps & Aux.	2.19	2.29	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	26.34
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	6.20	6.20	6.20	6.20	6.20	6.20	0.42	0.42	6.20	6.20	6.20	6.20	62.82
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	62.30	62.30	62.30	62.30	62.30	62.30	4.53	4.53	62.30	62.30	62.30	62.30	632.07
Total	87.82	87.76	87.75	89.85	92.72	94.25	7.13	7.13	93.04	90.26	88.25	87.78	913.75

Gas Demand (Btu/h x000,000)

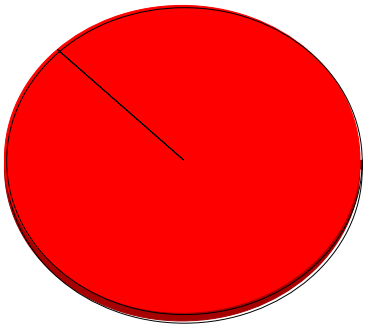
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	2.99	2.80	2.97	1.80	1.42	0.49	-	-	0.66	1.35	2.72	2.46	19.65
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2.99	2.80	2.97	1.80	1.42	0.49	-	-	0.66	1.35	2.72	2.46	19.65

Annual Peak Demand by Enduse

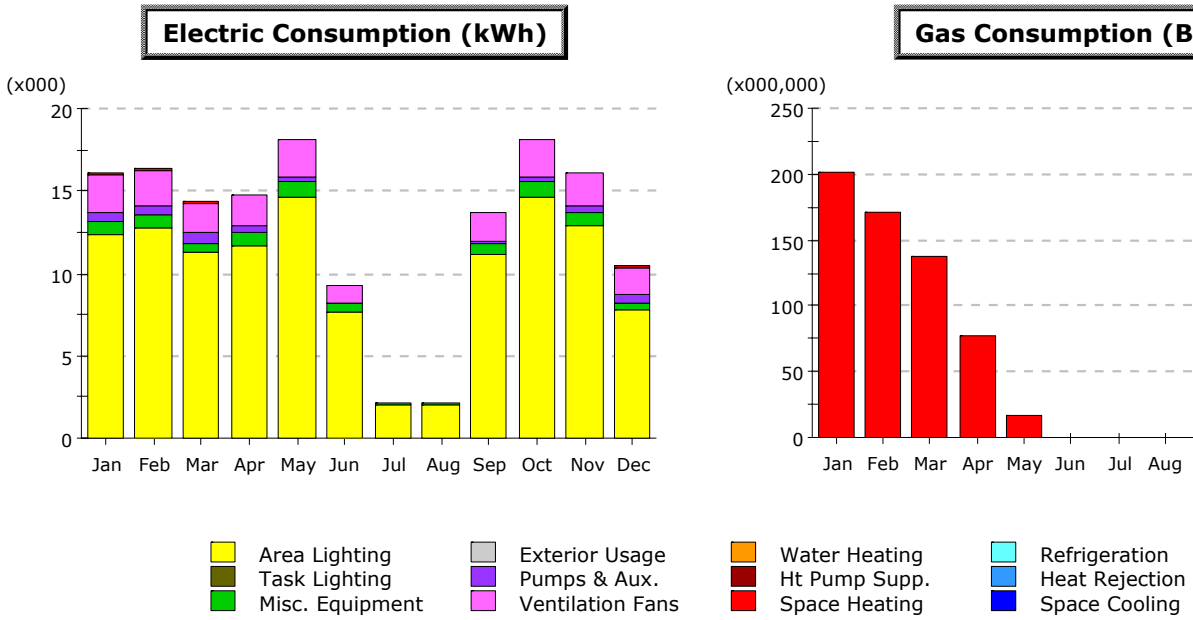
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	7.93	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	2,987.3	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	15.64	-	-	-
Pumps & Aux.	2.19	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	6.20	-	-	-
Task Lights	-	-	-	-
Area Lights	62.30	-	-	-
Total	94.25	2,987.3	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

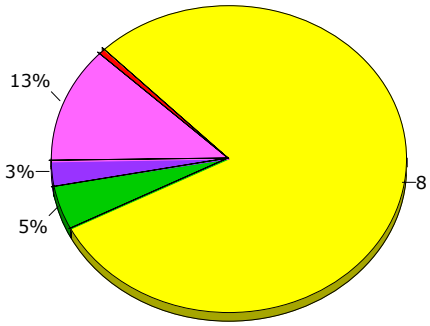
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.13	0.11	0.10	0.06	0.01	0.00	-	-	0.00	0.02	0.08	0.09	0.60
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	2.25	2.18	1.83	1.90	2.28	1.04	-	-	1.66	2.28	2.01	1.60	19.01
Pumps & Aux.	0.62	0.54	0.54	0.41	0.25	0.11	-	-	0.17	0.26	0.42	0.58	3.90
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	0.73	0.76	0.67	0.70	0.87	0.46	0.12	0.12	0.66	0.87	0.77	0.46	7.18
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	12.36	12.75	11.21	11.72	14.67	7.68	1.96	1.96	11.14	14.67	12.88	7.74	120.77
Total	16.10	16.34	14.34	14.78	18.09	9.28	2.08	2.08	13.64	18.10	16.15	10.48	151.46

Gas Consumption (Btu x000,000)

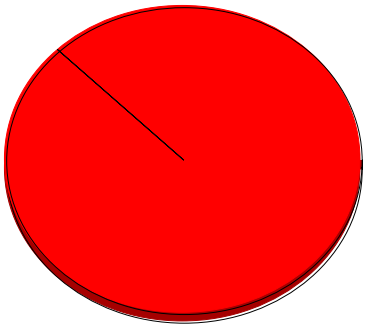
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	202.07	170.66	137.71	77.42	16.27	0.29	-	-	0.69	21.17	106.91	125.51	858.69
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	202.07	170.66	137.71	77.42	16.27	0.29	-	-	0.69	21.17	106.91	125.51	858.69

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	-	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.60	858.6□	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	1□01	-	-	-
Pumps & Aux.	3.□0	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	7.18	-	-	-
Task Lights	-	-	-	-
Area Lights	120.77	-	-	-
Total	151.46	858.6□	-	-

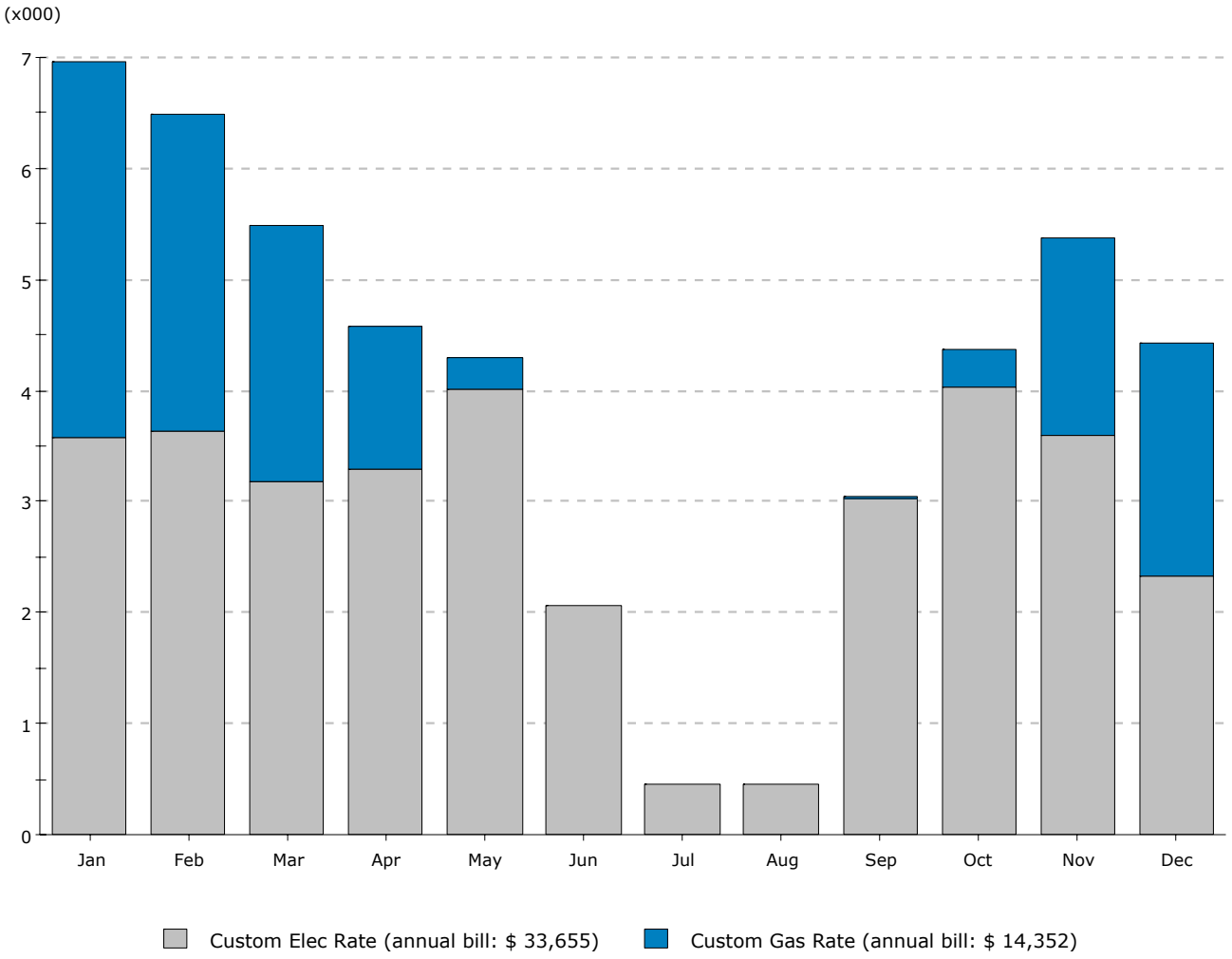


Electricity

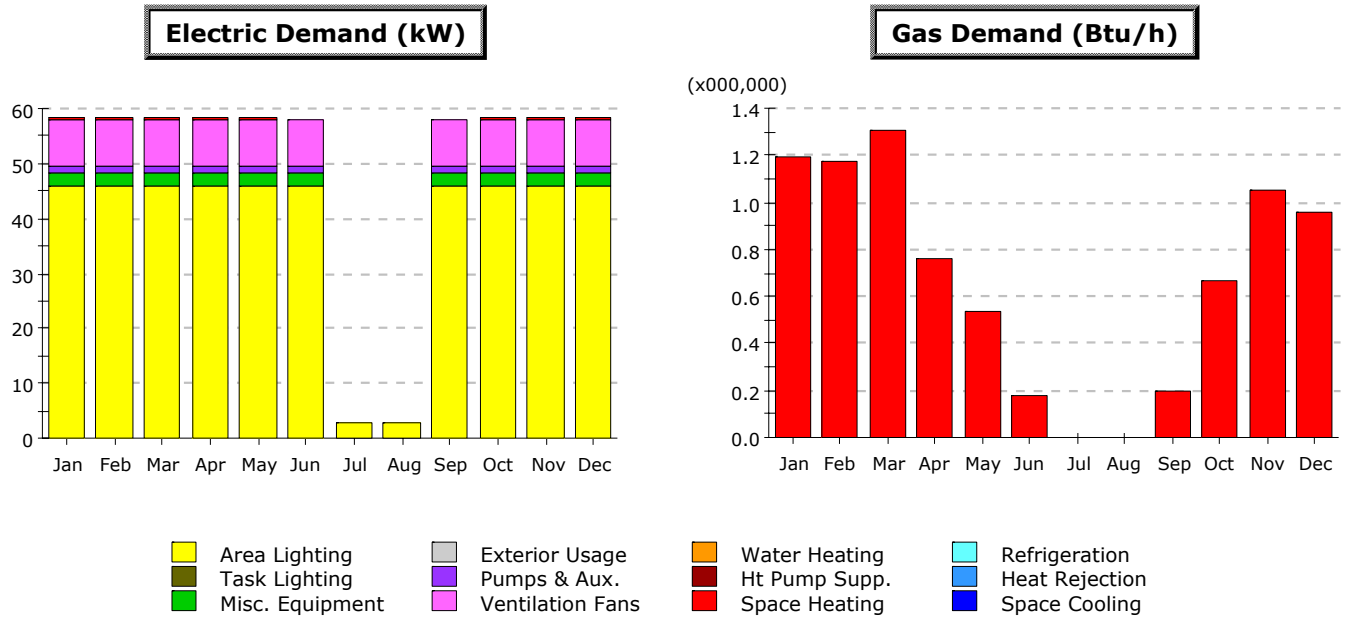


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 48,007



Electric Demand (kW)

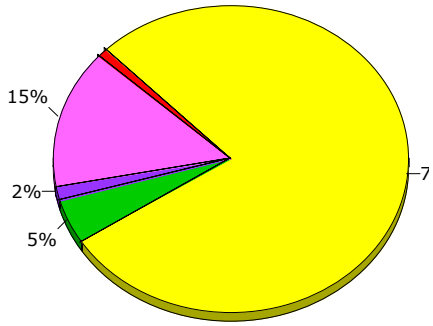
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.51	0.48	0.50	0.39	0.24	0.02	-	-	0.02	0.30	0.45	0.43	3.35
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	8.63	8.63	8.63	8.63	8.63	8.63	-	-	8.63	8.63	8.63	8.63	86.28
Pumps & Aux.	0.89	0.89	0.89	0.89	0.89	0.89	-	-	0.89	0.89	0.89	0.89	8.92
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	2.70	2.70	2.70	2.70	2.70	2.70	0.16	0.16	2.70	2.70	2.70	2.70	27.37
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	45.79	45.79	45.79	45.79	45.79	45.79	2.75	2.75	45.79	45.79	45.79	45.79	463.39
Total	58.52	58.49	58.51	58.41	58.25	58.04	2.91	2.91	58.04	58.31	58.47	58.45	589.31

Gas Demand (Btu/h x000,000)

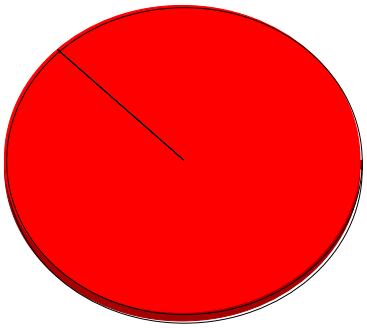
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.20	1.17	1.30	0.76	0.53	0.18	-	-	0.19	0.67	1.05	0.96	8.01
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.20	1.17	1.30	0.76	0.53	0.18	-	-	0.19	0.67	1.05	0.96	8.01

Annual Peak Demand by Enduse

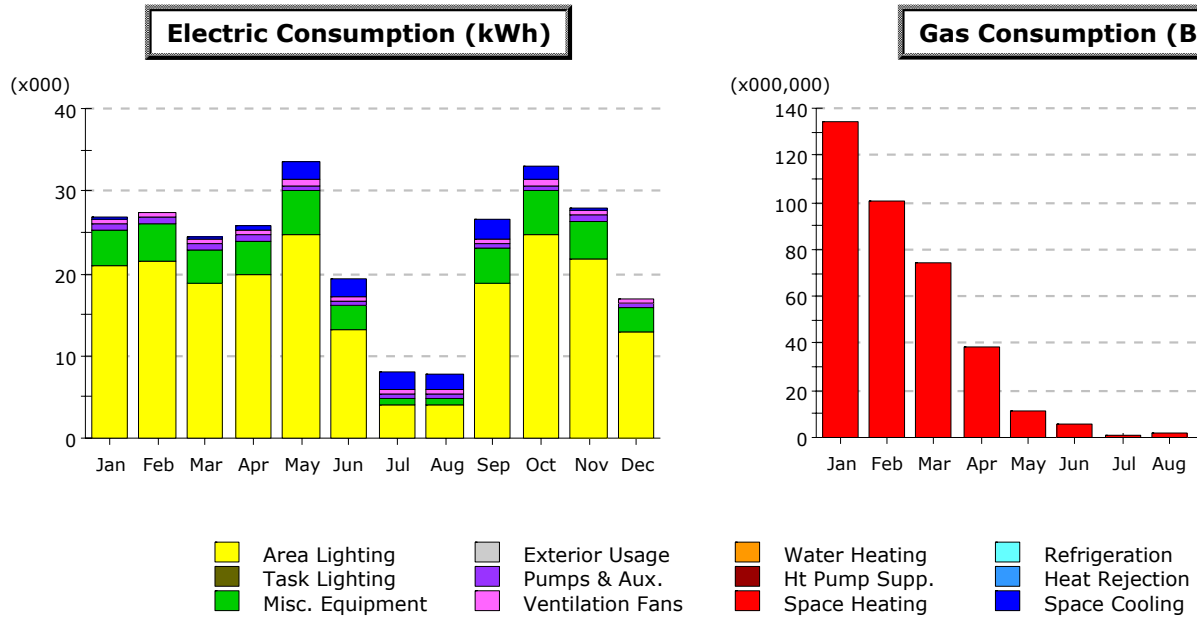
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	-	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.51	1,301.6	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	8.63	-	-	-
Pumps & Aux.	0.89	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	2.70	-	-	-
Task Lights	-	-	-	-
Area Lights	45.79	-	-	-
Total	58.52	1,301.6	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

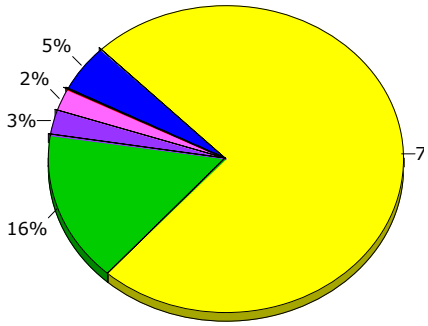
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.06	0.11	0.16	0.54	2.26	2.20	2.07	1.78	2.48	1.66	0.41	0.14	13.88
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.09	0.07	0.05	0.03	0.01	0.00	0.00	0.00	0.01	0.01	0.04	0.06	0.37
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.57	0.58	0.48	0.52	0.72	0.55	0.41	0.39	0.65	0.68	0.56	0.36	6.49
Pumps & Aux.	0.70	0.63	0.69	0.65	0.60	0.57	0.59	0.59	0.57	0.62	0.65	0.69	7.54
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.47	4.61	4.05	4.24	5.31	2.86	0.89	0.89	4.06	5.31	4.66	2.79	44.11
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	20.83	21.50	18.87	19.75	24.76	13.26	4.01	4.01	18.92	24.76	21.71	12.98	205.37
Total	26.72	27.50	24.30	25.72	33.66	19.44	7.97	7.66	26.69	33.04	28.03	17.02	277.76

Gas Consumption (Btu x000,000)

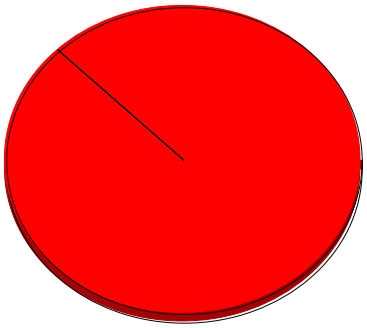
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	134.27	100.94	73.96	38.21	11.58	5.86	0.99	1.43	9.18	14.99	50.55	84.96	526.92
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	134.27	100.94	73.96	38.21	11.58	5.86	0.99	1.43	9.18	14.99	50.55	84.96	526.92

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	13.88	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.37	526.92	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	6.49	-	-	-
Pumps & Aux.	7.54	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	44.11	-	-	-
Task Lights	-	-	-	-
Area Lights	205.37	-	-	-
Total	277.76	526.92	-	-

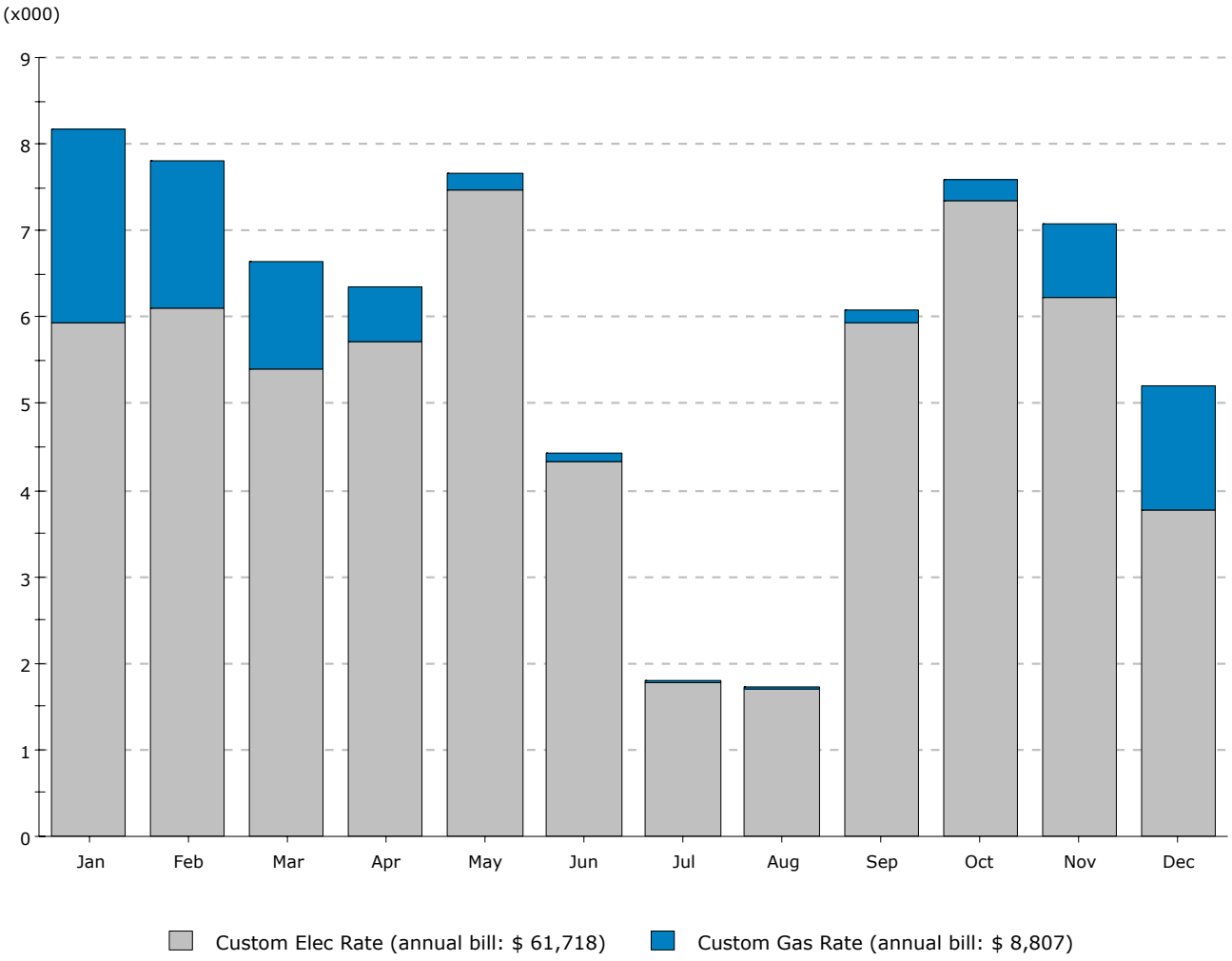


Electricity

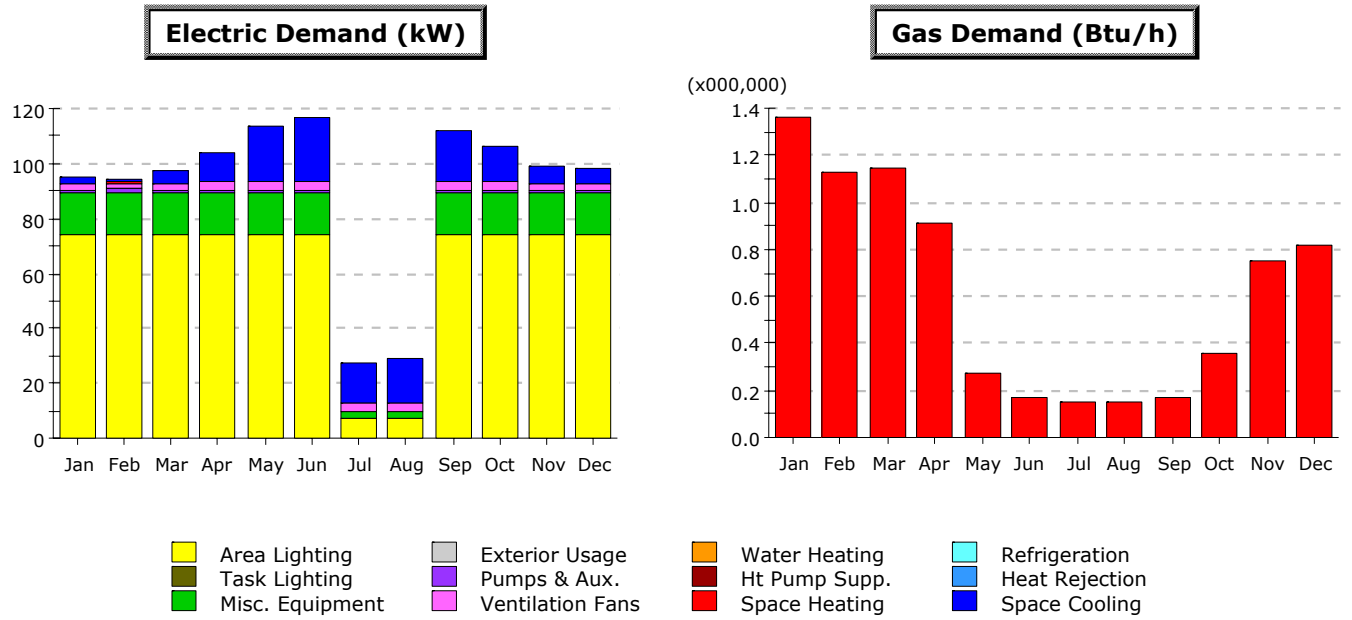


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 70,525



Electric Demand (kW)

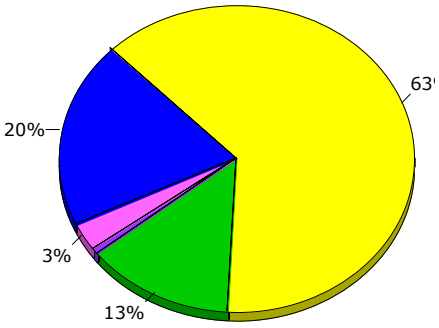
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	2.5	1.2	4.9	11.2	20.5	23.1	14.8	16.0	18.4	12.8	5.8	5.1	136.2
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.1	0.2	0.0	-	-	-	-	-	0.0	0.0	0.0	0.0	0.4
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	2.3	2.3	2.3	2.5	3.2	3.4	2.6	2.9	3.2	2.6	2.4	2.3	32.0
Pumps & Aux.	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	9.6
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	15.8	15.8	15.7	15.8	15.7	15.7	1.6	1.6	15.8	15.8	15.8	15.8	160.9
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	74.0	74.0	73.7	74.0	73.7	73.7	7.6	7.6	74.0	74.0	74.0	74.0	754.2
Total	95.4	94.3	97.4	104.2	113.9	116.7	27.5	28.9	112.2	106.0	98.7	97.9	1,093.2

Gas Demand (Btu/h x000,000)

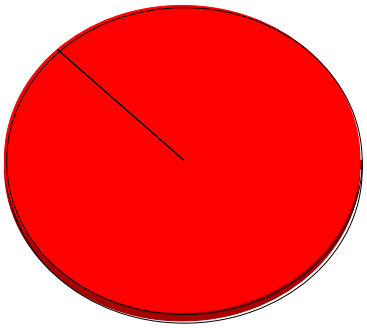
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.37	1.13	1.15	0.91	0.28	0.17	0.15	0.15	0.16	0.36	0.76	0.82	7.40
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.37	1.13	1.15	0.91	0.28	0.17	0.15	0.15	0.16	0.36	0.76	0.82	7.40

Annual Peak Demand by Enduse

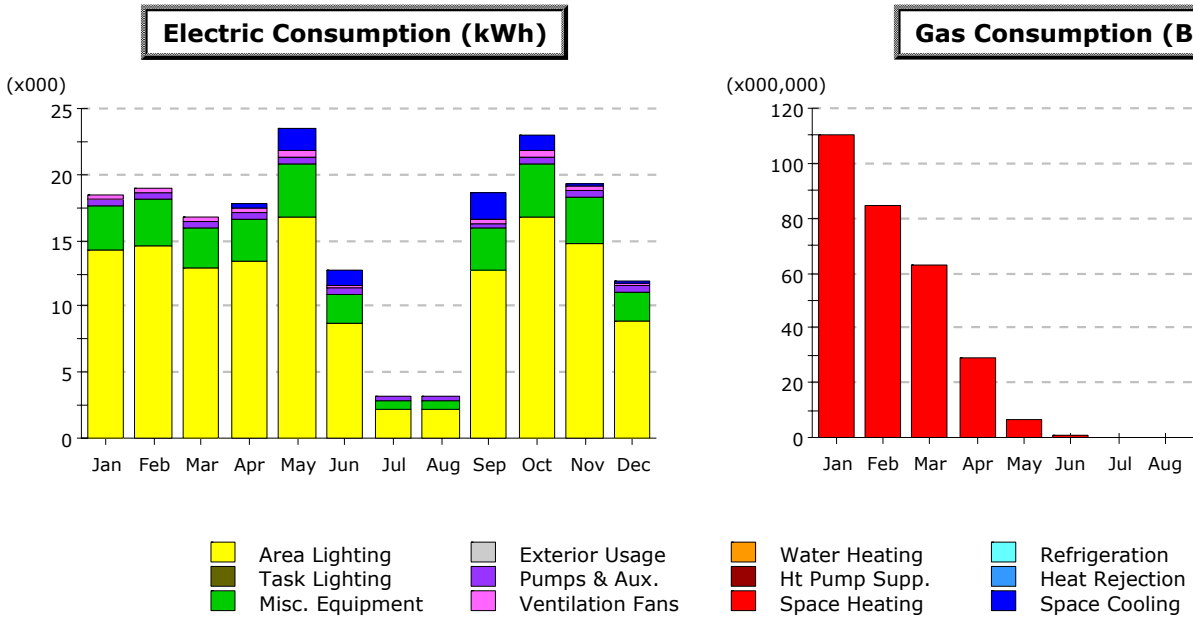
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	23.12	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,366.9	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.39	-	-	-
Pumps & Aux.	0.79	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	15.72	-	-	-
Task Lights	-	-	-	-
Area Lights	73.71	-	-	-
Total	116.75	1,366.9	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

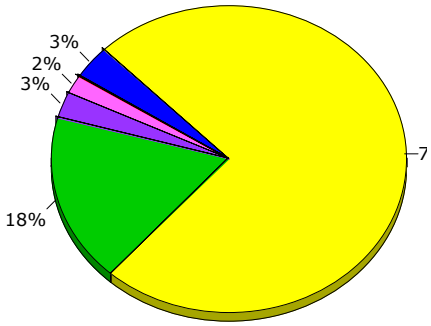
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	0.02	0.04	0.26	1.65	1.18	-	-	1.86	1.16	0.08	0.04	6.30
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.07	0.05	0.04	0.02	0.00	0.00	-	-	0.00	0.01	0.03	0.06	0.29
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.37	0.37	0.30	0.32	0.47	0.27	-	-	0.41	0.42	0.35	0.25	3.53
Pumps & Aux.	0.50	0.45	0.50	0.47	0.44	0.42	0.43	0.43	0.42	0.45	0.47	0.50	5.48
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.41	3.52	3.09	3.24	4.05	2.12	0.54	0.54	3.08	4.05	3.56	2.14	33.35
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	14.18	14.62	12.85	13.44	16.83	8.81	2.25	2.25	12.78	16.83	14.77	8.88	138.50
Total	18.54	19.04	16.83	17.76	23.45	12.79	3.23	3.23	18.54	22.92	19.26	11.86	187.44

Gas Consumption (Btu x000,000)

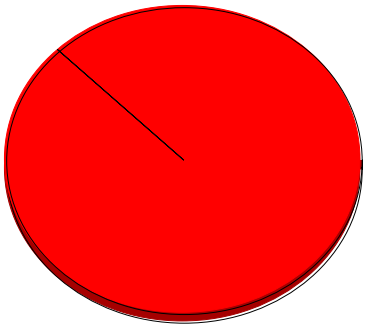
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	110.63	84.51	63.06	29.22	6.05	0.40	-	-	0.31	8.28	44.69	76.55	423.71
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	110.63	84.51	63.06	29.22	6.05	0.40	-	-	0.31	8.28	44.69	76.55	423.71

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	6.30	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.29	423.71	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.53	-	-	-
Pumps & Aux.	5.48	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	33.35	-	-	-
Task Lights	-	-	-	-
Area Lights	138.50	-	-	-
Total	187.44	423.71	-	-

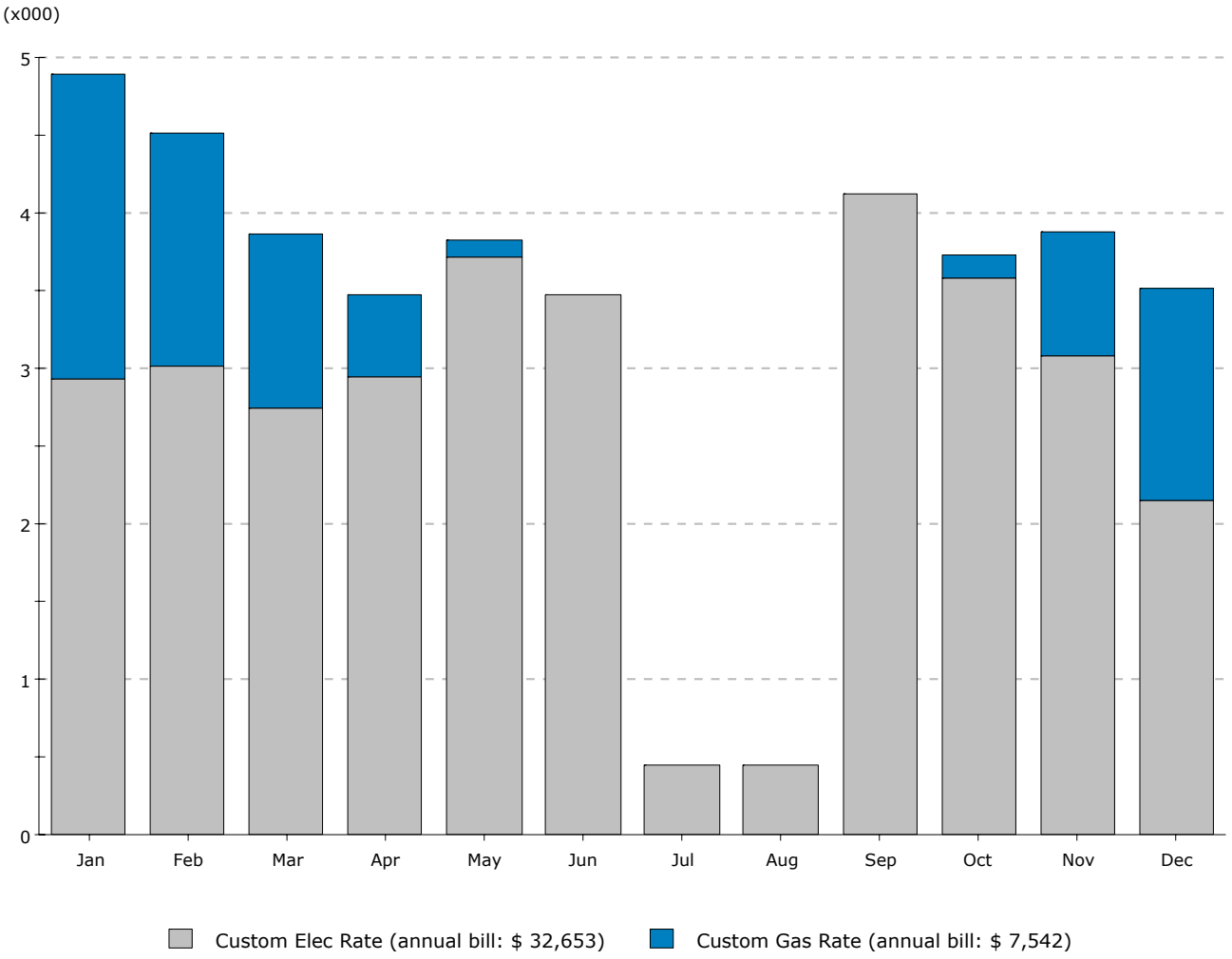


Electricity

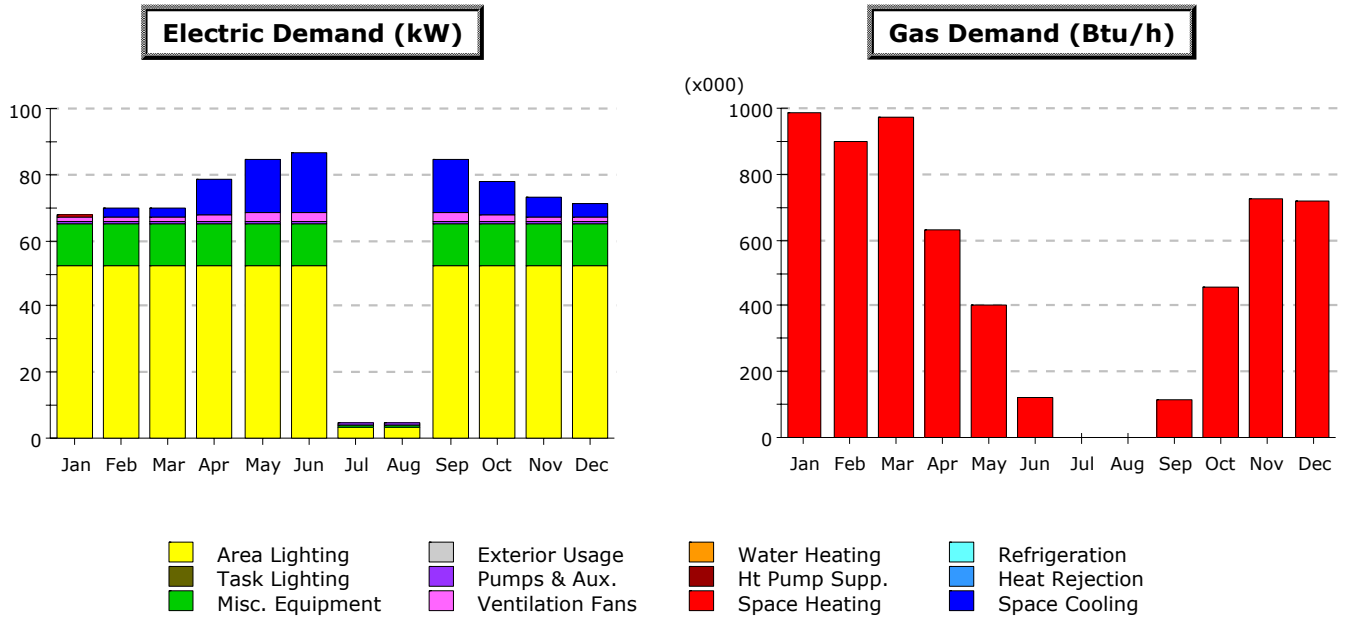


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 40,195



Electric Demand (kW)

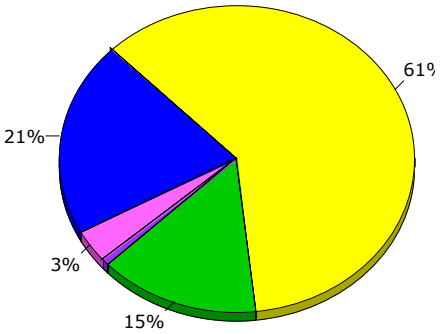
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	2.66	2.76	10.86	16.10	17.87	-	-	15.74	10.51	5.93	3.81	86.26
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.29	0.04	0.03	-	-	-	-	-	-	-	-	0.02	0.38
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.53	1.53	1.54	1.85	2.50	2.97	-	-	2.85	1.81	1.65	1.53	19.77
Pumps & Aux.	0.68	0.63	0.63	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	7.13
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	12.56	12.56	12.56	12.56	12.56	12.56	0.75	0.75	12.56	12.56	12.56	12.56	127.15
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	52.51	52.51	52.51	52.51	52.51	52.51	3.15	3.15	52.51	52.51	52.51	52.51	531.44
Total	67.58	69.94	70.05	78.37	84.25	86.50	4.48	4.48	84.25	77.97	73.24	71.02	772.11

Gas Demand (Btu/h x000)

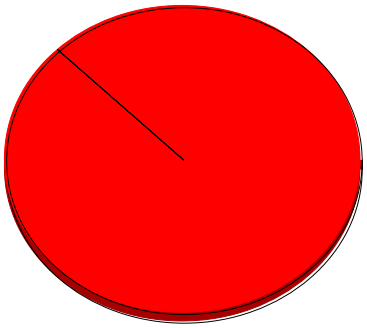
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	986.4	899.4	970.1	633.5	400.6	118.9	-	-	110.8	457.1	728.0	720.4	6,025.1
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	986.4	899.4	970.1	633.5	400.6	118.9	-	-	110.8	457.1	728.0	720.4	6,025.1

Annual Peak Demand by Enduse

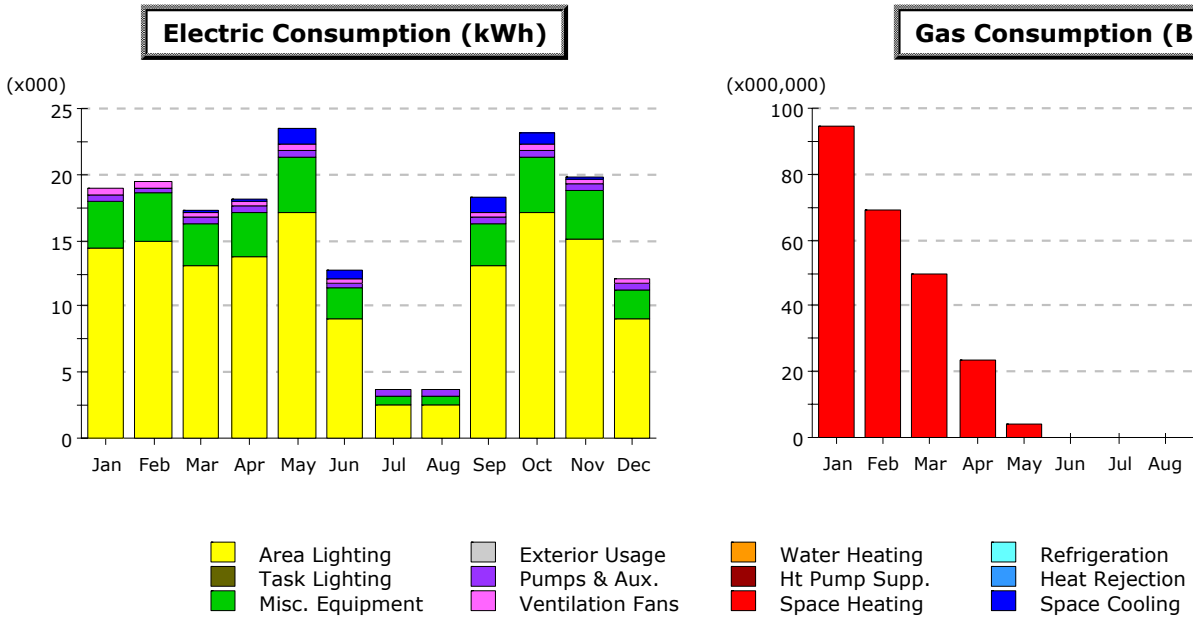
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	17.87	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	986.38	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	2.97	-	-	-
Pumps & Aux.	0.58	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	12.56	-	-	-
Task Lights	-	-	-	-
Area Lights	52.51	-	-	-
Total	86.50	986.38	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

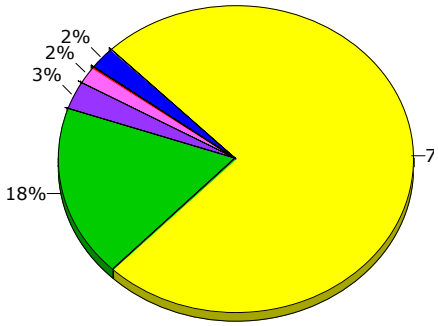
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.02	0.03	0.05	0.24	1.13	0.80	-	-	1.21	0.81	0.09	0.03	4.41
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.07	0.05	0.04	0.02	0.00	-	-	-	-	0.00	0.02	0.05	0.25
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.39	0.39	0.32	0.34	0.45	0.23	-	-	0.34	0.44	0.37	0.26	3.52
Pumps & Aux.	0.52	0.47	0.52	0.49	0.46	0.44	0.45	0.45	0.44	0.47	0.50	0.52	5.74
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.55	3.66	3.21	3.36	4.21	2.24	0.65	0.65	3.21	4.21	3.69	2.22	34.86
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	14.44	14.90	13.09	13.69	17.15	9.10	2.58	2.58	13.07	17.15	15.04	9.02	141.81
Total	18.98	19.49	17.22	18.14	23.41	12.81	3.68	3.68	18.27	23.08	19.72	12.10	190.59

Gas Consumption (Btu x000,000)

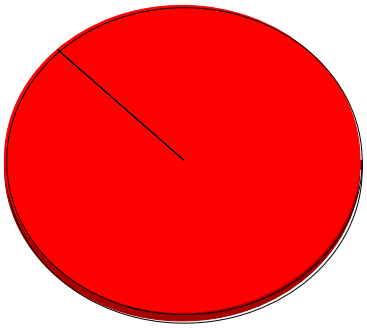
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	94.39	68.86	49.74	23.46	4.15	0.02	-	-	0.01	4.30	33.82	70.03	348.79
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	94.39	68.86	49.74	23.46	4.15	0.02	-	-	0.01	4.30	33.82	70.03	348.79

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	4.41	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.25	348.79	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.52	-	-	-
Pumps & Aux.	5.74	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	34.86	-	-	-
Task Lights	-	-	-	-
Area Lights	141.81	-	-	-
Total	190.59	348.79	-	-

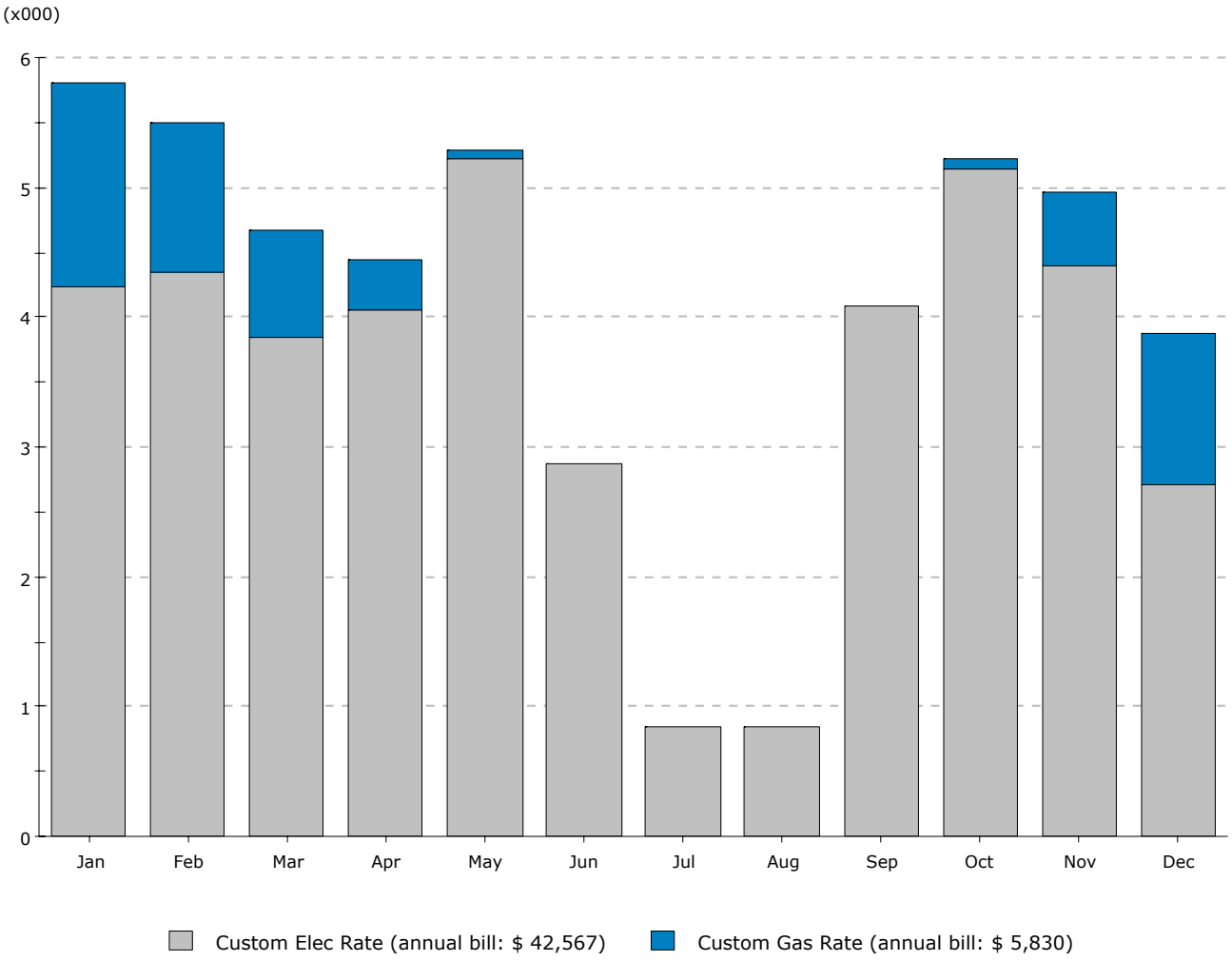


Electricity

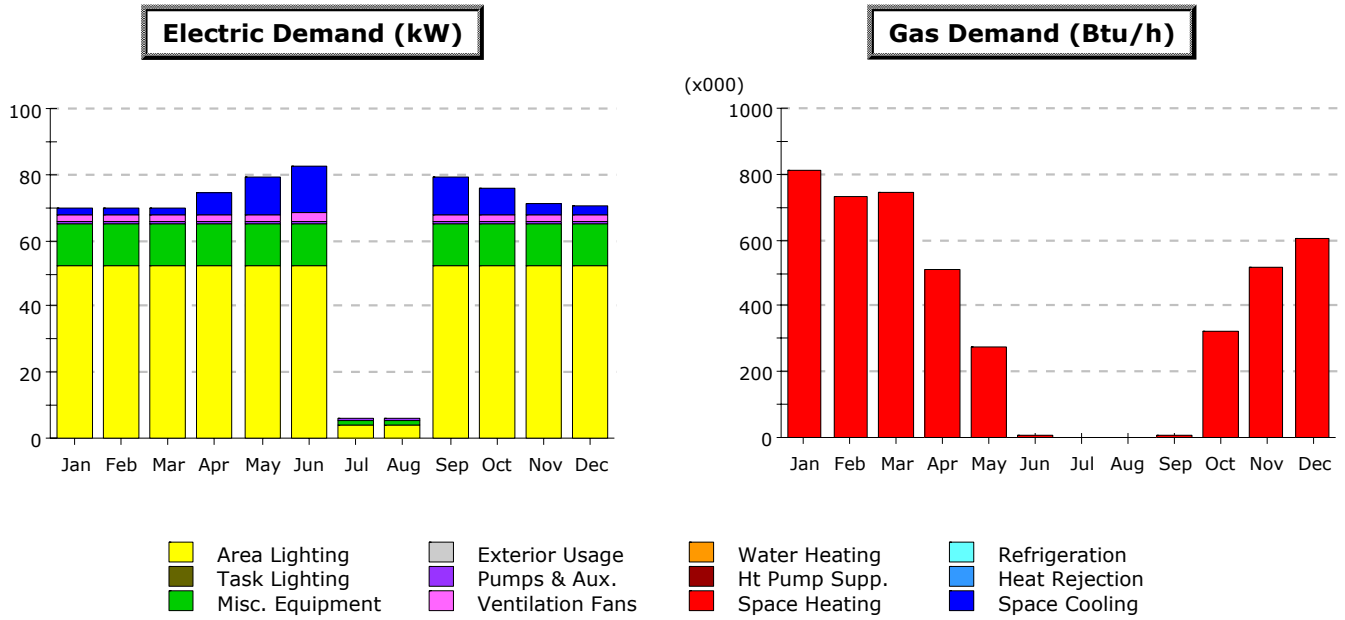


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 48,397



Electric Demand (kW)

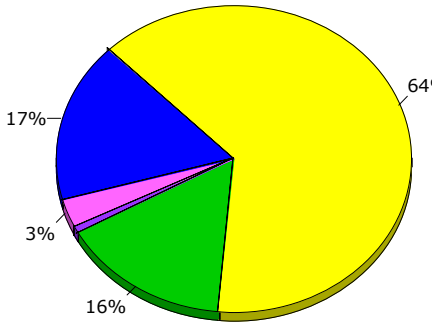
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.73	1.73	1.73	6.97	11.49	14.01	-	-	11.02	8.08	3.72	3.08	63.57
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.16	0.13	0.15	-	-	-	-	-	-	-	0.01	0.01	0.48
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.63	1.63	1.63	1.73	1.90	2.39	-	-	1.97	1.80	1.66	1.63	17.96
Pumps & Aux.	0.66	0.66	0.66	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	7.43
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	12.82	12.82	12.82	12.82	12.82	12.82	1.03	1.03	12.82	12.82	12.82	12.82	130.26
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	52.54	52.54	52.54	52.54	52.54	52.54	4.19	4.19	52.54	52.54	52.54	52.54	533.74
Total	69.54	69.51	69.53	74.66	79.35	82.37	5.82	5.82	78.95	75.84	71.36	70.69	753.43

Gas Demand (Btu/h x000)

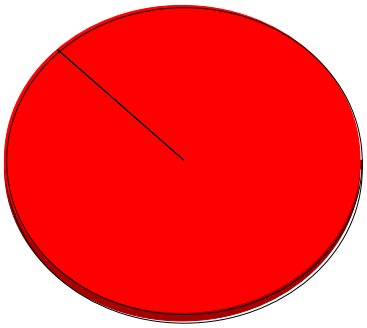
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	808.8	733.8	746.9	508.8	277.3	7.0	-	-	9.6	322.1	519.3	604.0	4,537.5
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	808.8	733.8	746.9	508.8	277.3	7.0	-	-	9.6	322.1	519.3	604.0	4,537.5

Annual Peak Demand by Enduse

	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	14.01	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	808.79	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	2.39	-	-	-
Pumps & Aux.	0.61	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	12.82	-	-	-
Task Lights	-	-	-	-
Area Lights	52.54	-	-	-
Total	82.37	808.79	-	-



Electricity



Natural Gas

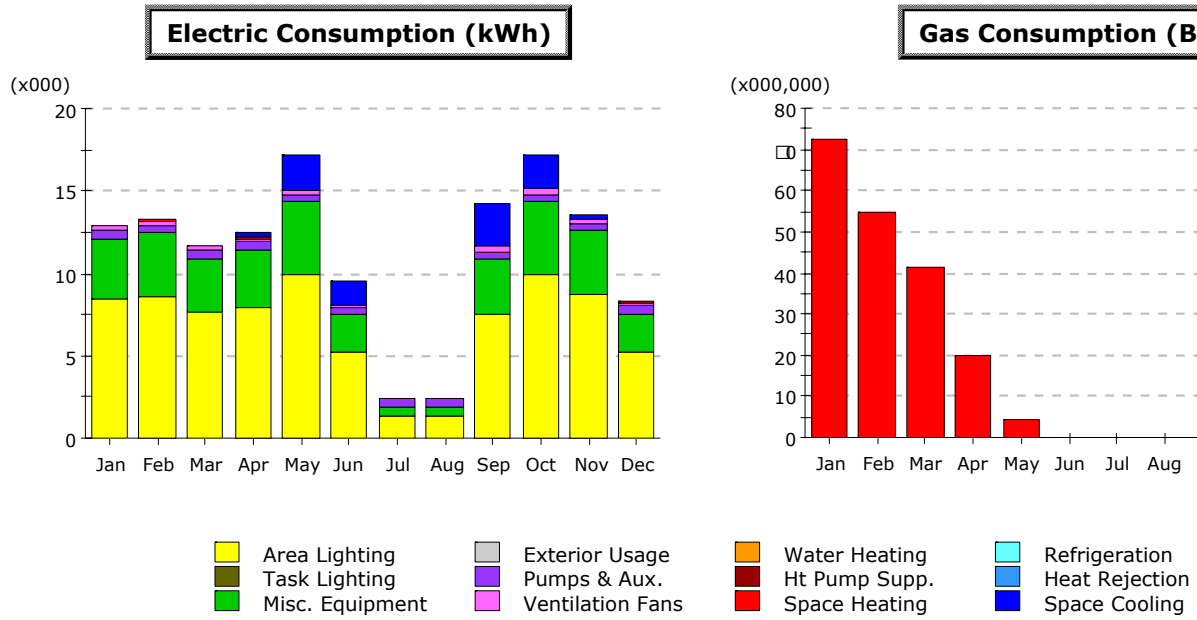
GARCIA • GALUSKA • DESOUSA
Consulting Engineers Inc.

370 Faunce Corner Road, Dartmouth, MA 02747-1217

PROJECT	Lexington H.S.
CALC BY	KL
CHK BY	EG
DATE	08/12/08

OPTION 1,2,3 CONSUMPTION SUMMARY

Building	ANNUAL ELEC. CONS. (KWH)	ANNUAL GAS CONS. (MBTU)	ANNUAL ELECTRIC COST	ANNUAL GAS COST	COMBINED UTILITY COST	ANNUAL MAINT. COST	COMBINED ANNUAL EXPENSE
A	135,050	272.9	$30,009	$4,561	$34,570	$5,800	$40,370
B	238,460	447.2	$52,986	$7,475	$60,461	$9,600	$70,061
C	95,031	475.1	$21,116	$7,941	$29,057	$8,200	$37,257
D	284,400	899.9	$63,194	$15,041	$78,235	$9,000	$87,235
E	236,780	407.2	$52,612	$6,806	$59,418	$14,800	$74,218
F	165,220	129.2	$36,712	$2,159	$38,871	$2,000	$40,871
G	277,720	457.0	$61,710	$7,638	$69,348	$13,600	$82,948
H	187,420	364.3	$41,645	$6,088	$47,733	$12,400	$60,133
J	197,550	370.6	$44,114	$6,194	$50,308	$11,600	$61,908
TOTAL	1,817,631	3,823.4	$404,098	$63,903	$468,001	$87,000	$555,001



Electric Consumption (kWh x000)

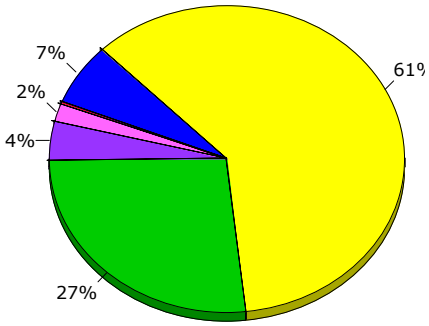
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.02	-	0.02	0.34	2.16	1.41	-	-	2.53	2.08	0.20	0.06	8.83
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.05	0.04	0.03	0.02	0.00	-	-	-	-	0.00	0.02	0.04	0.20
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.30	0.29	0.22	0.21	0.31	0.1□	-	-	0.33	0.36	0.25	0.1□	2.60
Pumps & Aux.	0.51	0.4□	0.51	0.48	0.45	0.43	0.44	0.44	0.43	0.46	0.49	0.51	5.63
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.6□	3.□8	3.33	3.48	4.35	2.28	0.58	0.58	3.31	4.35	3.82	2.30	35.83
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	8.39	8.65	□61	□96	9.96	5.21	1.33	1.33	□56	9.96	8.□4	5.25	81.9□
Total	12.94	13.23	11.□2	12.49	1□24	9.49	2.36	2.36	14.16	1□22	13.51	8.32	135.05

Gas Consumption (Btu x000,000)

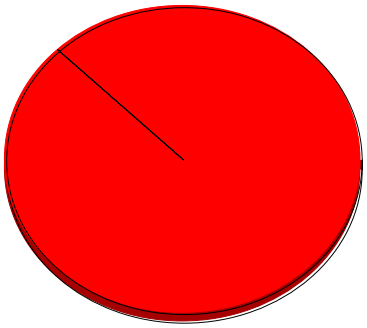
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	□2.3□	54.86	41.49	19.□□	4.16	-	-	-	-	3.81	26.□3	49.□0	2□2.88
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	□2.3□	54.86	41.49	19.□□	4.16	-	-	-	-	3.81	26.□3	49.□0	2□2.88

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	8.83	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.20	272.88	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	2.60	-	-	-
Pumps & Aux.	5.63	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	35.83	-	-	-
Task Lights	-	-	-	-
Area Lights	81.97	-	-	-
Total	135.05	272.88	-	-

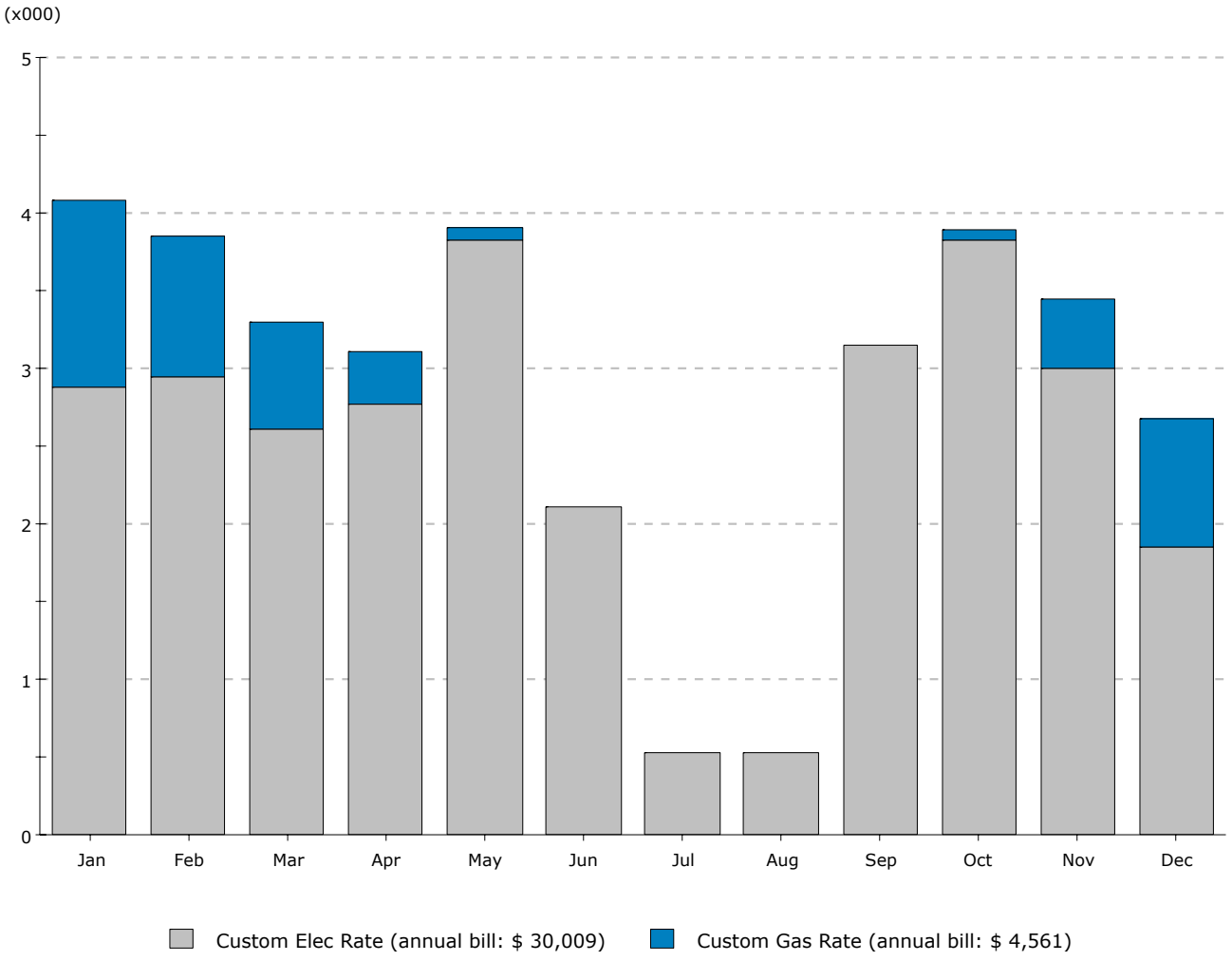


Electricity

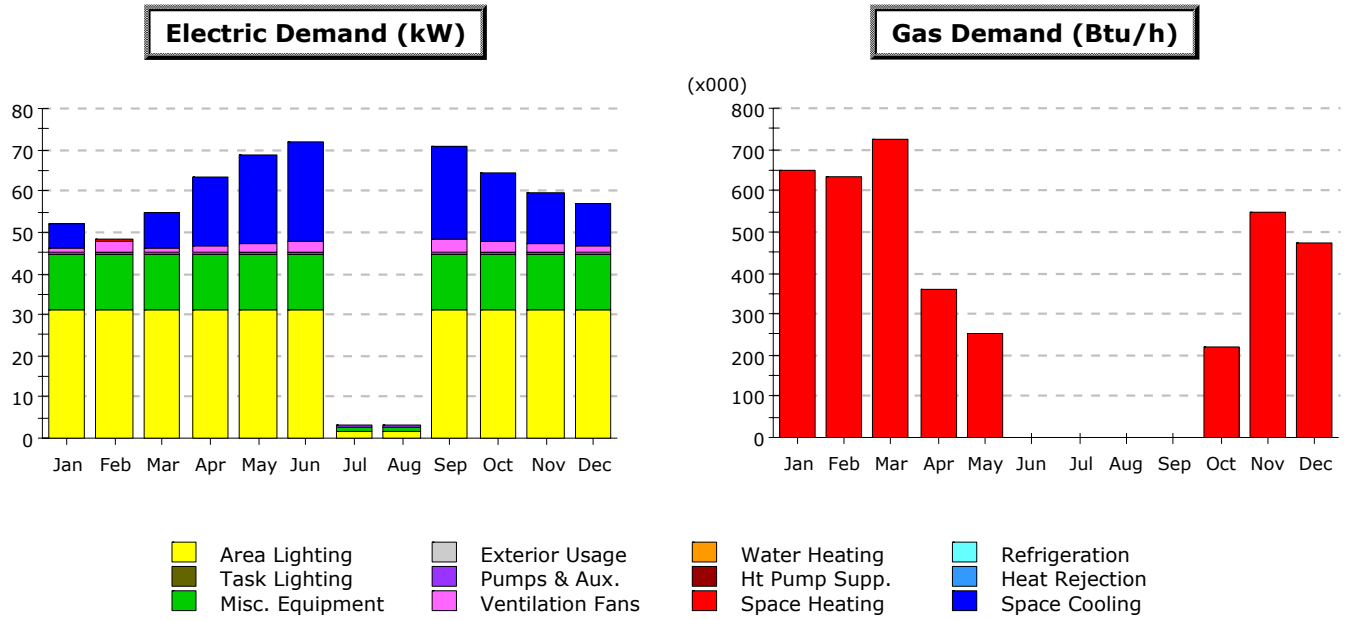


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 34,570



Electric Demand (kW)

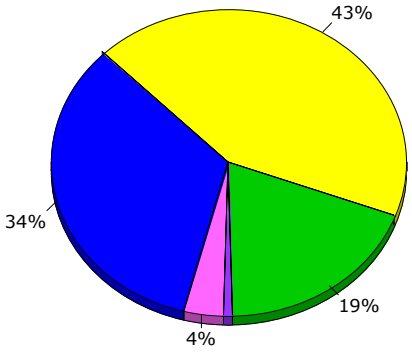
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	5.79	-	8.21	16.41	21.83	24.13	-	-	22.88	16.95	12.66	10.44	139.29
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.03	0.30	0.02	-	-	-	-	-	-	-	-	-	0.34
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.01	2.59	1.20	1.65	1.82	2.54	-	-	3.06	2.38	1.91	1.53	19.69
Pumps & Aux.	0.59	0.69	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	7.22
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	13.50	13.50	13.50	13.50	13.50	13.50	0.81	0.81	13.50	13.50	13.50	13.50	136.62
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	31.08	31.08	31.08	31.08	31.08	31.08	1.86	1.86	31.08	31.08	31.08	31.08	314.51
Total	52.00	48.16	54.60	63.23	68.83	71.84	3.27	3.27	71.11	64.50	59.74	57.14	617.67

Gas Demand (Btu/h x000)

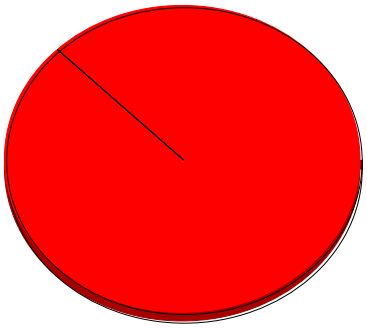
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	651.4	634.7	725.4	359.8	250.9	-	-	-	-	218.5	546.7	470.9	3,858.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	651.4	634.7	725.4	359.8	250.9	-	-	-	-	218.5	546.7	470.9	3,858.2

Annual Peak Demand by Enduse

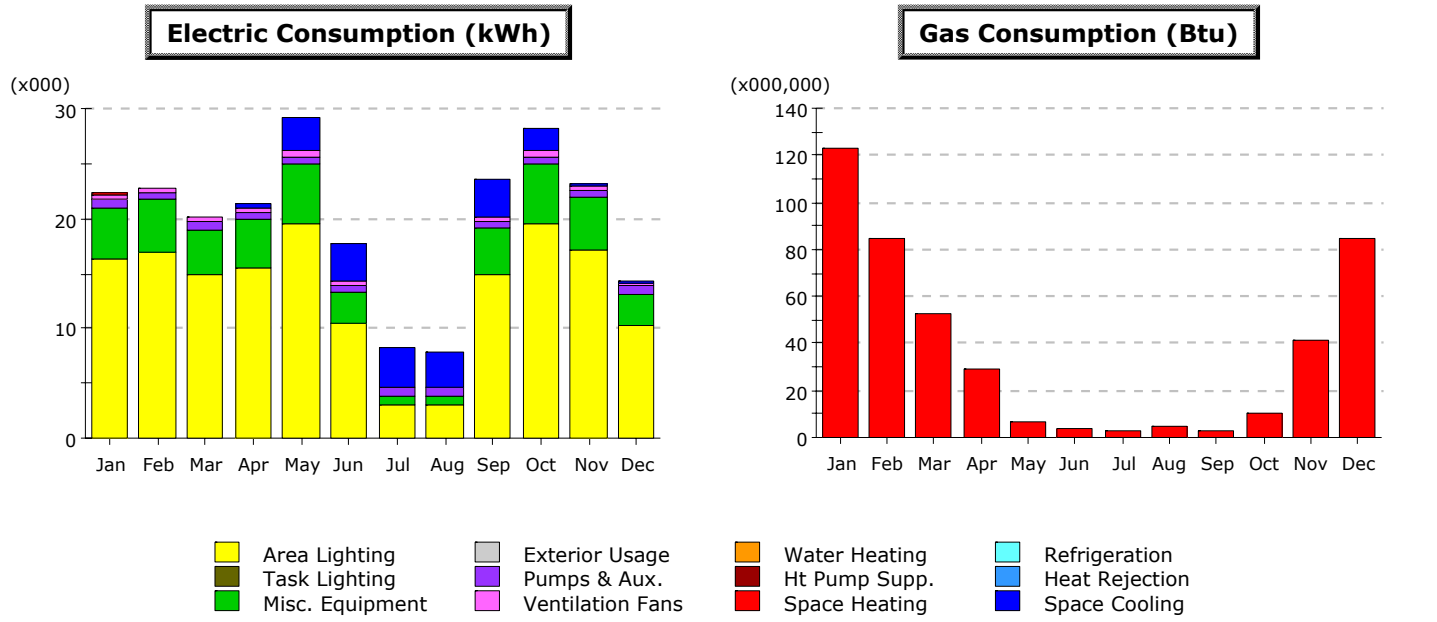
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	24.13	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	725.41	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	2.54	-	-	-
Pumps & Aux.	0.59	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	13.50	-	-	-
Task Lights	-	-	-	-
Area Lights	31.08	-	-	-
Total	71.84	725.41	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

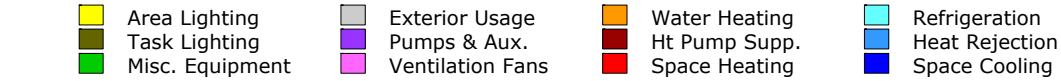
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.04	-	0.03	0.45	2.98	3.38	3.46	3.13	3.39	2.10	0.23	0.06	19.25
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.09	0.06	0.04	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.03	0.07	0.34
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.46	0.42	0.32	0.34	0.49	0.32	0.12	0.12	0.41	0.45	0.38	0.25	4.07
Pumps & Aux.	0.72	0.65	0.72	0.69	0.69	0.66	0.68	0.68	0.66	0.70	0.69	0.72	8.27
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.60	4.75	4.17	4.36	5.46	2.93	0.88	0.88	4.18	5.46	4.79	2.87	45.35
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	16.39	16.91	14.85	15.54	19.46	10.37	3.02	3.02	14.85	19.46	17.07	10.24	161.19
Total	22.29	22.79	20.13	21.40	29.09	17.67	8.17	7.85	23.49	28.18	23.20	14.20	238.46

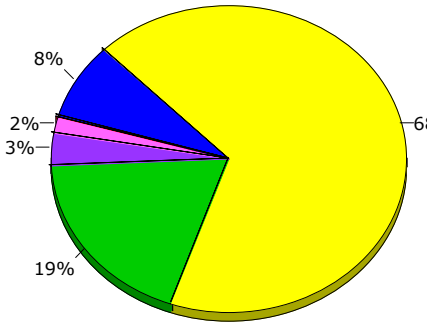
Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	122.99	84.34	53.02	29.22	6.93	4.07	2.97	5.13	2.66	10.25	41.26	84.38	447.22
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	122.99	84.34	53.02	29.22	6.93	4.07	2.97	5.13	2.66	10.25	41.26	84.38	447.22

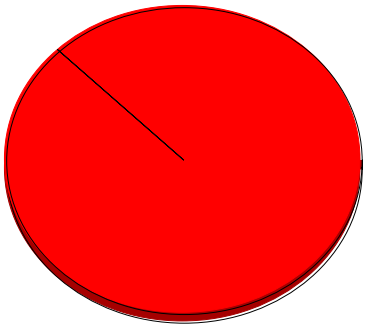
Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	19.25	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.34	447.22	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	4.07	-	-	-
Pumps & Aux.	8.27	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	45.35	-	-	-
Task Lights	-	-	-	-
Area Lights	161.19	-	-	-
Total	238.46	447.22	-	-



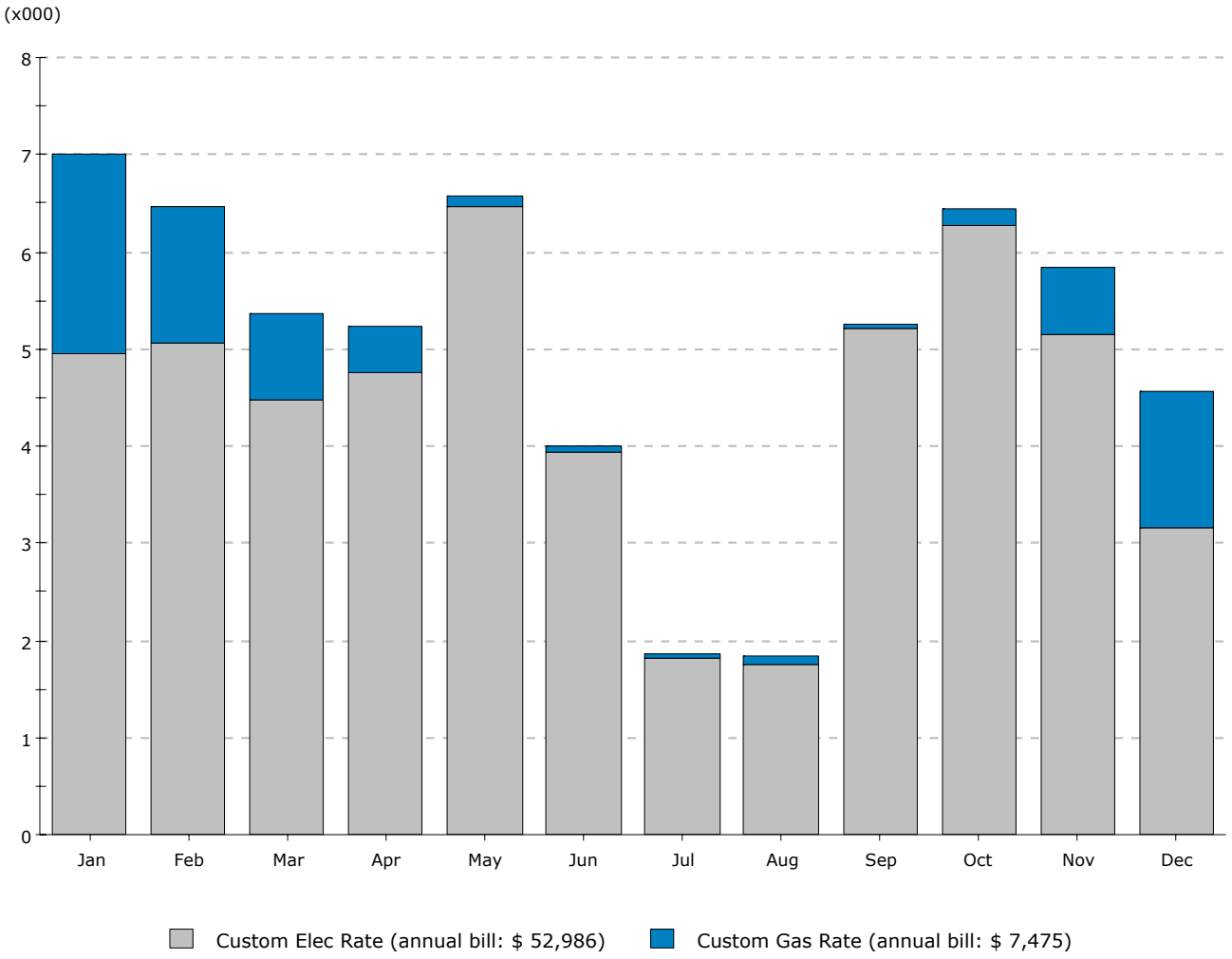


Electricity

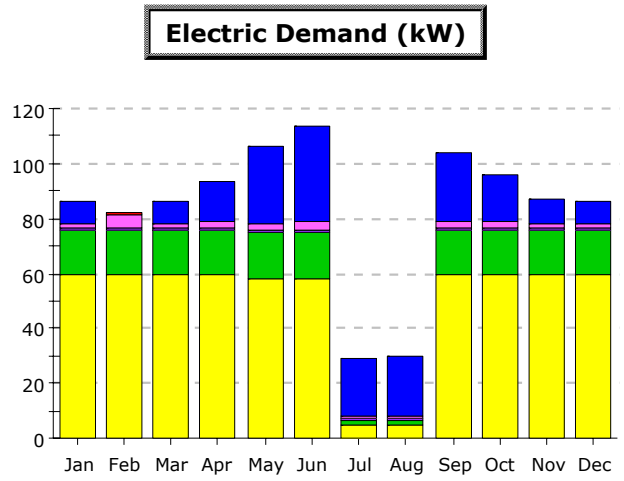


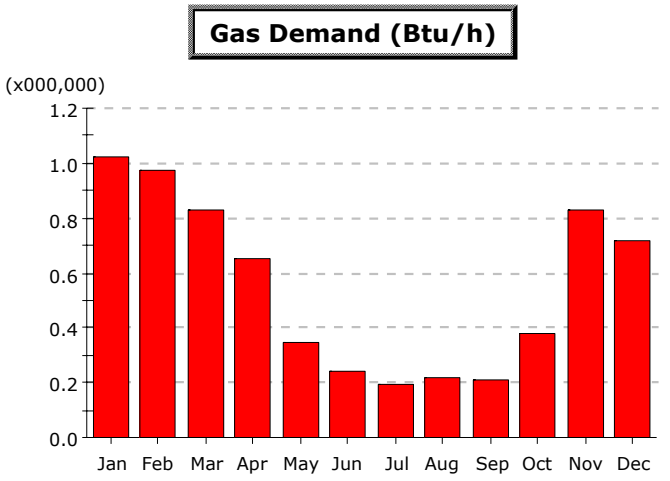
Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 60,461





Electric Demand (kW)

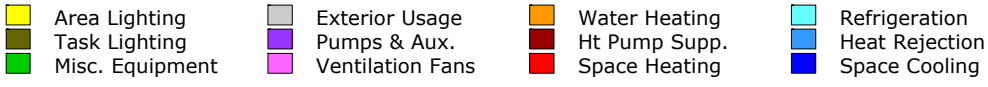
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	7.50	-	7.50	15.20	28.36	35.16	21.51	21.68	24.27	17.15	8.68	7.65	194.66
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.07	0.47	0.03	-	-	-	-	-	-	-	-	0.03	0.61
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.60	4.52	1.60	1.78	2.33	3.26	0.59	0.60	2.47	1.91	1.64	1.60	23.92
Pumps & Aux.	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	11.08
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	16.51	16.51	16.51	16.51	16.25	16.25	1.45	1.47	16.51	16.51	16.51	16.51	167.47
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	59.34	59.34	59.34	59.34	58.34	58.34	4.91	5.05	59.34	59.34	59.34	59.34	601.36
Total	85.94	81.81	85.90	93.74	106.20	113.94	29.38	29.72	103.51	95.82	87.09	86.05	999.10

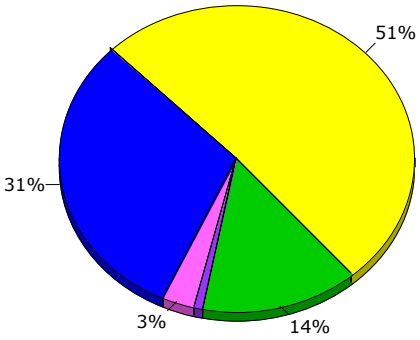
Gas Demand (Btu/h x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.02	0.98	0.83	0.65	0.35	0.25	0.19	0.22	0.21	0.38	0.83	0.72	6.61
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.02	0.98	0.83	0.65	0.35	0.25	0.19	0.22	0.21	0.38	0.83	0.72	6.61

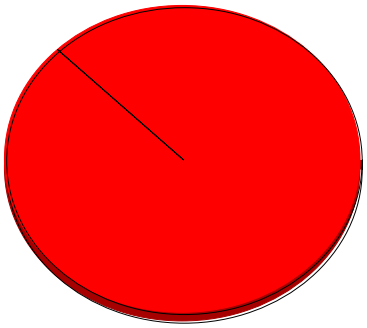
Annual Peak Demand by Enduse

	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	35.16	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,024.1	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.26	-	-	-
Pumps & Aux.	0.92	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	16.25	-	-	-
Task Lights	-	-	-	-
Area Lights	58.34	-	-	-
Total	113.94	1,024.1	-	-

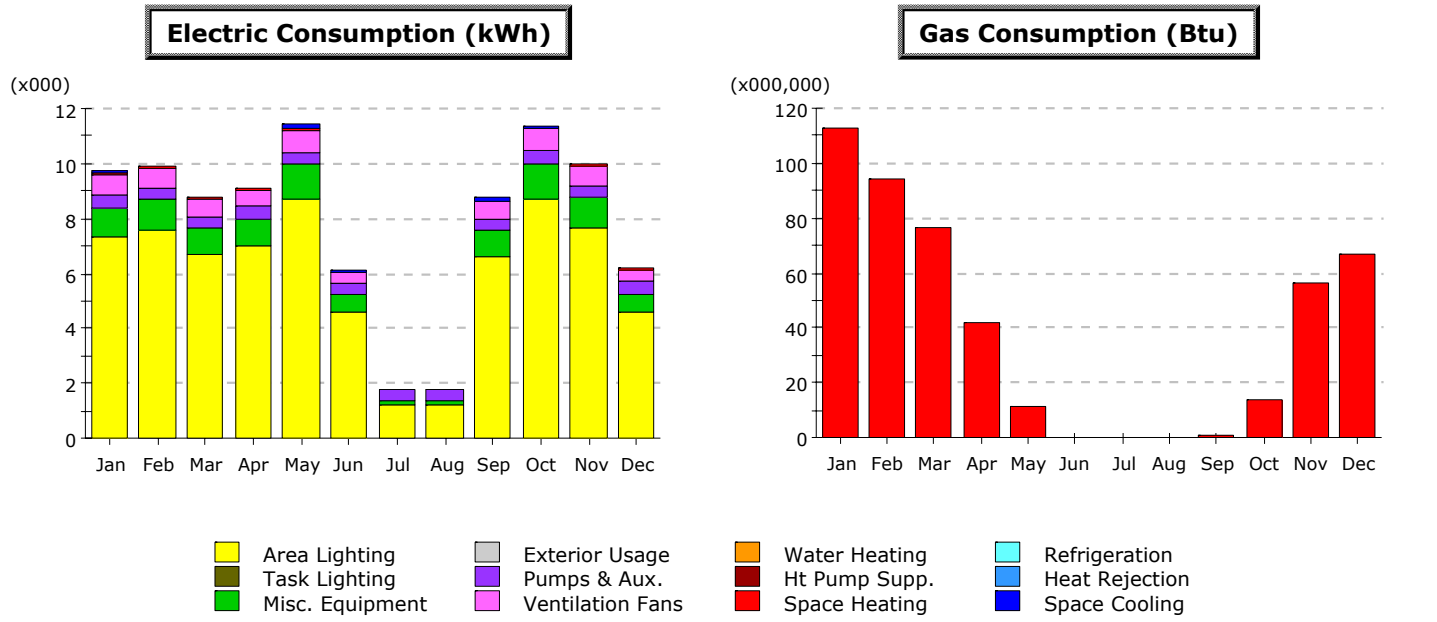




Electricity



Natural Gas



Electric Consumption (kWh x000)

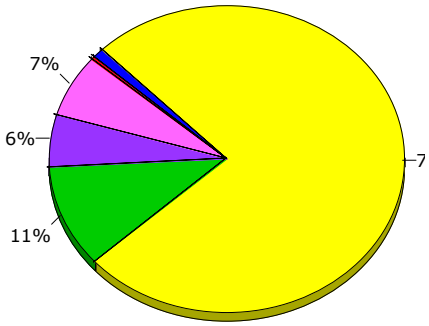
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.08	0.06	0.03	0.04	0.18	0.13	-	-	0.18	0.14	0.02	0.01	0.88
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.08	0.07	0.05	0.03	0.01	0.00	-	-	0.00	0.01	0.04	0.05	0.34
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.70	0.72	0.61	0.63	0.81	0.37	-	-	0.59	0.81	0.71	0.39	6.33
Pumps & Aux.	0.47	0.42	0.47	0.45	0.44	0.42	0.43	0.43	0.42	0.44	0.45	0.47	5.29
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	1.06	1.09	0.96	1.00	1.26	0.66	0.17	0.17	0.95	1.26	1.10	0.66	10.35
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	7.36	7.59	6.67	6.97	8.73	4.57	1.17	1.17	6.63	8.73	7.66	4.61	71.85
Total	9.74	9.94	8.79	9.12	11.43	6.15	1.77	1.77	8.77	11.39	9.98	6.19	95.03

Gas Consumption (Btu x000,000)

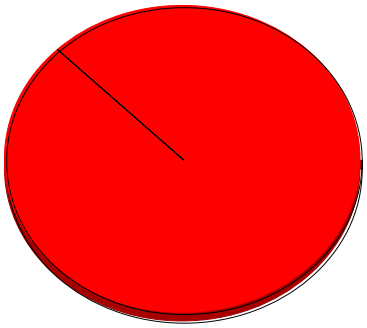
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	112.62	94.36	76.31	42.28	11.17	0.30	-	-	0.96	13.95	56.70	66.49	475.13
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	112.62	94.36	76.31	42.28	11.17	0.30	-	-	0.96	13.95	56.70	66.49	475.13

Annual Energy Consumption by Enduse

	Electricity kWh	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	877	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	340	475.13	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	6,329	-	-	-
Pumps & Aux.	5,290	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	10,347	-	-	-
Task Lights	-	-	-	-
Area Lights	71,849	-	-	-
Total	95,031	475.13	-	-

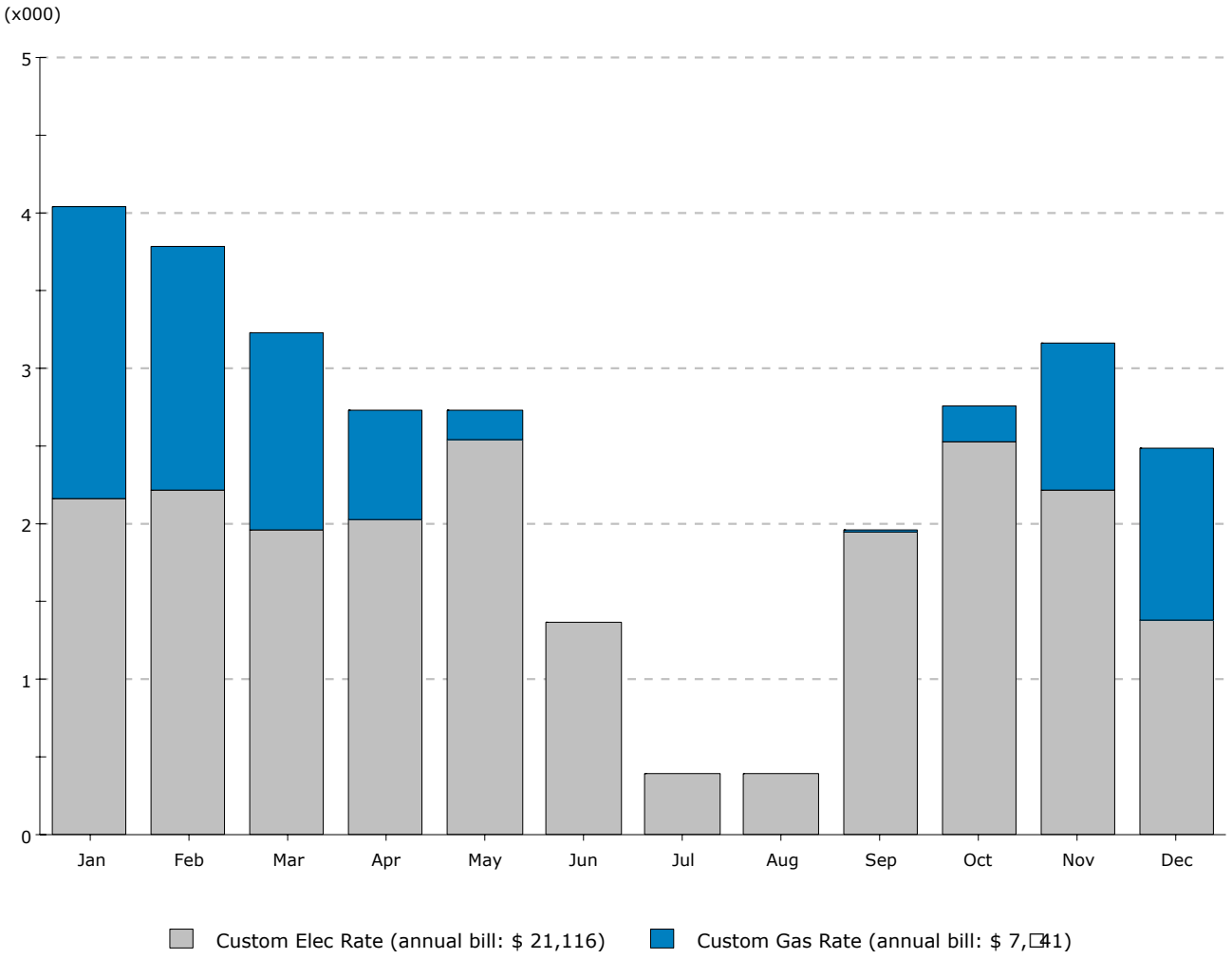


Electricity

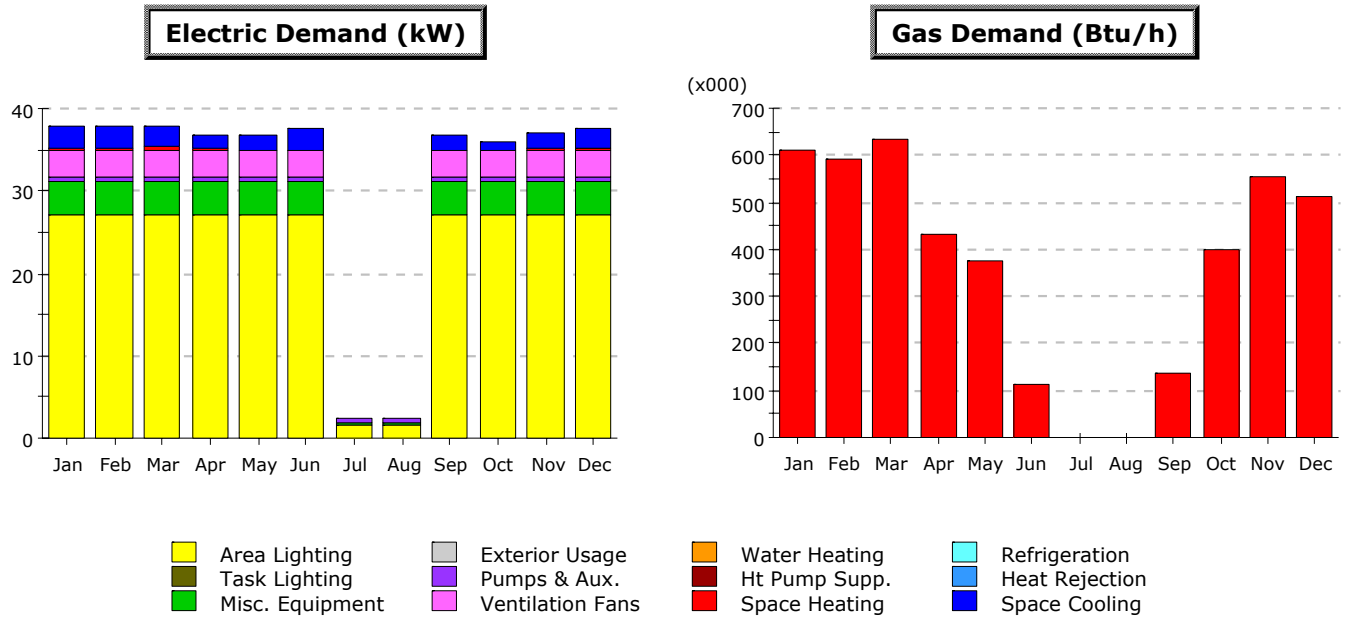


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 29,057



Electric Demand (kW)

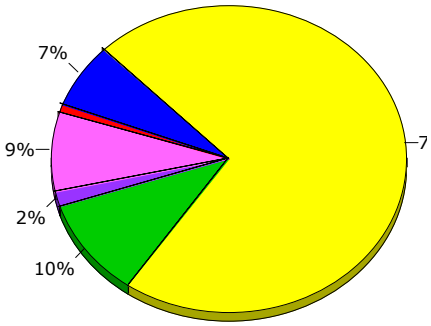
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	2.59	2.48	2.59	1.65	1.96	2.77	-	-	1.81	1.12	1.93	2.34	21.25
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.30	0.28	0.30	0.25	-	-	-	-	-	-	0.26	0.27	1.67
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	3.24	3.24	3.24	3.19	3.07	3.14	-	-	3.10	3.06	3.20	3.24	31.72
Pumps & Aux.	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	6.96
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.94	3.94	3.94	3.94	3.92	3.92	0.23	0.23	3.92	3.92	3.94	3.94	39.77
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	27.24	27.24	27.24	27.24	27.24	27.24	1.63	1.63	27.24	27.24	27.24	27.24	275.69
Total	37.89	37.76	37.90	36.85	36.77	37.65	2.45	2.45	36.65	35.92	37.16	37.62	377.06

Gas Demand (Btu/h x000)

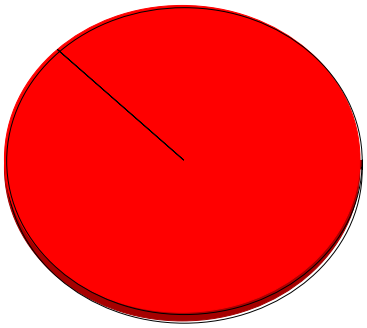
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	610.8	594.0	634.2	433.8	374.2	112.0	-	-	138.1	398.2	554.2	513.5	4,363.1
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	610.8	594.0	634.2	433.8	374.2	112.0	-	-	138.1	398.2	554.2	513.5	4,363.1

Annual Peak Demand by Enduse

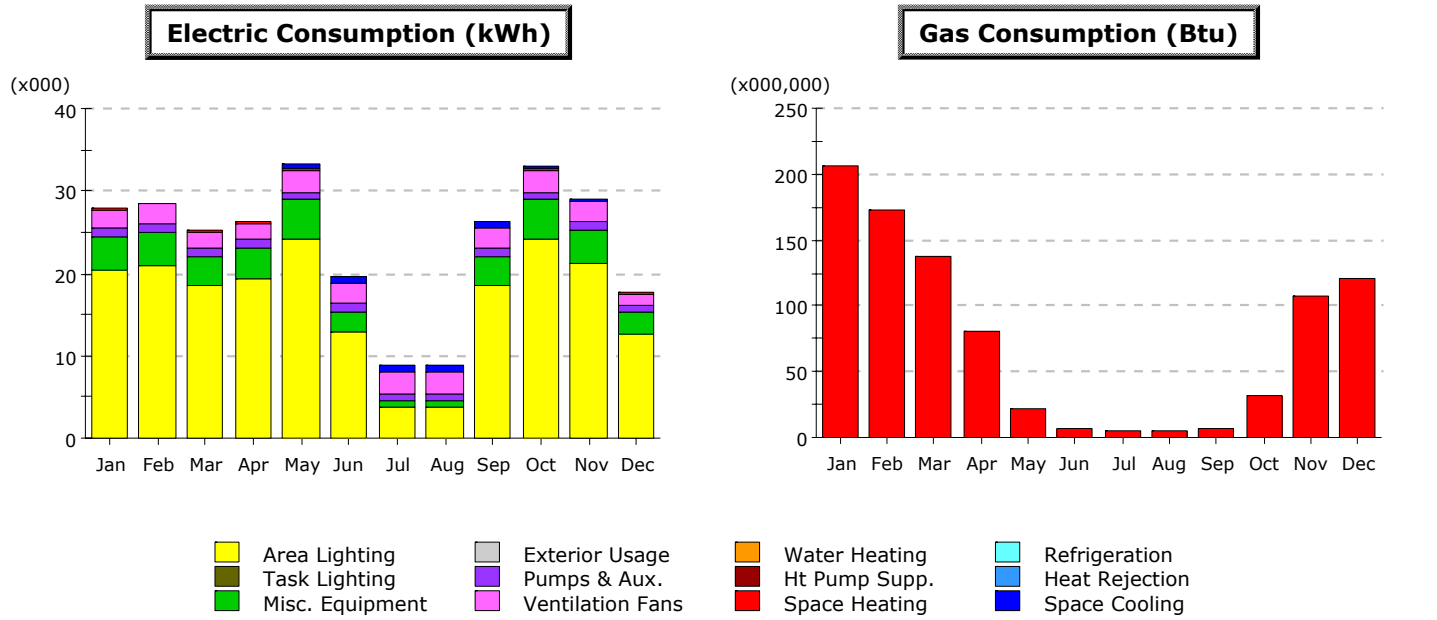
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	2.59	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.30	634.23	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.24	-	-	-
Pumps & Aux.	0.58	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	3.94	-	-	-
Task Lights	-	-	-	-
Area Lights	27.24	-	-	-
Total	37.90	634.23	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

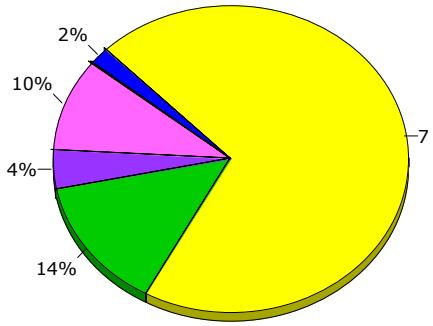
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.01	-	0.01	0.13	0.68	0.79	0.90	0.82	0.74	0.49	0.08	0.02	4.67
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.15	0.13	0.10	0.06	0.02	0.01	0.00	0.00	0.00	0.02	0.08	0.09	0.67
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	2.29	2.38	1.99	2.10	2.73	2.43	2.60	2.59	2.46	2.71	2.35	1.29	27.93
Pumps & Aux.	1.05	0.95	1.05	1.00	0.99	0.95	0.98	0.98	0.95	1.00	1.00	1.05	11.93
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.00	4.13	3.62	3.79	4.75	2.54	0.76	0.76	3.63	4.75	4.17	2.50	39.41
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	20.32	20.97	18.42	19.27	24.14	12.84	3.70	3.70	18.41	24.14	21.18	12.70	199.79
Total	27.82	28.56	25.20	26.36	33.30	19.55	8.94	8.85	26.19	33.12	28.86	17.64	284.40

Gas Consumption (Btu x000,000)

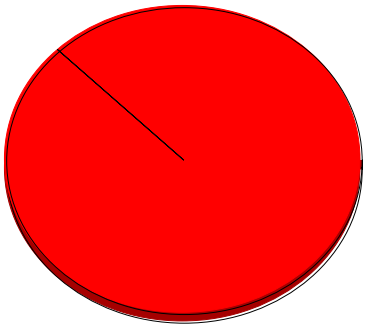
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	205.80	172.81	138.37	80.00	22.31	6.68	4.27	5.22	5.97	31.17	107.11	120.20	899.89
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	205.80	172.81	138.37	80.00	22.31	6.68	4.27	5.22	5.97	31.17	107.11	120.20	899.89

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	4.67	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.67	899.90	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	27.93	-	-	-
Pumps & Aux.	11.93	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	39.41	-	-	-
Task Lights	-	-	-	-
Area Lights	199.79	-	-	-
Total	284.40	899.90	-	-

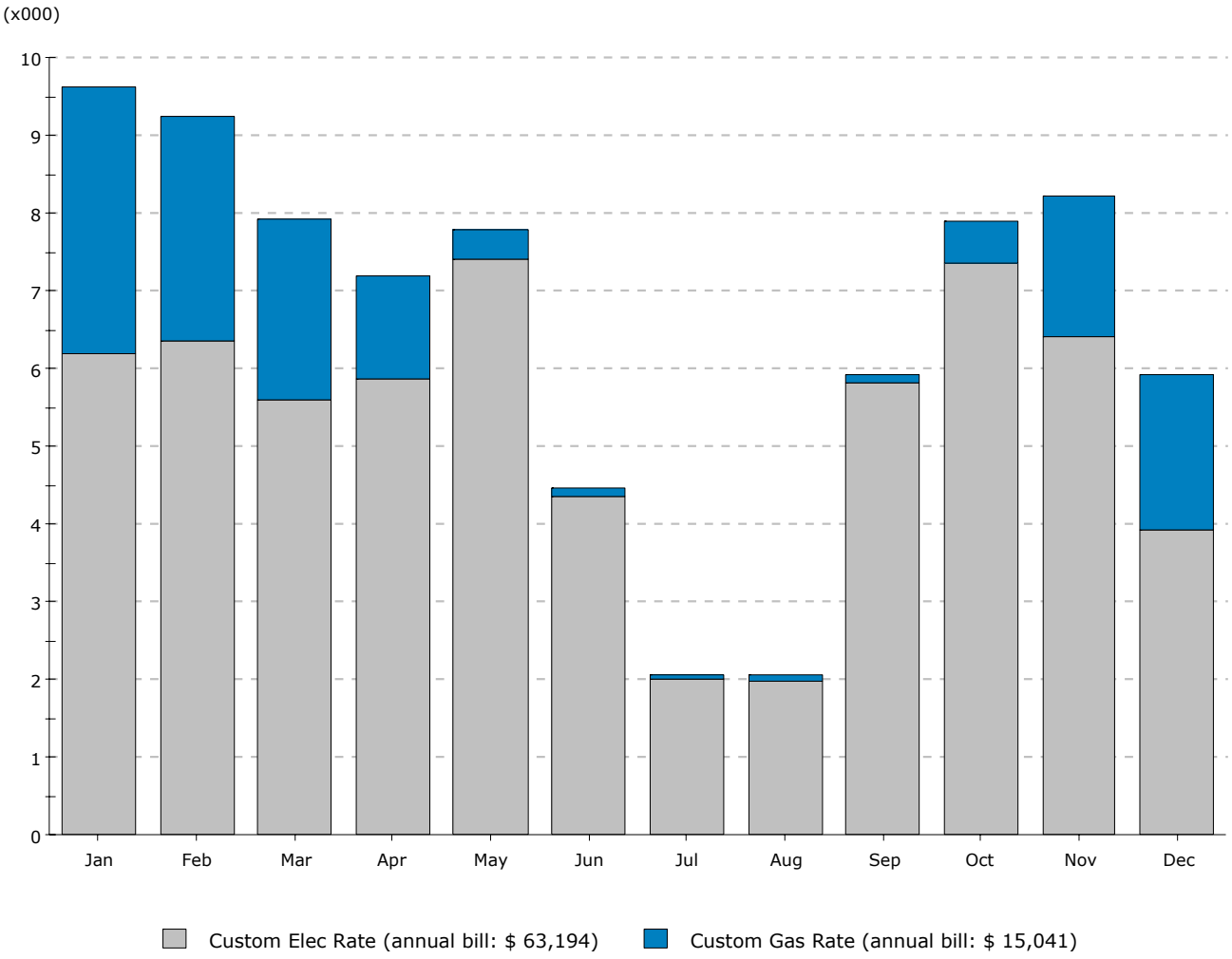


Electricity

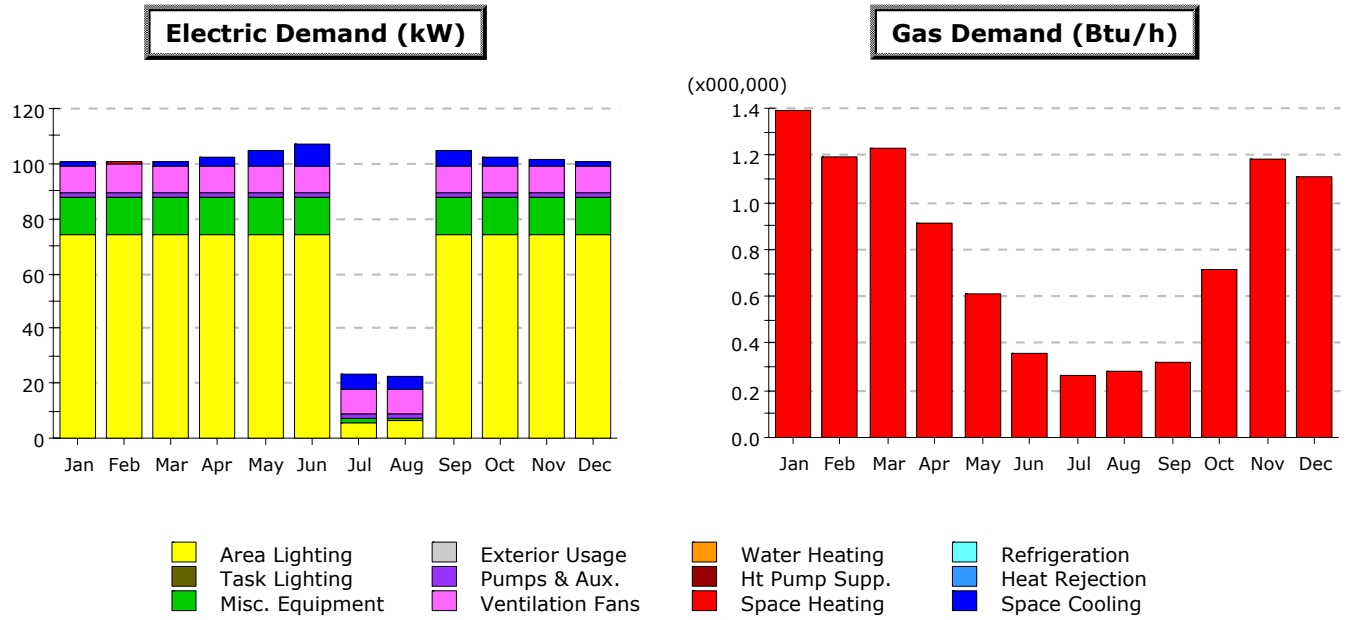


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 78,235



Electric Demand (kW)

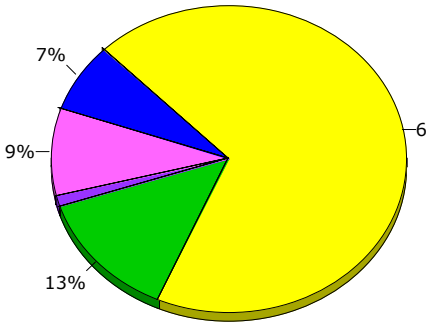
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.8	-	1.8	3.5	5.8	7.7	5.9	4.9	5.7	3.5	2.2	1.8	44.7
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.2	0.6	0.2	-	-	-	-	-	-	-	0.0	0.2	1.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	9.5	10.2	9.5	9.6	9.7	10.0	9.3	9.2	9.8	9.6	9.6	9.5	115.5
Pumps & Aux.	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	15.9
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	14.4	14.4	14.4	14.4	14.4	14.4	1.2	1.3	14.4	14.4	14.4	14.4	146.2
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	73.7	73.7	73.7	73.7	73.7	73.7	5.9	6.1	73.7	73.7	73.7	73.7	749.5
Total	100.9	100.4	100.9	102.5	105.0	107.1	23.6	22.8	104.9	102.5	101.2	101.0	1,072.9

Gas Demand (Btu/h x000,000)

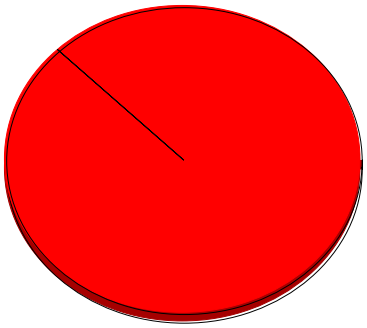
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.39	1.20	1.23	0.91	0.61	0.35	0.26	0.29	0.32	0.72	1.19	1.11	9.58
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.39	1.20	1.23	0.91	0.61	0.35	0.26	0.29	0.32	0.72	1.19	1.11	9.58

Annual Peak Demand by Enduse

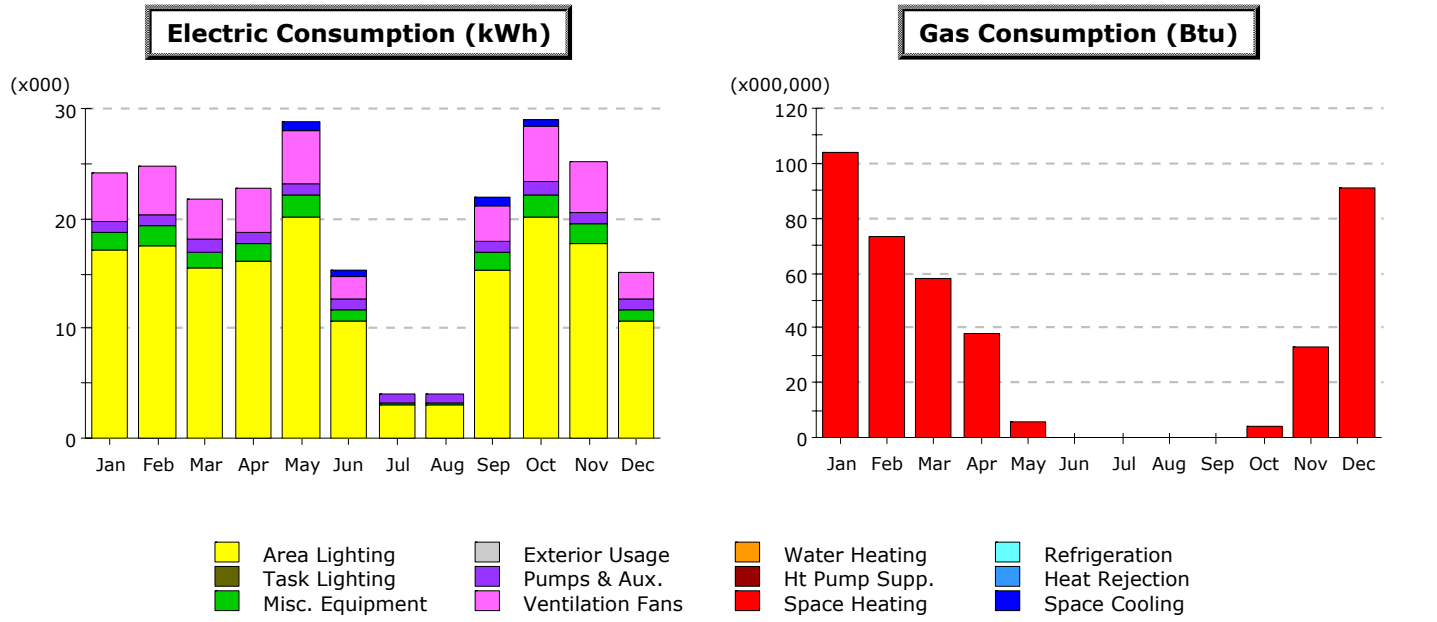
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	7.72	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,392.7	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	9.97	-	-	-
Pumps & Aux.	1.31	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	14.37	-	-	-
Task Lights	-	-	-	-
Area Lights	73.75	-	-	-
Total	107.11	1,392.7	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

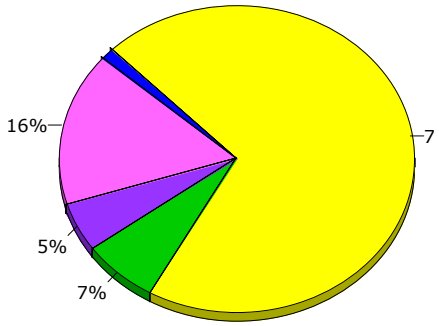
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.01	-	0.01	0.09	0.70	0.52	-	-	0.77	0.52	0.05	0.01	2.69
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	4.29	4.53	3.81	3.98	4.75	2.09	-	-	3.27	5.18	4.52	2.38	38.80
Pumps & Aux.	1.10	1.02	1.07	1.04	1.03	0.88	0.83	0.83	0.93	1.08	1.07	1.01	11.89
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	1.70	1.75	1.54	1.61	2.01	1.06	0.28	0.28	1.53	2.01	1.77	1.06	16.60
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	17.02	17.55	15.42	16.13	20.20	10.67	2.92	2.92	15.38	20.20	17.73	10.64	166.80
Total	24.10	24.85	21.84	22.85	28.70	15.22	4.04	4.04	21.89	29.00	25.13	15.10	236.78

Gas Consumption (Btu x000,000)

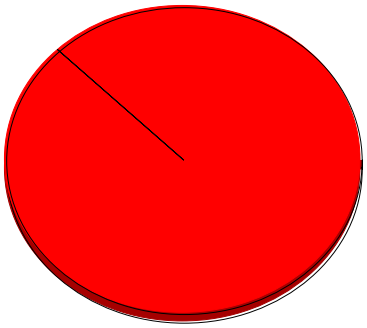
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	103.62	73.28	58.05	38.00	5.79	-	-	-	-	4.37	32.84	91.27	407.23
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	103.62	73.28	58.05	38.00	5.79	-	-	-	-	4.37	32.84	91.27	407.23

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	2.69	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	407.23	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	38.80	-	-	-
Pumps & Aux.	11.89	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	16.60	-	-	-
Task Lights	-	-	-	-
Area Lights	166.80	-	-	-
Total	236.78	407.23	-	-

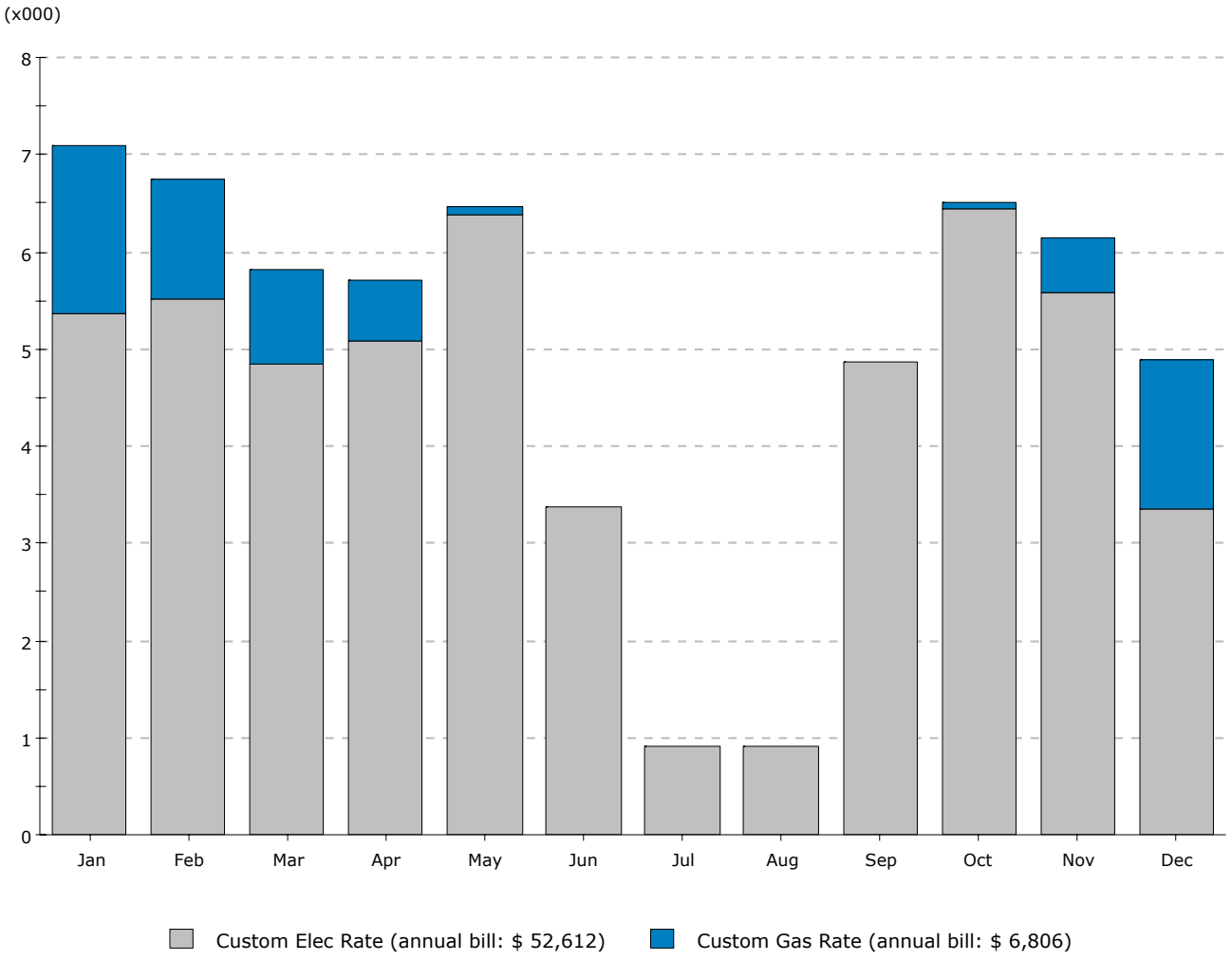


Electricity

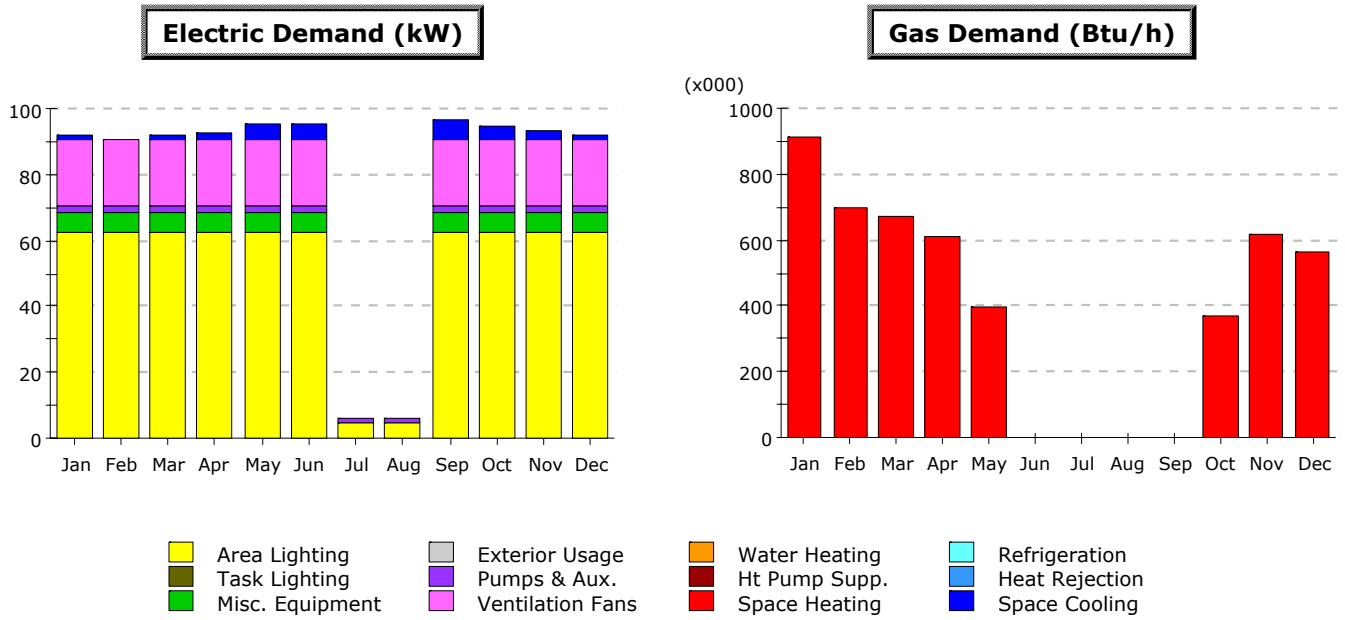


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 59,418



Electric Demand (kW)

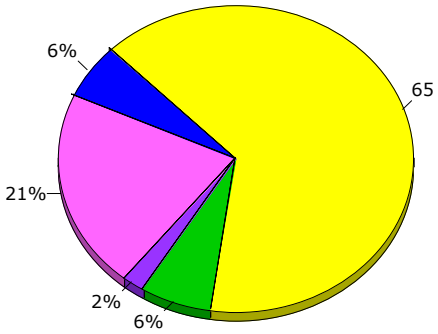
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.62	-	1.71	2.00	4.90	4.81	-	-	5.59	4.32	2.63	1.94	29.51
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	19.83	20.17	19.84	19.86	20.07	20.20	-	-	20.29	20.03	19.92	19.85	200.05
Pumps & Aux.	1.99	2.09	1.99	1.99	1.99	1.99	1.12	1.12	1.99	1.99	1.99	1.99	22.27
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	6.20	6.20	6.20	6.20	6.20	6.20	0.42	0.42	6.20	6.20	6.20	6.20	62.82
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	62.30	62.30	62.30	62.30	62.30	62.30	4.53	4.53	62.30	62.30	62.30	62.30	632.07
Total	91.94	90.77	92.04	92.35	95.46	95.50	6.07	6.07	96.37	94.85	93.05	92.28	946.72

Gas Demand (Btu/h x000)

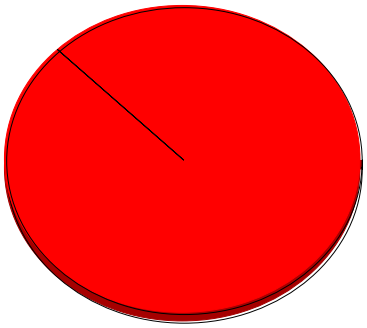
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	914.0	695.6	669.8	610.5	398.8	-	-	-	-	366.2	620.5	567.0	4,842.4
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	914.0	695.6	669.8	610.5	398.8	-	-	-	-	366.2	620.5	567.0	4,842.4

Annual Peak Demand by Enduse

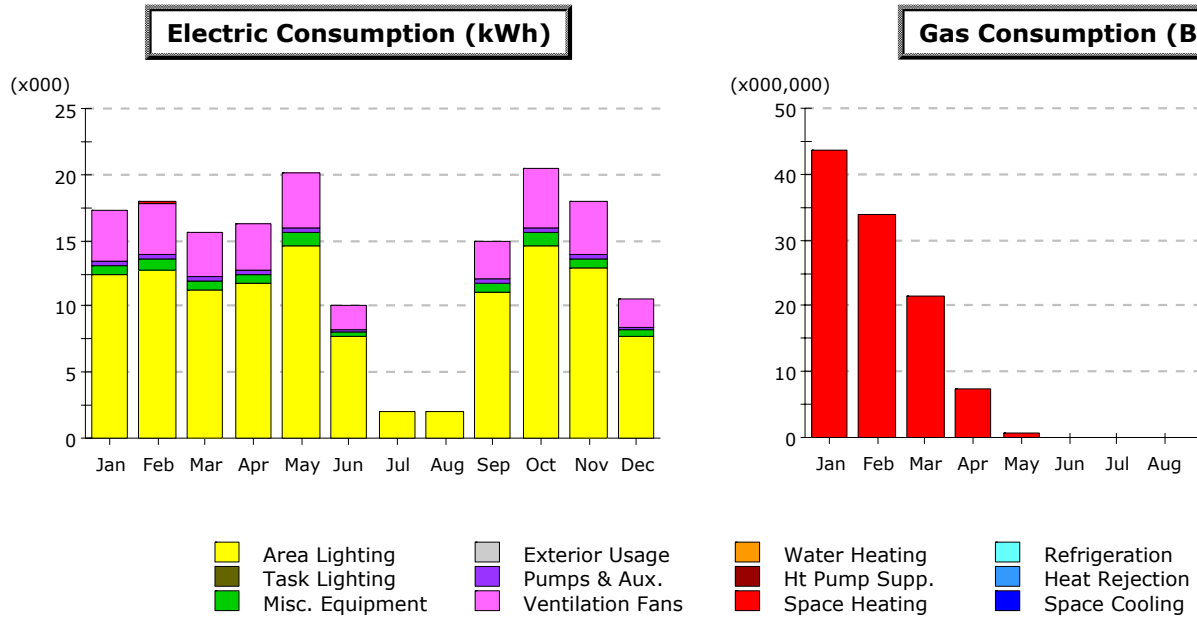
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	5.59	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	913.98	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	20.29	-	-	-
Pumps & Aux.	1.99	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	6.20	-	-	-
Task Lights	-	-	-	-
Area Lights	62.30	-	-	-
Total	96.37	913.98	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

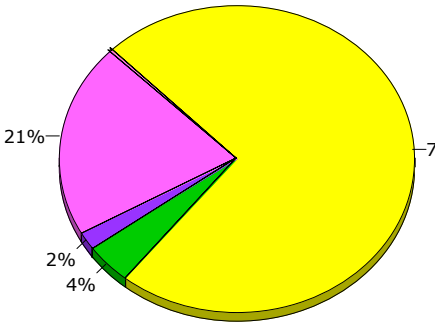
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.03	0.03	0.02	0.01	0.00	-	-	-	-	0.00	0.01	0.01	0.10
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	3.79	4.00	3.37	3.53	4.18	1.82	-	-	2.86	4.57	4.00	2.11	34.25
Pumps & Aux.	0.33	0.35	0.29	0.30	0.35	0.15	-	-	0.24	0.39	0.35	0.18	2.93
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	0.73	0.76	0.67	0.70	0.87	0.46	0.12	0.12	0.66	0.87	0.77	0.46	7.18
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	12.36	12.75	11.21	11.72	14.67	7.68	1.96	1.96	11.14	14.67	12.88	7.74	120.77
Total	17.25	17.89	15.55	16.26	20.08	10.11	2.08	2.08	14.91	20.52	18.00	10.50	165.22

Gas Consumption (Btu x000,000)

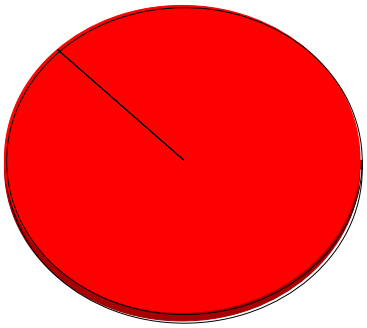
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	43.51	33.84	21.44	7.47	0.60	-	-	-	-	0.42	12.35	9.57	129.18
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	43.51	33.84	21.44	7.47	0.60	-	-	-	-	0.42	12.35	9.57	129.18

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	-	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.10	129.18	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	34.25	-	-	-
Pumps & Aux.	2.93	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	7.18	-	-	-
Task Lights	-	-	-	-
Area Lights	120.77	-	-	-
Total	165.22	129.18	-	-

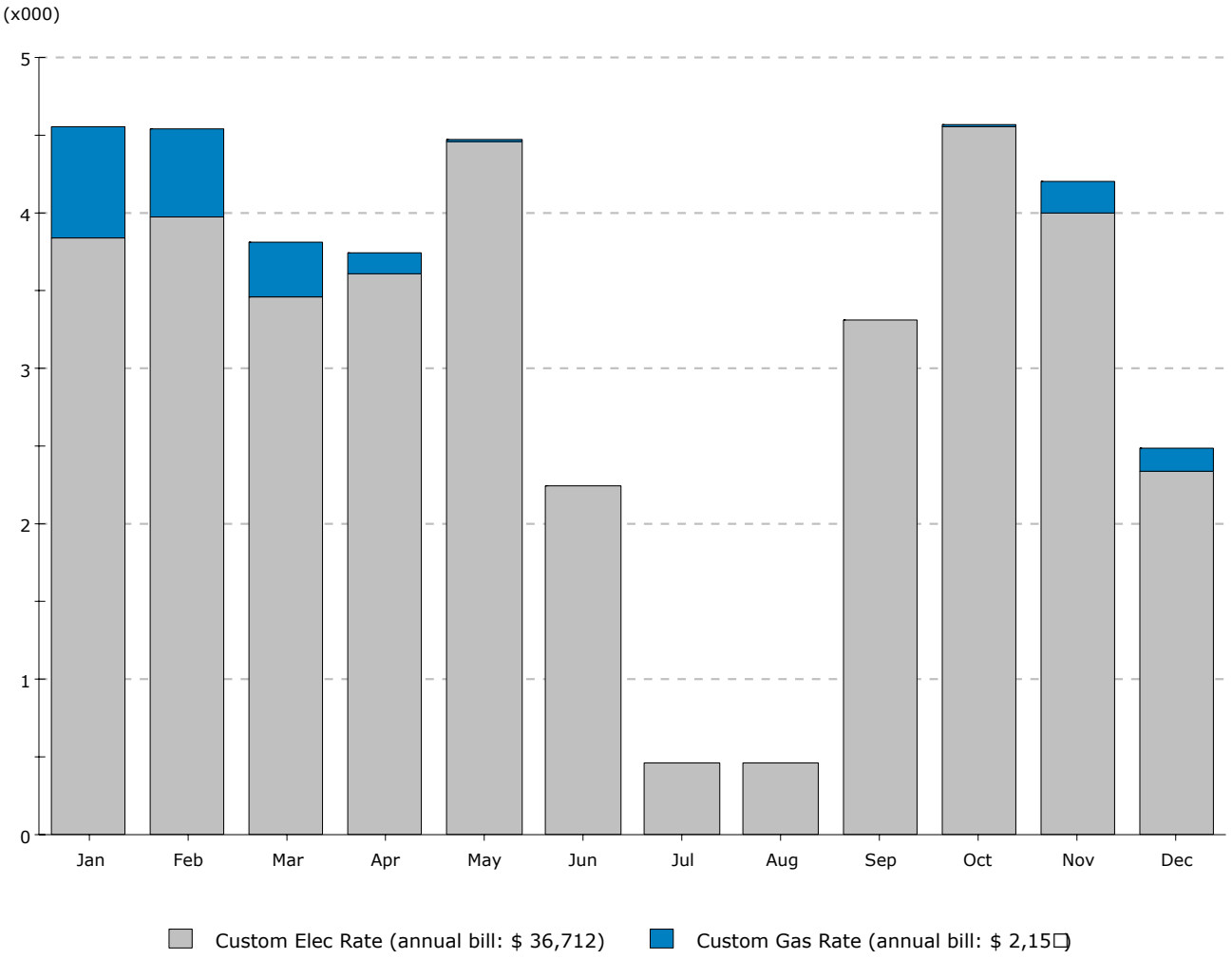


Electricity

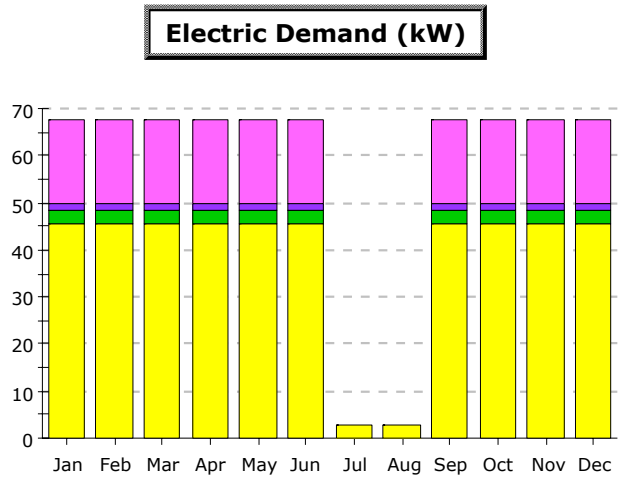


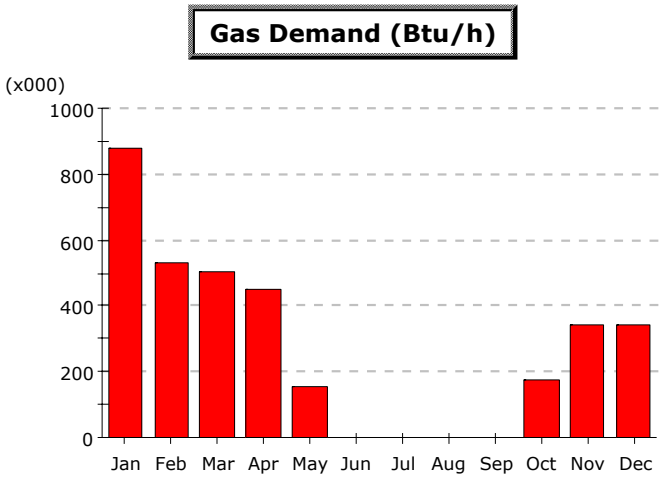
Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 38,871





Electric Demand (kW)

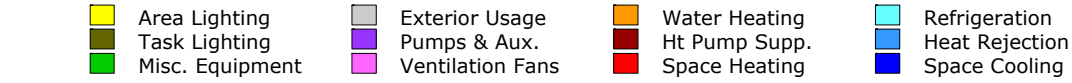
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.26	0.21	0.21	0.16	-	-	-	-	-	-	0.13	0.12	1.10
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	17.56	17.56	17.56	17.56	17.56	17.56	-	-	17.56	17.56	17.56	17.56	175.61
Pumps & Aux.	1.52	1.52	1.52	1.52	1.52	1.52	-	-	1.52	1.52	1.52	1.52	15.20
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	2.70	2.70	2.70	2.70	2.70	2.70	0.16	0.16	2.70	2.70	2.70	2.70	27.37
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	45.79	45.79	45.79	45.79	45.79	45.79	2.75	2.75	45.79	45.79	45.79	45.79	463.39
Total	67.83	67.79	67.79	67.74	67.58	67.58	2.91	2.91	67.58	67.58	67.70	67.70	682.67

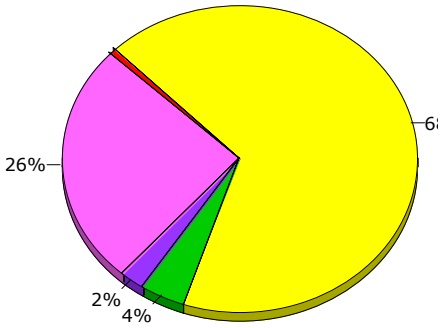
Gas Demand (Btu/h x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	876.8	529.5	505.9	450.6	153.9	-	-	-	-	173.5	344.1	345.6	3,379.9
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	876.8	529.5	505.9	450.6	153.9	-	-	-	-	173.5	344.1	345.6	3,379.9

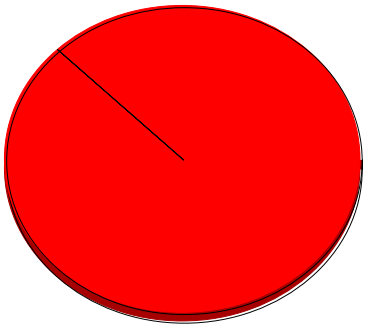
Annual Peak Demand by Enduse

	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	-	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.26	876.80	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	17.56	-	-	-
Pumps & Aux.	1.52	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	2.70	-	-	-
Task Lights	-	-	-	-
Area Lights	45.79	-	-	-
Total	67.83	876.80	-	-

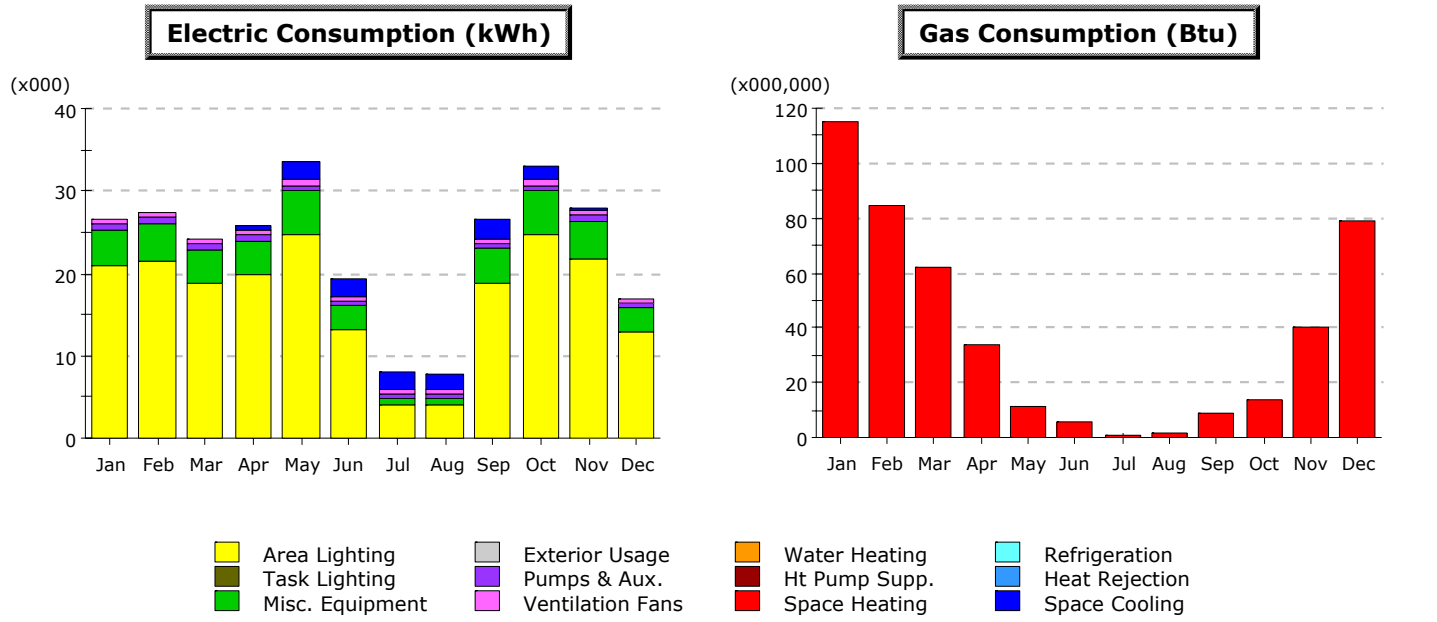




Electricity



Natural Gas



Electric Consumption (kWh x000)

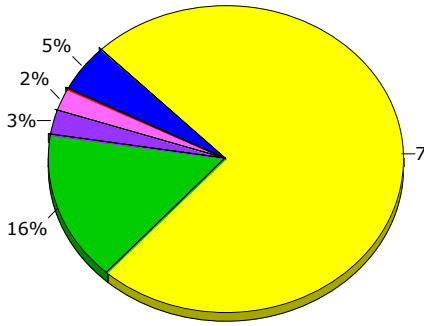
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.06	0.11	0.16	0.54	2.26	2.20	2.07	1.78	2.49	1.66	0.41	0.14	13.88
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.08	0.06	0.04	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.03	0.06	0.33
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.57	0.58	0.48	0.52	0.72	0.55	0.41	0.39	0.65	0.68	0.56	0.36	6.49
Pumps & Aux.	0.70	0.63	0.69	0.65	0.60	0.57	0.59	0.59	0.57	0.62	0.65	0.69	7.54
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.47	4.61	4.05	4.24	5.31	2.86	0.89	0.89	4.06	5.31	4.66	2.79	44.11
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	20.83	21.50	18.87	19.75	24.76	13.26	4.01	4.01	18.92	24.76	21.71	12.98	205.37
Total	26.71	27.49	24.29	25.72	33.66	19.44	7.97	7.66	26.69	33.04	28.02	17.02	277.72

Gas Consumption (Btu x000,000)

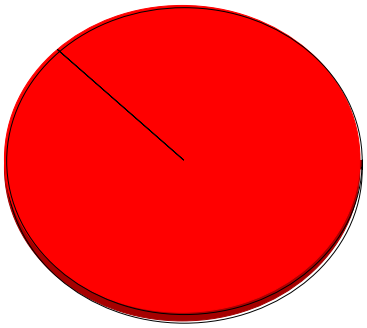
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	114.77	84.39	61.95	34.08	10.99	5.80	0.99	1.41	9.13	14.03	40.59	78.84	456.99
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	114.77	84.39	61.95	34.08	10.99	5.80	0.99	1.41	9.13	14.03	40.59	78.84	456.99

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	13.88	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.33	456.99	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	6.49	-	-	-
Pumps & Aux.	7.54	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	44.11	-	-	-
Task Lights	-	-	-	-
Area Lights	205.37	-	-	-
Total	277.72	456.99	-	-

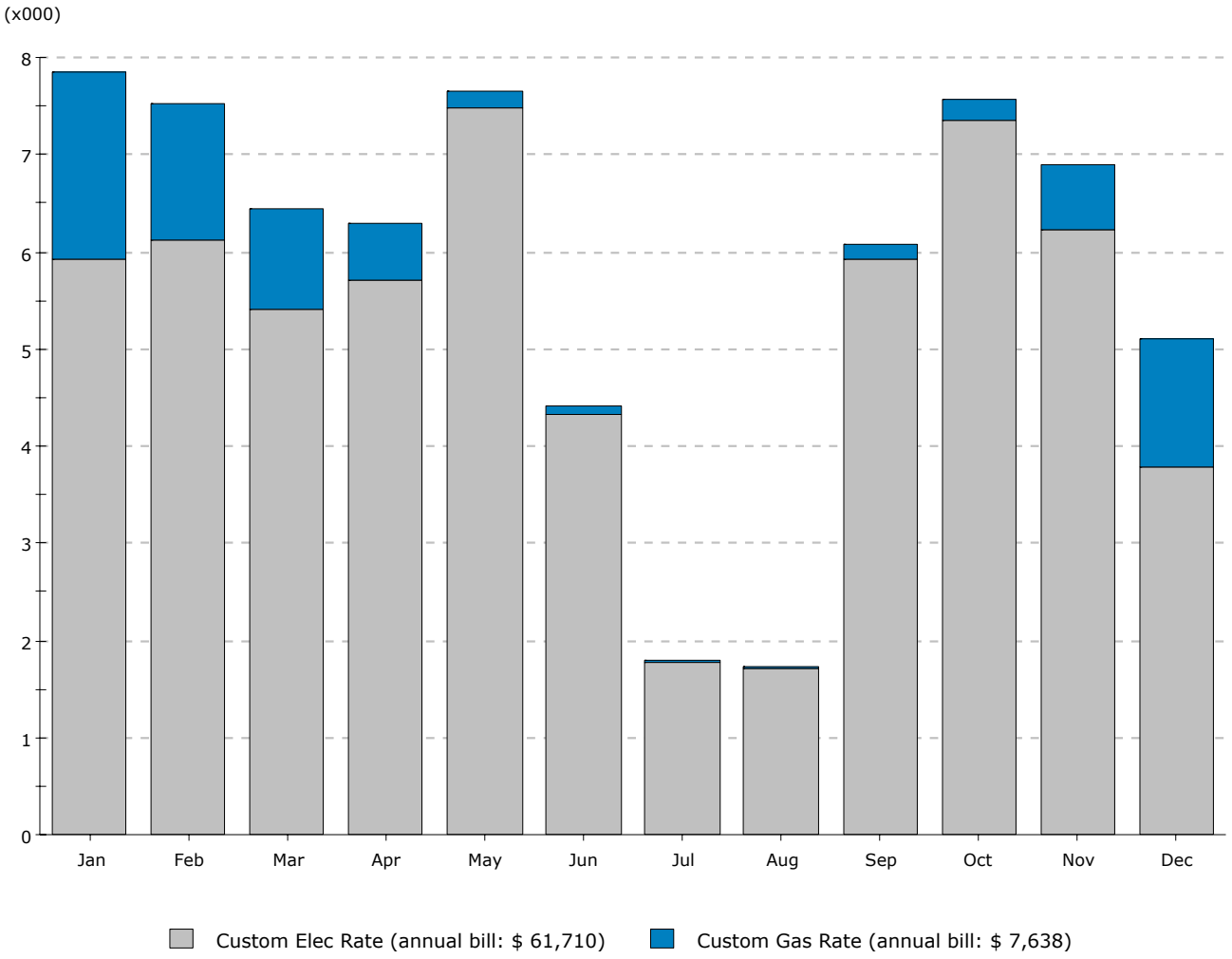


Electricity

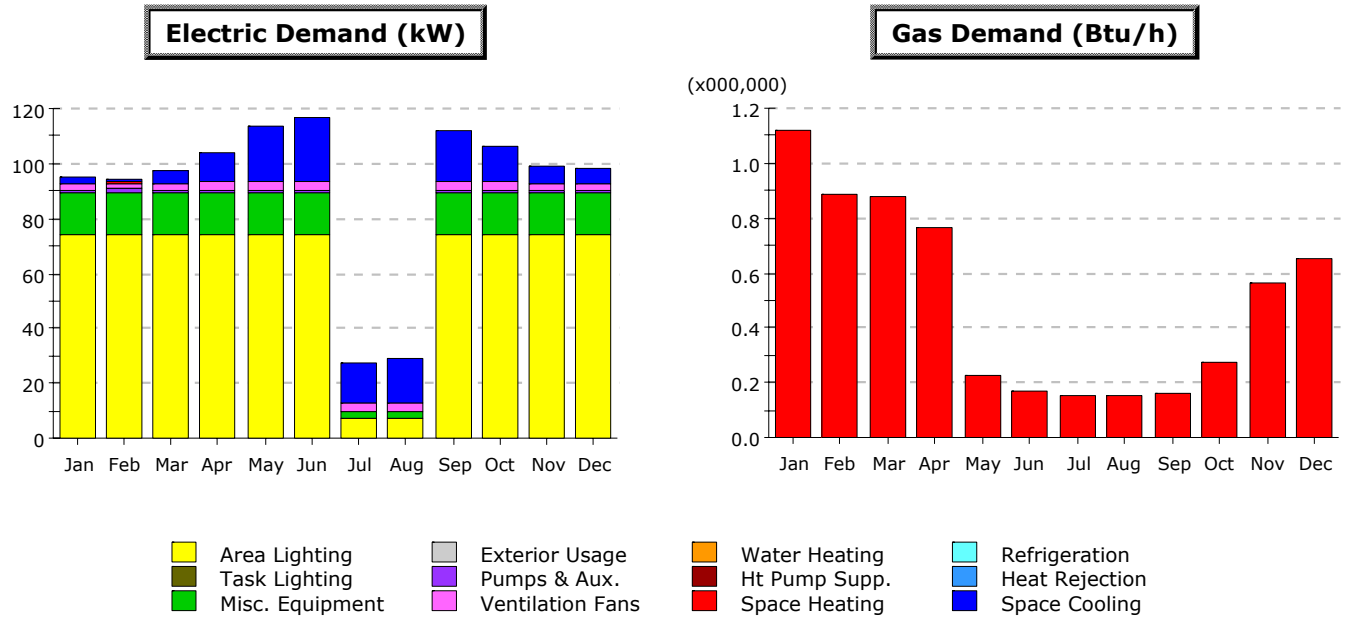


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 69,348



Electric Demand (kW)

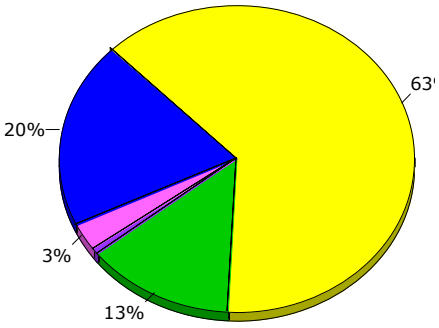
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	2.5	1.2	4.9	11.2	20.5	23.1	14.8	16.0	18.4	12.8	5.8	5.1	136.2
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.0	0.1	0.0	-	-	-	-	-	0.0	0.0	0.0	0.0	0.3
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	2.3	2.3	2.3	2.5	3.2	3.4	2.6	2.9	3.2	2.6	2.4	2.3	32.0
Pumps & Aux.	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	9.6
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	15.8	15.8	15.7	15.8	15.7	15.7	1.6	1.6	15.8	15.8	15.8	15.8	160.9
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	74.0	74.0	73.7	74.0	73.7	73.7	7.6	7.6	74.0	74.0	74.0	74.0	754.2
Total	95.4	94.3	97.4	104.2	113.9	116.7	27.5	28.9	112.2	106.0	98.7	97.9	1,093.2

Gas Demand (Btu/h x000,000)

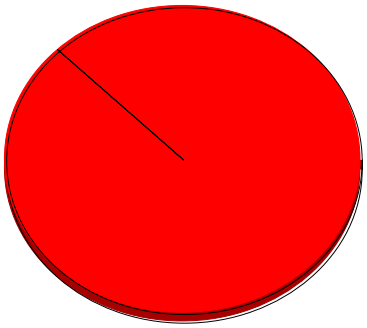
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.12	0.89	0.88	0.76	0.22	0.17	0.15	0.15	0.16	0.28	0.56	0.65	5.99
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.12	0.89	0.88	0.76	0.22	0.17	0.15	0.15	0.16	0.28	0.56	0.65	5.99

Annual Peak Demand by Enduse

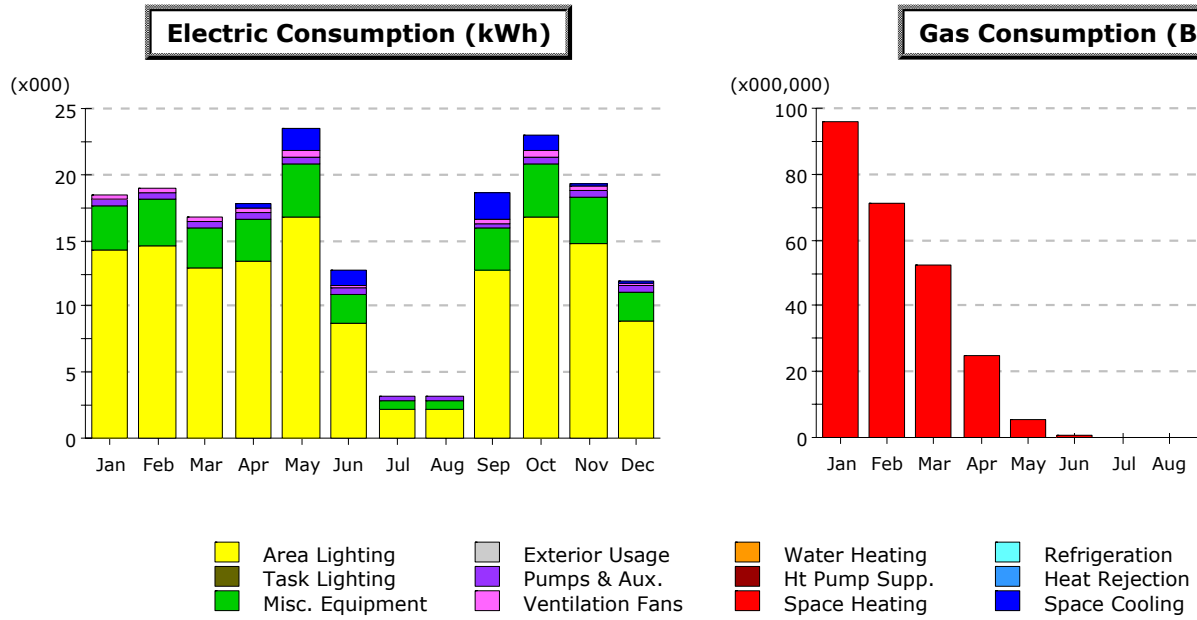
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	23.12	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,118.8	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.39	-	-	-
Pumps & Aux.	0.79	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	15.72	-	-	-
Task Lights	-	-	-	-
Area Lights	73.71	-	-	-
Total	116.75	1,118.8	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

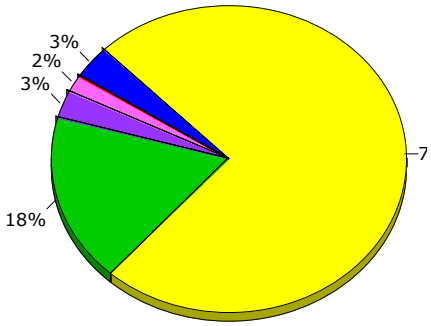
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	0.02	0.04	0.26	1.65	1.18	-	-	1.86	1.16	0.08	0.04	6.30
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.07	0.05	0.04	0.02	0.00	0.00	-	-	0.00	0.01	0.02	0.05	0.26
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.37	0.37	0.30	0.32	0.47	0.27	-	-	0.41	0.42	0.35	0.25	3.53
Pumps & Aux.	0.50	0.45	0.50	0.47	0.44	0.42	0.43	0.43	0.42	0.45	0.47	0.50	5.48
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.41	3.52	3.09	3.24	4.05	2.12	0.54	0.54	3.08	4.05	3.56	2.14	33.35
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	14.18	14.62	12.85	13.44	16.83	8.81	2.25	2.25	12.78	16.83	14.77	8.88	138.50
Total	18.53	19.03	16.83	17.75	23.45	12.79	3.23	3.23	18.55	22.92	19.26	11.85	187.42

Gas Consumption (Btu x000,000)

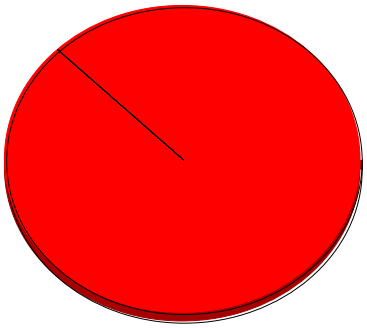
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	95.81	71.26	52.66	25.14	5.09	0.38	-	-	0.30	6.93	35.66	71.05	364.27
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	95.81	71.26	52.66	25.14	5.09	0.38	-	-	0.30	6.93	35.66	71.05	364.27

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	6.30	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.26	364.27	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.53	-	-	-
Pumps & Aux.	5.48	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	33.35	-	-	-
Task Lights	-	-	-	-
Area Lights	138.50	-	-	-
Total	187.42	364.27	-	-

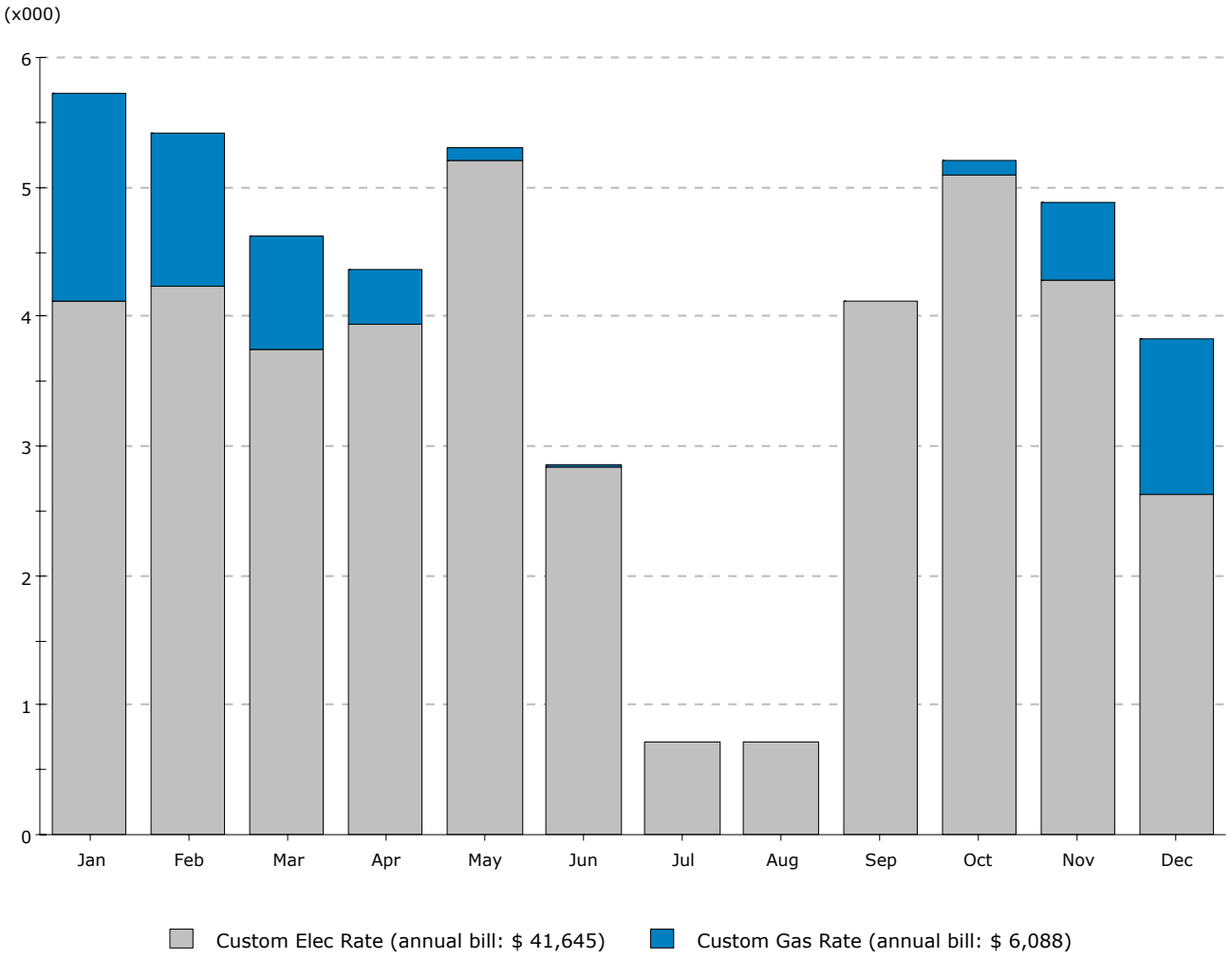


Electricity

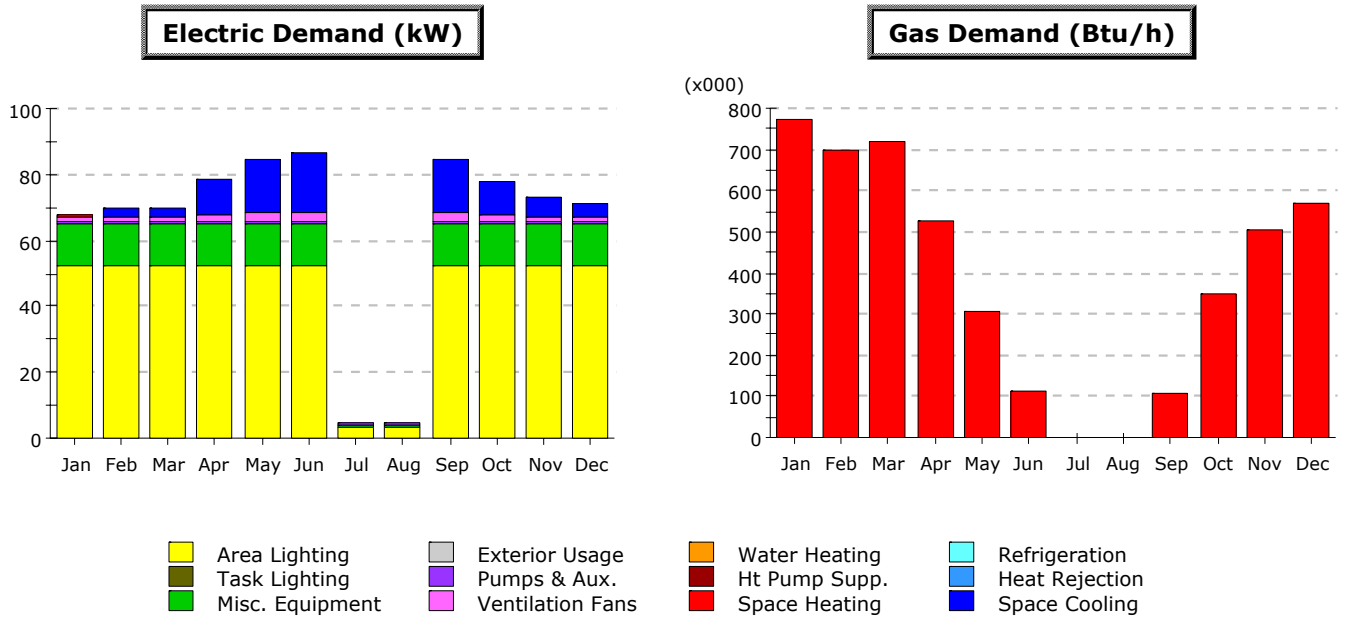


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 47,733



Electric Demand (kW)

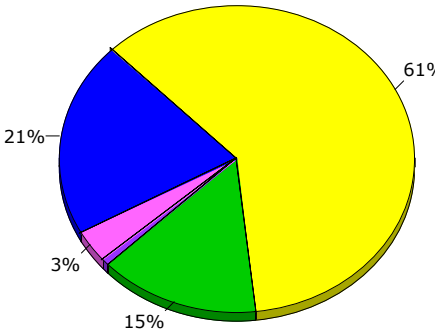
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	2.66	2.77	10.86	16.10	17.87	-	-	15.75	10.52	5.93	3.82	86.27
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.28	0.03	0.03	-	-	-	-	-	-	-	-	0.02	0.36
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.53	1.53	1.54	1.85	2.50	2.97	-	-	2.85	1.81	1.65	1.53	19.78
Pumps & Aux.	0.68	0.63	0.63	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	7.13
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	12.56	12.56	12.56	12.56	12.56	12.56	0.75	0.75	12.56	12.56	12.56	12.56	127.15
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	52.51	52.51	52.51	52.51	52.51	52.51	3.15	3.15	52.51	52.51	52.51	52.51	531.44
Total	67.57	69.93	70.04	78.37	84.25	86.50	4.48	4.48	84.25	77.98	73.24	71.02	772.11

Gas Demand (Btu/h x000)

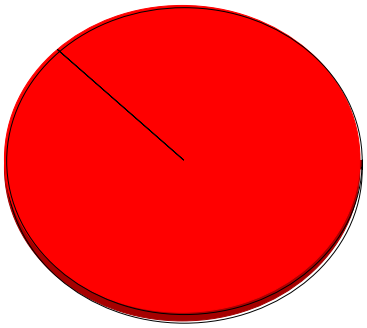
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	773.2	695.5	719.2	525.2	306.7	110.6	-	-	109.4	349.3	505.3	567.4	4,661.9
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	773.2	695.5	719.2	525.2	306.7	110.6	-	-	109.4	349.3	505.3	567.4	4,661.9

Annual Peak Demand by Enduse

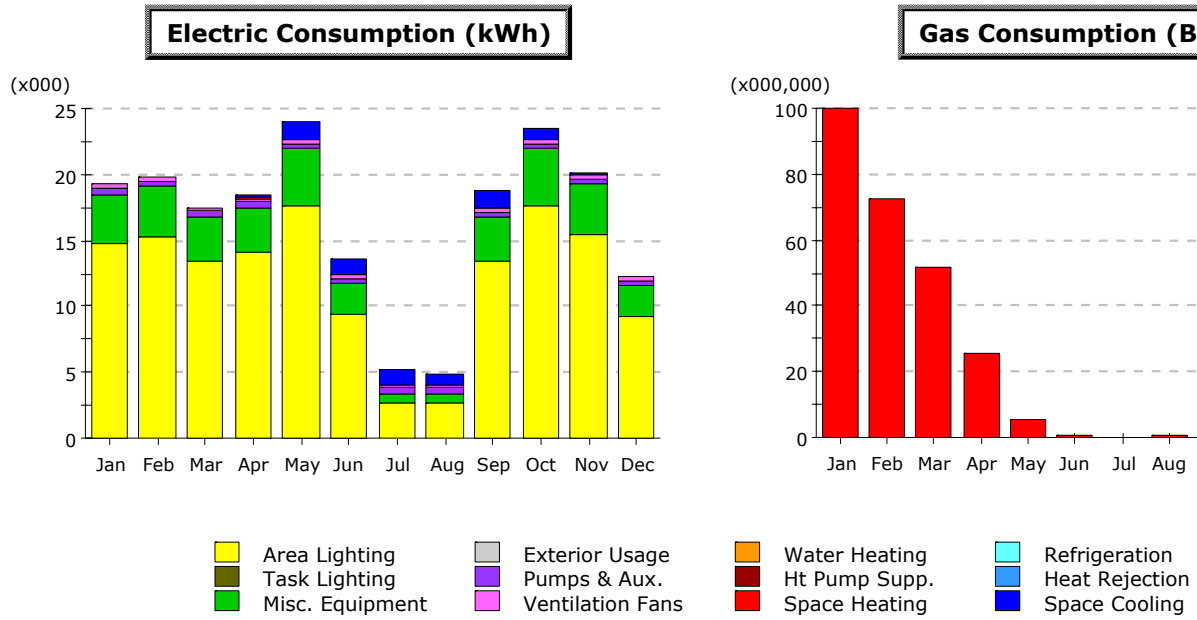
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	17.87	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	773.23	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	2.97	-	-	-
Pumps & Aux.	0.58	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	12.56	-	-	-
Task Lights	-	-	-	-
Area Lights	52.51	-	-	-
Total	86.50	773.23	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

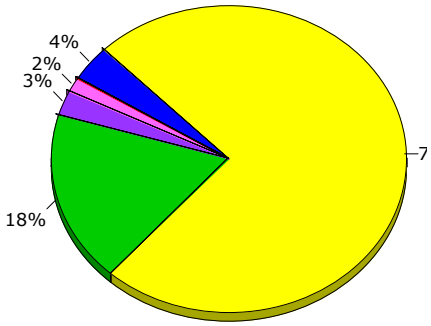
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.02	0.02	0.04	0.29	1.27	1.24	1.10	0.92	1.38	0.87	0.10	0.03	7.29
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.07	0.05	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.25
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.28	0.28	0.23	0.25	0.34	0.26	0.20	0.18	0.28	0.32	0.27	0.20	3.08
Pumps & Aux.	0.47	0.42	0.46	0.44	0.41	0.38	0.40	0.40	0.38	0.42	0.44	0.46	5.08
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.64	3.76	3.30	3.45	4.33	2.32	0.70	0.70	3.31	4.33	3.79	2.27	35.88
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	14.84	15.32	13.44	14.07	17.64	9.39	2.74	2.74	13.46	17.64	15.47	9.25	145.98
Total	19.31	19.85	17.51	18.51	23.98	13.60	5.13	4.94	18.81	23.57	20.09	12.26	197.55

Gas Consumption (Btu x000,000)

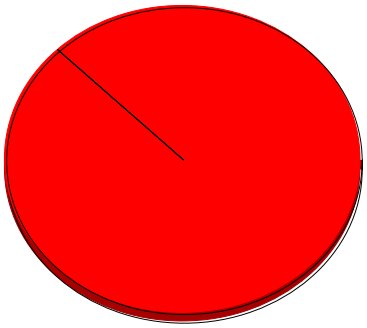
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	99.70	72.76	51.72	25.53	5.07	0.85	0.28	0.34	0.90	5.91	37.25	70.30	370.60
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	99.70	72.76	51.72	25.53	5.07	0.85	0.28	0.34	0.90	5.91	37.25	70.30	370.60

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	7.29	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.25	370.60	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.08	-	-	-
Pumps & Aux.	5.08	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	35.88	-	-	-
Task Lights	-	-	-	-
Area Lights	145.98	-	-	-
Total	197.55	370.60	-	-

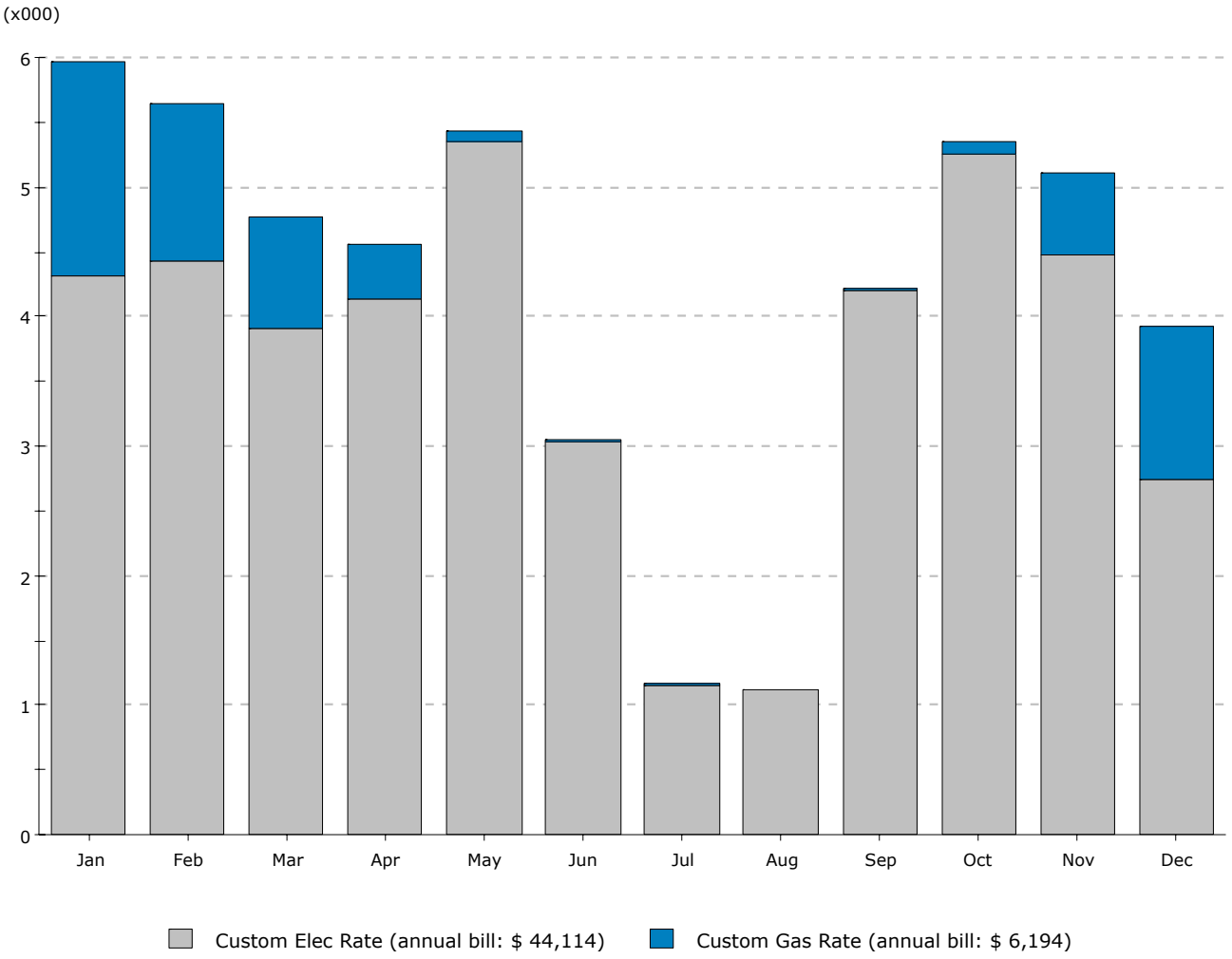


Electricity

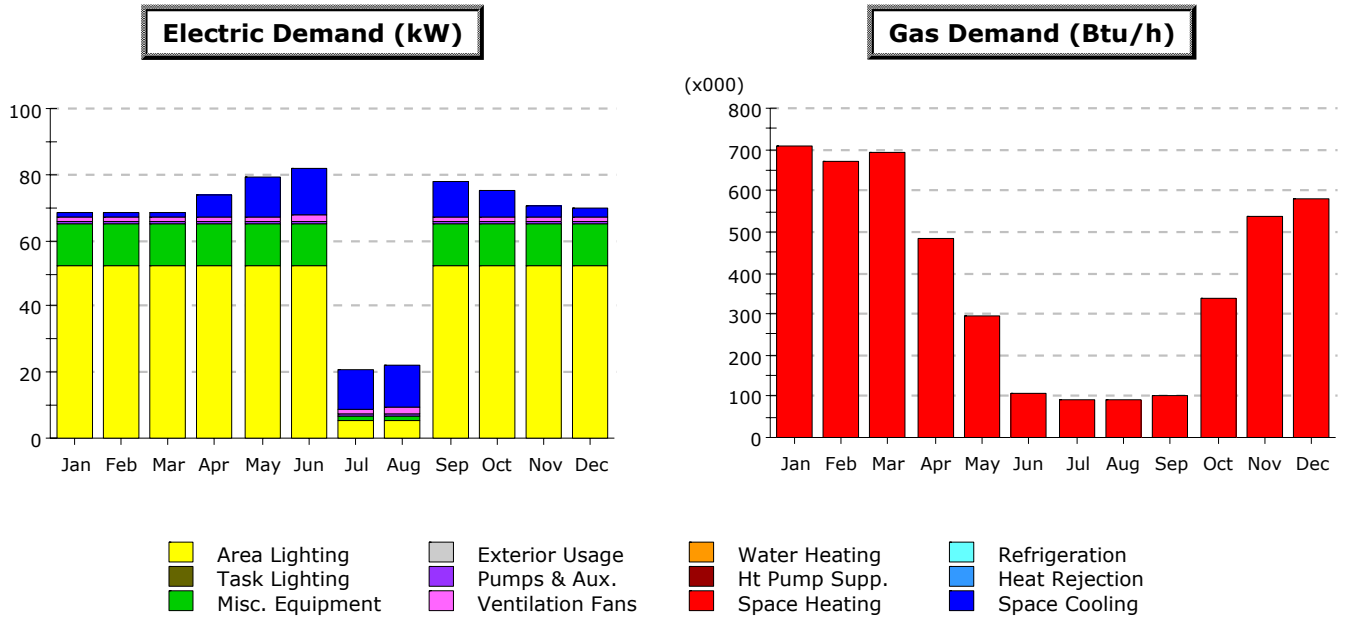


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 50,308



Electric Demand (kW)

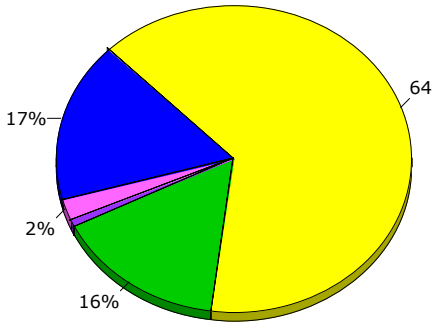
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.57	1.57	1.57	6.56	11.56	13.89	11.62	12.86	10.69	7.90	3.46	2.96	86.20
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.17	0.15	0.14	-	-	-	-	-	-	-	0.01	0.02	0.49
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.07	1.07	1.07	1.17	1.42	1.81	1.73	1.92	1.40	1.24	1.10	1.07	16.08
Pumps & Aux.	0.58	0.58	0.58	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	6.53
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	12.82	12.82	12.82	12.82	12.82	12.82	1.32	1.32	12.82	12.82	12.82	12.82	130.85
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	52.54	52.54	52.54	52.54	52.54	52.54	5.43	5.43	52.54	52.54	52.54	52.54	536.22
Total	68.75	68.74	68.72	73.62	78.87	81.58	20.63	22.06	77.98	75.03	70.47	69.94	776.38

Gas Demand (Btu/h x000)

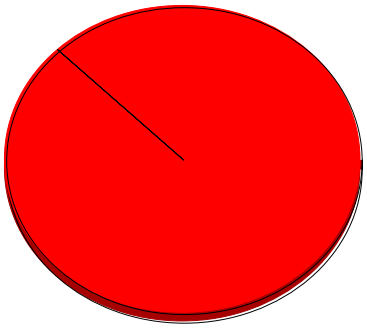
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	707.2	673.4	690.2	485.1	295.7	107.5	92.8	92.1	100.1	337.8	538.6	581.7	4,702.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	707.2	673.4	690.2	485.1	295.7	107.5	92.8	92.1	100.1	337.8	538.6	581.7	4,702.2

Annual Peak Demand by Enduse

	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	13.89	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	707.23	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	1.81	-	-	-
Pumps & Aux.	0.53	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	12.82	-	-	-
Task Lights	-	-	-	-
Area Lights	52.54	-	-	-
Total	81.58	707.23	-	-



Electricity



Natural Gas

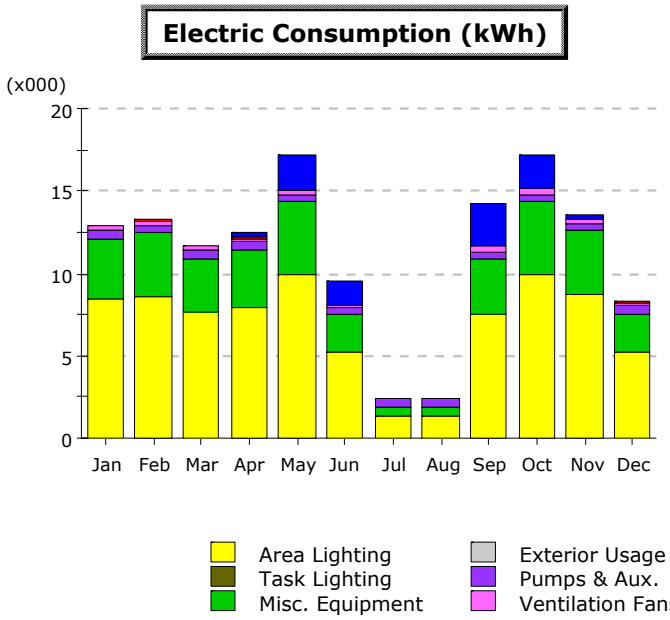
GARCIA • GALUSKA • DESOUSA
Consulting Engineers Inc.

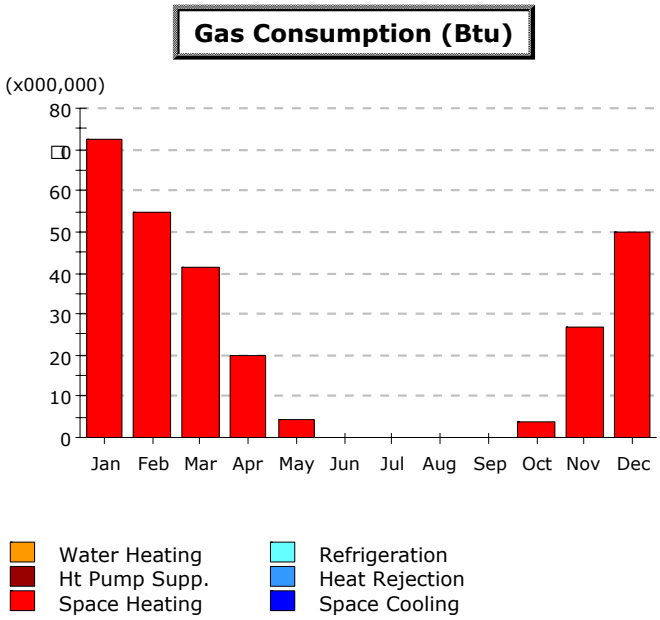
370 Faunce Corner Road, Dartmouth, MA 02747-1217

PROJECT	Lexington H.S.
CALC BY	KL
CHK BY	EG
DATE	08/15/08

OPTION 4 CONSUMPTION SUMMARY

Building	ANNUAL ELEC. CONS. (KWH)	ANNUAL GAS CONS. (MBTU)	ANNUAL ELECTRIC COST	ANNUAL GAS COST	COMBINED UTILITY COST	ANNUAL MAINT. COST	COMBINED ANNUAL EXPENSE
A	135,050	272.9	$30,009	$4,561	$34,570	$5,800	$40,370
B	238,460	447.2	$52,986	$7,475	$60,461	$9,600	$70,061
C	95,031	475.1	$21,116	$7,941	$29,057	$8,200	$37,257
D	284,400	899.9	$63,194	$15,041	$78,235	$9,000	$87,235
E	215,930	943.5	$47,979	$15,770	$63,749	$14,800	$78,549
F	146,930	689.3	$32,648	$11,522	$44,170	$2,000	$46,170
G	277,720	457.0	$61,710	$7,638	$69,348	$13,600	$82,948
H	187,420	364.3	$41,645	$6,088	$47,733	$12,400	$60,133
J	197,550	370.6	$44,114	$6,194	$50,308	$11,600	$61,908
TOTAL	1,778,491	4,919.8	$395,401	$82,230	$477,631	$87,000	$564,631





Electric Consumption (kWh x000)

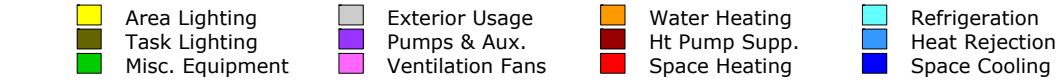
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.02	-	0.02	0.34	2.16	1.41	-	-	2.53	2.08	0.20	0.06	8.83
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.05	0.04	0.03	0.02	0.00	-	-	-	-	0.00	0.02	0.04	0.20
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.30	0.29	0.22	0.21	0.31	0.1□	-	-	0.33	0.36	0.25	0.1□	2.60
Pumps & Aux.	0.51	0.4□	0.51	0.48	0.45	0.43	0.44	0.44	0.43	0.46	0.49	0.51	5.63
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.6□	3.□8	3.33	3.48	4.35	2.28	0.58	0.58	3.31	4.35	3.82	2.30	35.83
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	8.39	8.65	□61	□96	9.96	5.21	1.33	1.33	□56	9.96	8.□4	5.25	81.9□
Total	12.94	13.23	11.□2	12.49	1□24	9.49	2.36	2.36	14.16	1□22	13.51	8.32	135.05

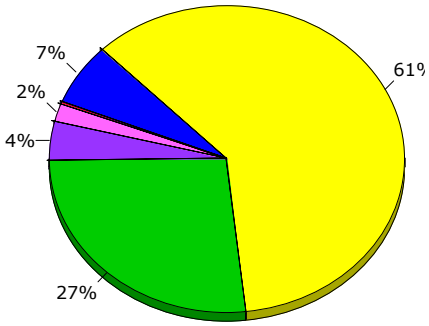
Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	□2.3□	54.86	41.49	19.□□	4.16	-	-	-	-	3.81	26.□3	49.□0	2□2.88
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	□2.3□	54.86	41.49	19.□□	4.16	-	-	-	-	3.81	26.□3	49.□0	2□2.88

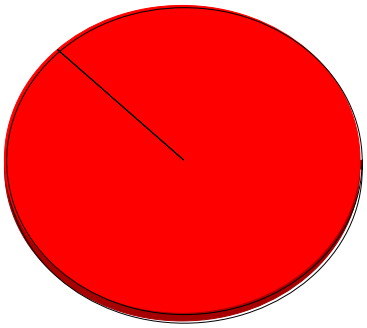
Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	8.83	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.20	272.88	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	2.60	-	-	-
Pumps & Aux.	5.63	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	35.83	-	-	-
Task Lights	-	-	-	-
Area Lights	81.97	-	-	-
Total	135.05	272.88	-	-



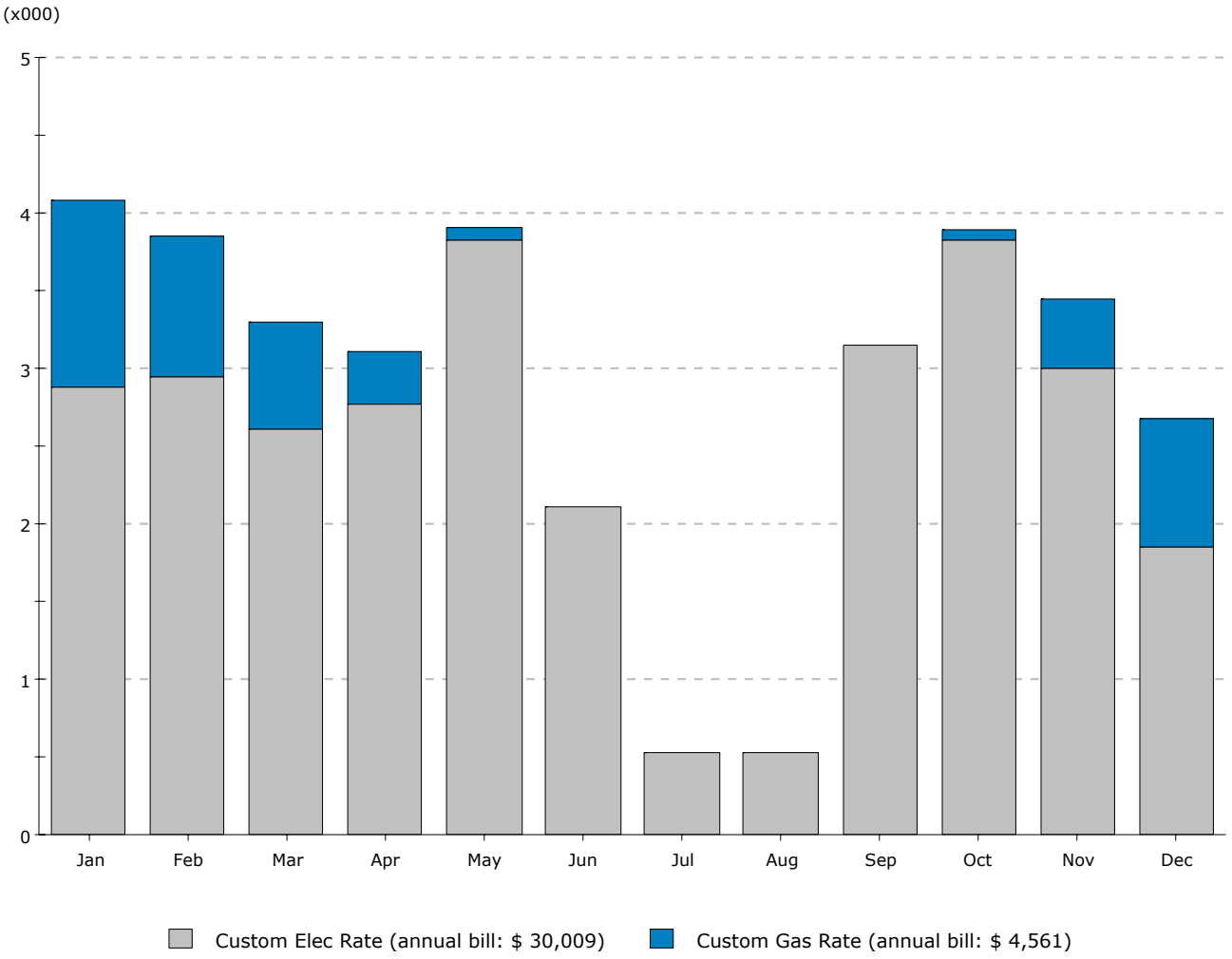


Electricity

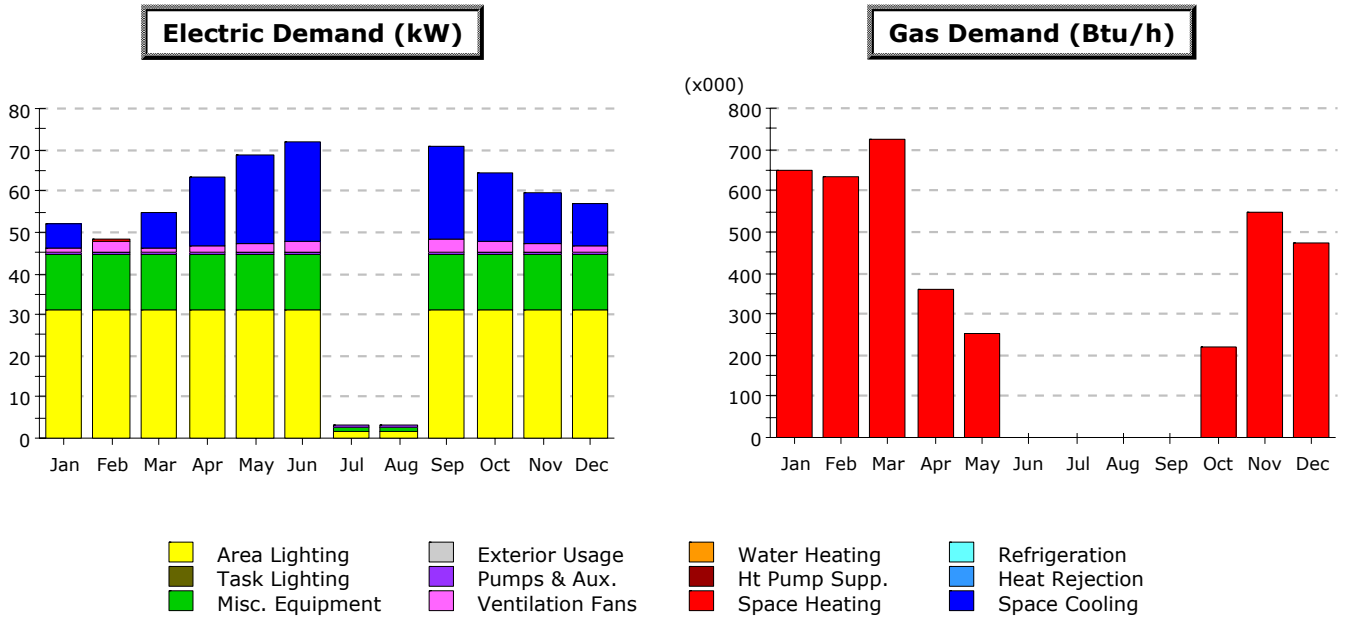


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 34,570



Electric Demand (kW)

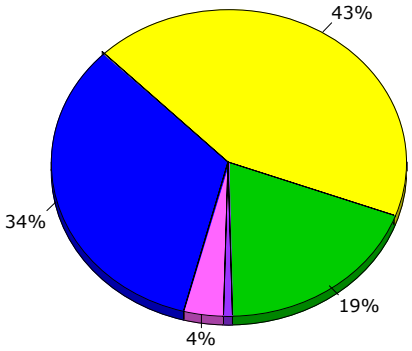
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	5.79	-	8.21	16.41	21.83	24.13	-	-	22.88	16.95	12.66	10.44	139.29
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.03	0.30	0.02	-	-	-	-	-	-	-	-	-	0.34
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.01	2.59	1.20	1.65	1.82	2.54	-	-	3.06	2.38	1.91	1.53	19.69
Pumps & Aux.	0.59	0.69	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	7.22
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	13.50	13.50	13.50	13.50	13.50	13.50	0.81	0.81	13.50	13.50	13.50	13.50	136.62
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	31.08	31.08	31.08	31.08	31.08	31.08	1.86	1.86	31.08	31.08	31.08	31.08	314.51
Total	52.00	48.16	54.60	63.23	68.83	71.84	3.27	3.27	71.11	64.50	59.74	57.14	617.67

Gas Demand (Btu/h x000)

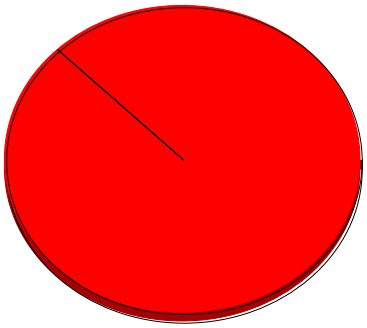
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	651.4	634.7	725.4	359.8	250.9	-	-	-	-	218.5	546.7	470.9	3,858.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	651.4	634.7	725.4	359.8	250.9	-	-	-	-	218.5	546.7	470.9	3,858.2

Annual Peak Demand by Enduse

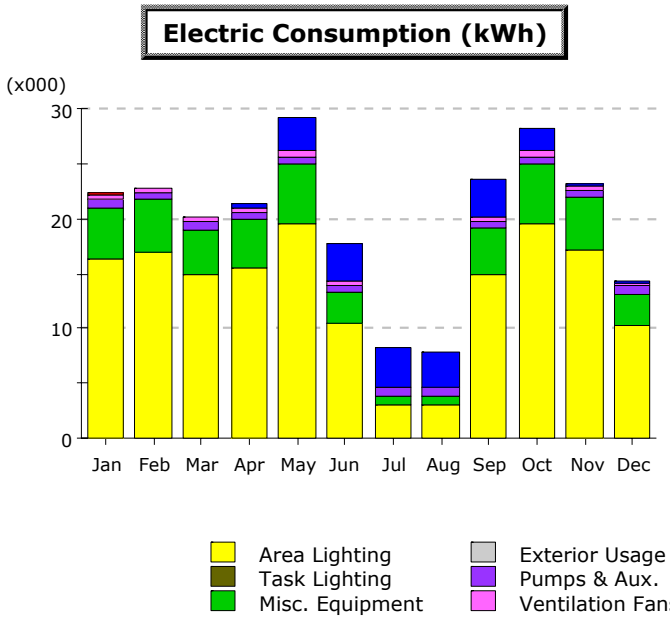
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	24.13	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	725.41	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	2.54	-	-	-
Pumps & Aux.	0.59	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	13.50	-	-	-
Task Lights	-	-	-	-
Area Lights	31.08	-	-	-
Total	71.84	725.41	-	-

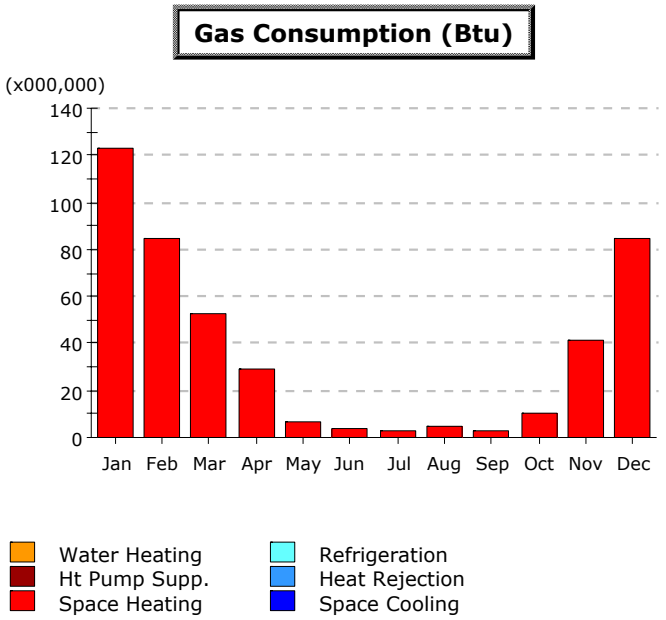


Electricity



Natural Gas





Electric Consumption (kWh x000)

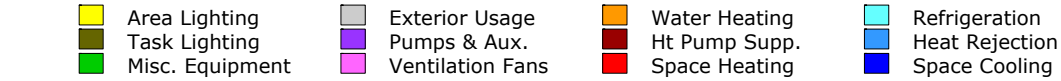
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.04	-	0.03	0.45	2.98	3.38	3.46	3.13	3.39	2.10	0.23	0.06	19.25
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.09	0.06	0.04	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.03	0.07	0.34
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.46	0.42	0.32	0.34	0.49	0.32	0.12	0.12	0.41	0.45	0.38	0.25	4.07
Pumps & Aux.	0.72	0.65	0.72	0.69	0.69	0.66	0.68	0.68	0.66	0.70	0.69	0.72	8.27
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.60	4.75	4.17	4.36	5.46	2.93	0.88	0.88	4.18	5.46	4.79	2.87	45.35
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	16.39	16.91	14.85	15.54	19.46	10.37	3.02	3.02	14.85	19.46	17.07	10.24	161.19
Total	22.29	22.79	20.13	21.40	29.09	17.67	8.17	7.85	23.49	28.18	23.20	14.20	238.46

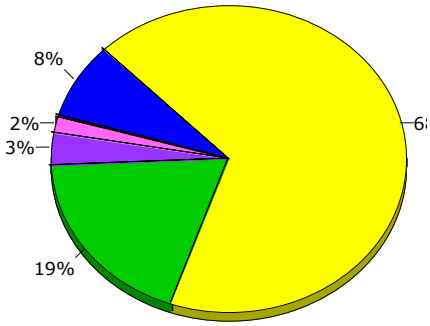
Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	122.99	84.34	53.02	29.22	6.93	4.07	2.97	5.13	2.66	10.25	41.26	84.38	447.22
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	122.99	84.34	53.02	29.22	6.93	4.07	2.97	5.13	2.66	10.25	41.26	84.38	447.22

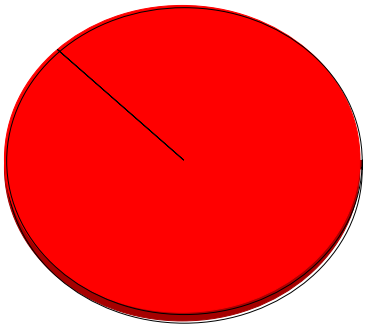
Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	19.25	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.34	447.22	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	4.07	-	-	-
Pumps & Aux.	8.27	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	45.35	-	-	-
Task Lights	-	-	-	-
Area Lights	161.19	-	-	-
Total	238.46	447.22	-	-



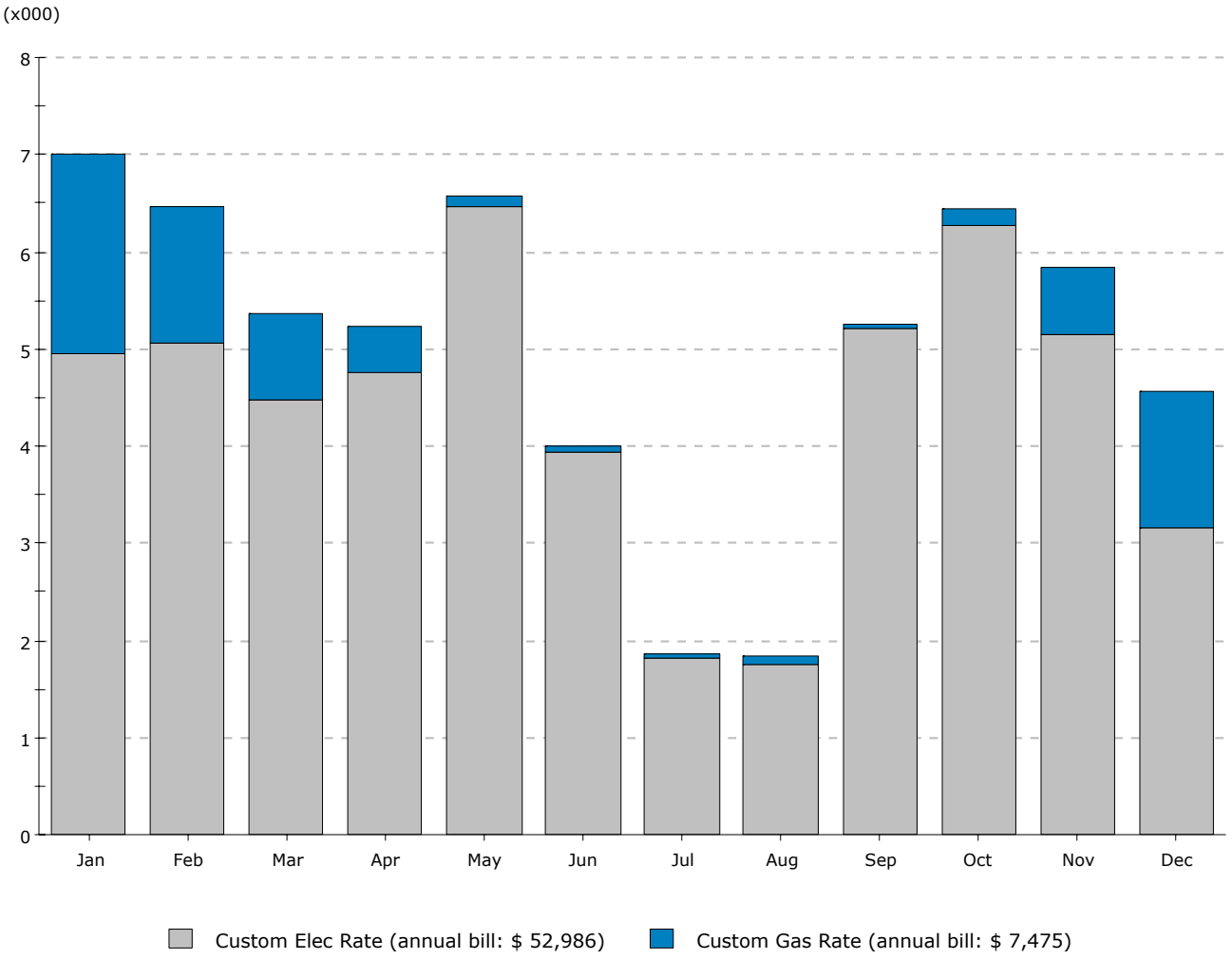


Electricity

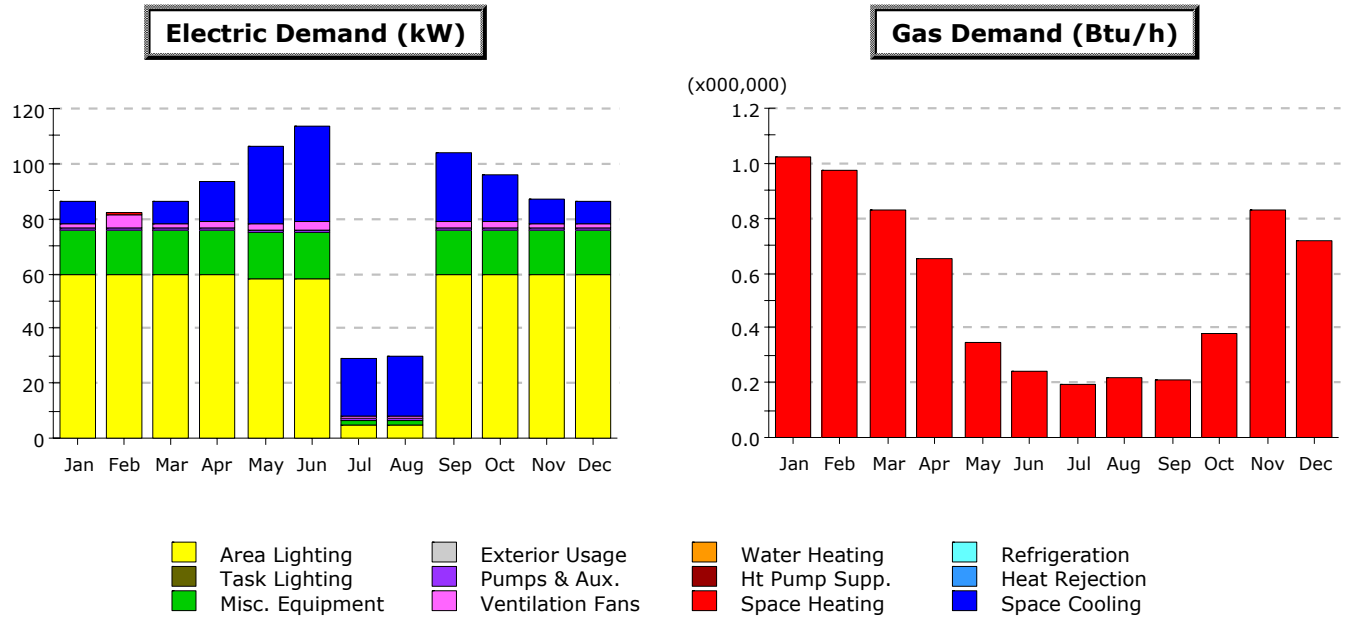


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 60,461



Electric Demand (kW)

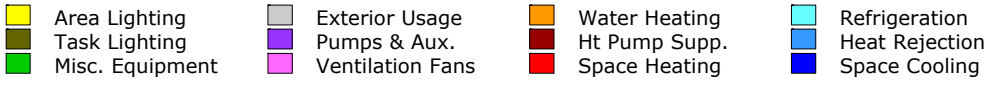
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	7.50	-	7.50	15.20	28.36	35.16	21.51	21.68	24.27	17.15	8.68	7.65	194.66
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.07	0.47	0.03	-	-	-	-	-	-	-	-	0.03	0.61
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.60	4.52	1.60	1.78	2.33	3.26	0.59	0.60	2.47	1.91	1.64	1.60	23.92
Pumps & Aux.	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	11.08
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	16.51	16.51	16.51	16.51	16.25	16.25	1.45	1.47	16.51	16.51	16.51	16.51	167.47
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	59.34	59.34	59.34	59.34	58.34	58.34	4.91	5.05	59.34	59.34	59.34	59.34	601.36
Total	85.94	81.81	85.90	93.74	106.20	113.94	29.38	29.72	103.51	95.82	87.09	86.05	999.10

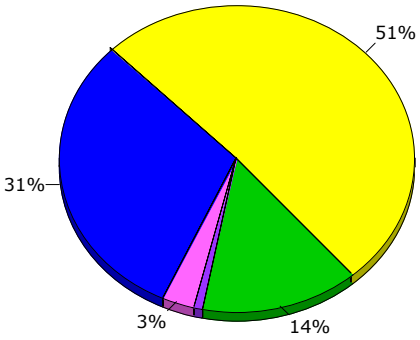
Gas Demand (Btu/h x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.02	0.98	0.83	0.65	0.35	0.25	0.19	0.22	0.21	0.38	0.83	0.72	6.61
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.02	0.98	0.83	0.65	0.35	0.25	0.19	0.22	0.21	0.38	0.83	0.72	6.61

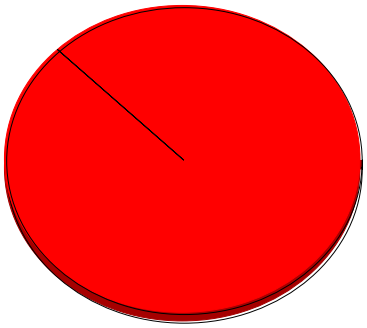
Annual Peak Demand by Enduse

	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	35.16	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,024.1	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.26	-	-	-
Pumps & Aux.	0.92	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	16.25	-	-	-
Task Lights	-	-	-	-
Area Lights	58.34	-	-	-
Total	113.94	1,024.1	-	-

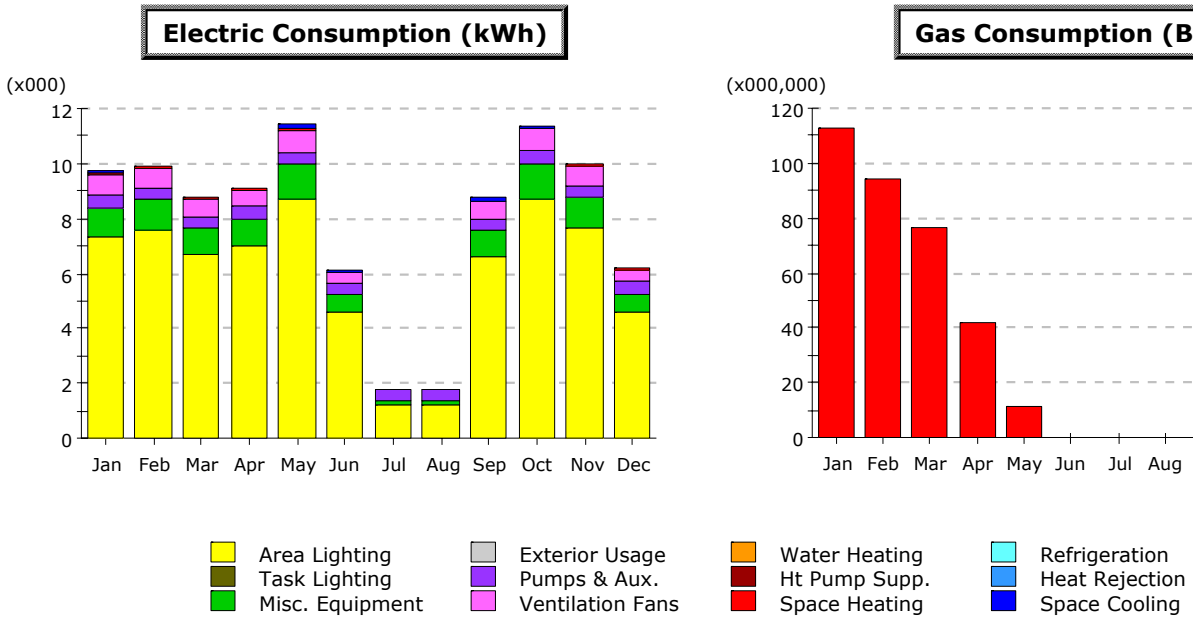




Electricity



Natural Gas



Electric Consumption (kWh x000)

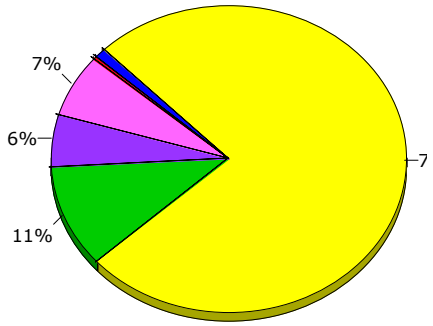
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.08	0.06	0.03	0.04	0.18	0.13	-	-	0.18	0.14	0.02	0.01	0.88
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.08	0.07	0.05	0.03	0.01	0.00	-	-	0.00	0.01	0.04	0.05	0.34
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.70	0.72	0.61	0.63	0.81	0.37	-	-	0.59	0.81	0.71	0.39	6.33
Pumps & Aux.	0.47	0.42	0.47	0.45	0.44	0.42	0.43	0.43	0.42	0.44	0.45	0.47	5.29
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	1.06	1.09	0.96	1.00	1.26	0.66	0.17	0.17	0.95	1.26	1.10	0.66	10.35
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	7.36	7.59	6.67	6.97	8.73	4.57	1.17	1.17	6.63	8.73	7.66	4.61	71.85
Total	9.74	9.94	8.79	9.12	11.43	6.15	1.77	1.77	8.77	11.39	9.98	6.19	95.03

Gas Consumption (Btu x000,000)

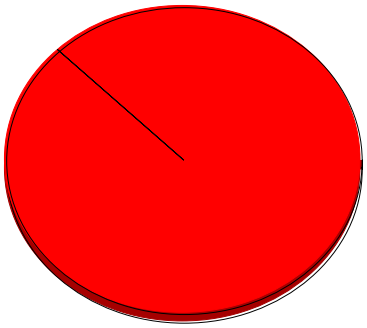
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	112.62	94.36	76.31	42.28	11.17	0.30	-	-	0.96	13.95	56.70	66.49	475.13
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	112.62	94.36	76.31	42.28	11.17	0.30	-	-	0.96	13.95	56.70	66.49	475.13

Annual Energy Consumption by Enduse

	Electricity kWh	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	877	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	340	475.13	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	6,329	-	-	-
Pumps & Aux.	5,290	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	10,347	-	-	-
Task Lights	-	-	-	-
Area Lights	71,849	-	-	-
Total	95,031	475.13	-	-

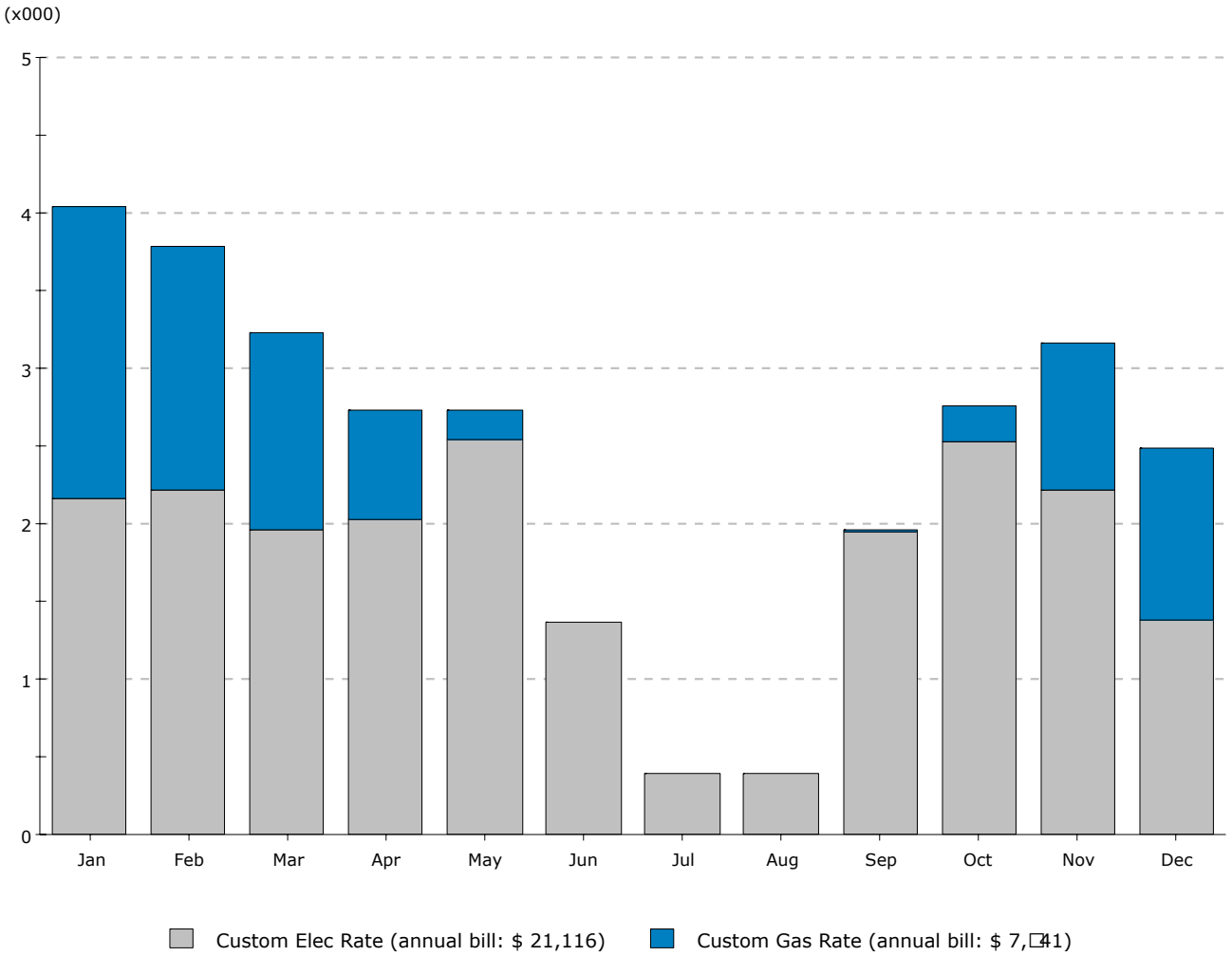


Electricity

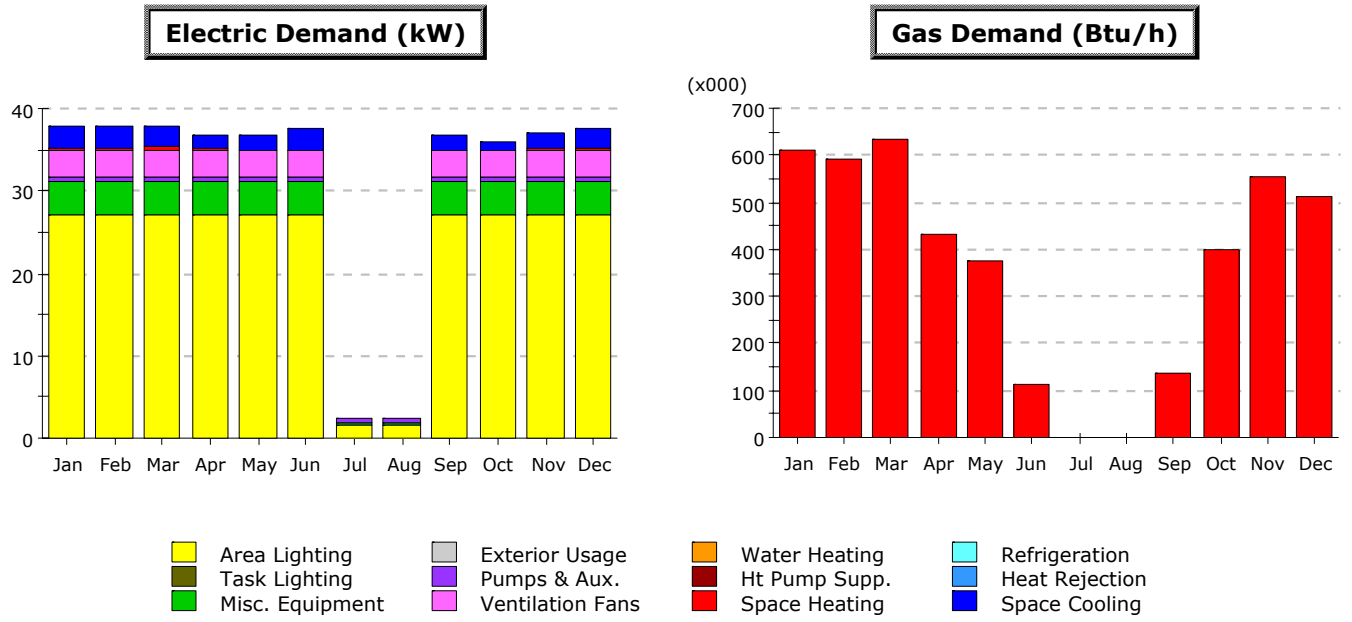


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 29,057



Electric Demand (kW)

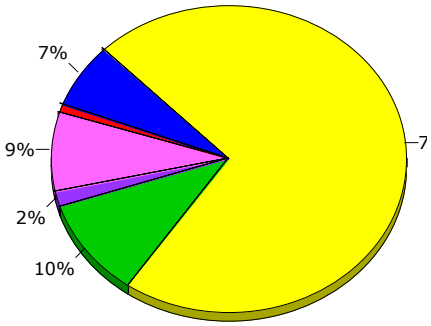
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	2.59	2.48	2.59	1.65	1.96	2.77	-	-	1.81	1.12	1.93	2.34	21.25
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.30	0.28	0.30	0.25	-	-	-	-	-	-	0.26	0.27	1.67
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	3.24	3.24	3.24	3.19	3.07	3.14	-	-	3.10	3.06	3.20	3.24	31.72
Pumps & Aux.	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	6.96
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.94	3.94	3.94	3.94	3.92	3.92	0.23	0.23	3.92	3.92	3.94	3.94	39.77
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	27.24	27.24	27.24	27.24	27.24	27.24	1.63	1.63	27.24	27.24	27.24	27.24	275.69
Total	37.89	37.76	37.90	36.85	36.77	37.65	2.45	2.45	36.65	35.92	37.16	37.62	377.06

Gas Demand (Btu/h x000)

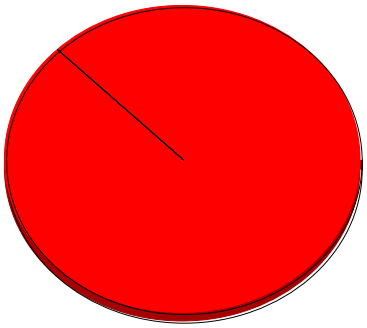
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	610.8	594.0	634.2	433.8	374.2	112.0	-	-	138.1	398.2	554.2	513.5	4,363.1
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	610.8	594.0	634.2	433.8	374.2	112.0	-	-	138.1	398.2	554.2	513.5	4,363.1

Annual Peak Demand by Enduse

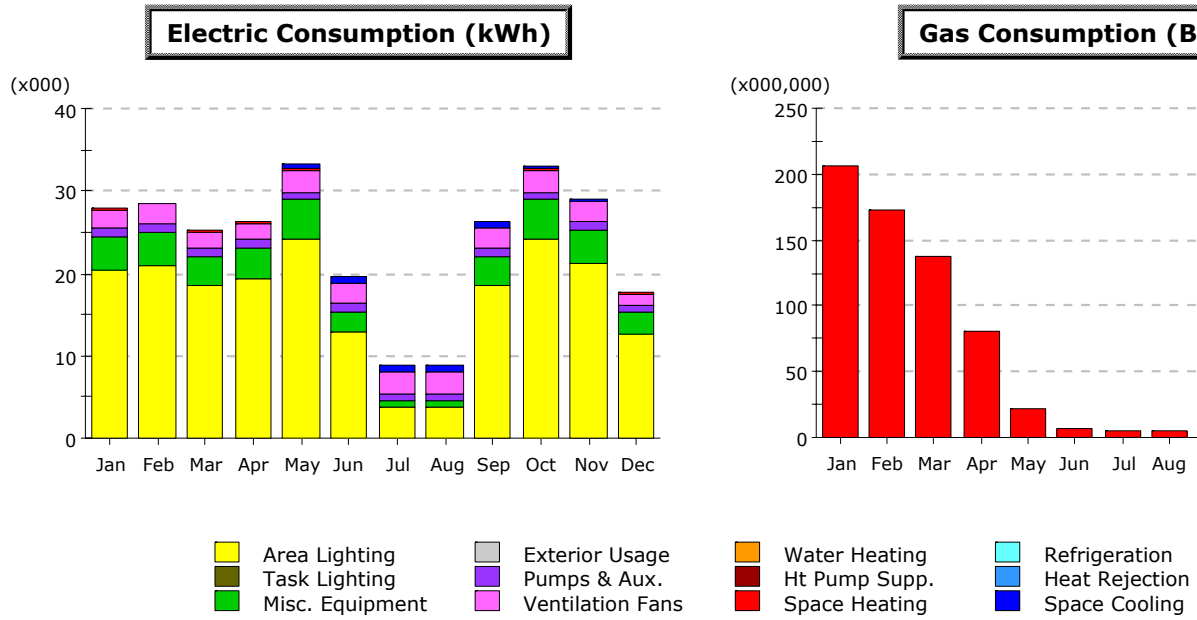
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	2.59	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.30	634.23	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.24	-	-	-
Pumps & Aux.	0.58	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	3.94	-	-	-
Task Lights	-	-	-	-
Area Lights	27.24	-	-	-
Total	37.90	634.23	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

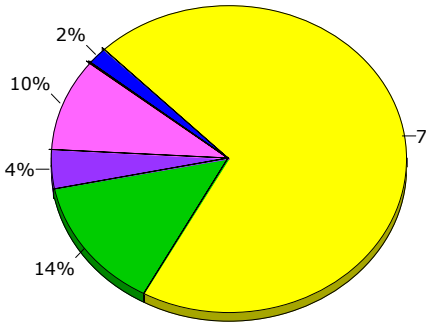
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.01	-	0.01	0.13	0.68	0.79	0.90	0.82	0.74	0.49	0.08	0.02	4.67
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.15	0.13	0.10	0.06	0.02	0.01	0.00	0.00	0.00	0.02	0.08	0.09	0.67
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	2.29	2.38	1.99	2.10	2.73	2.43	2.60	2.59	2.46	2.71	2.35	1.29	27.93
Pumps & Aux.	1.05	0.95	1.05	1.00	0.99	0.95	0.98	0.98	0.95	1.00	1.00	1.05	11.93
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.00	4.13	3.62	3.79	4.75	2.54	0.76	0.76	3.63	4.75	4.17	2.50	39.41
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	20.32	20.97	18.42	19.27	24.14	12.84	3.70	3.70	18.41	24.14	21.18	12.70	199.79
Total	27.82	28.56	25.20	26.36	33.30	19.55	8.94	8.85	26.19	33.12	28.86	17.64	284.40

Gas Consumption (Btu x000,000)

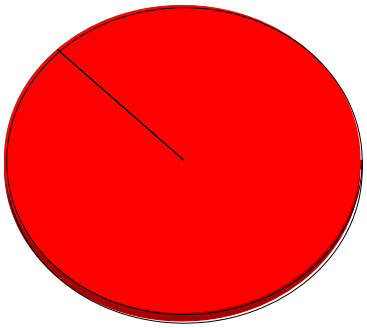
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	205.80	172.81	138.37	80.00	22.31	6.68	4.27	5.22	5.97	31.17	107.11	120.20	899.89
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	205.80	172.81	138.37	80.00	22.31	6.68	4.27	5.22	5.97	31.17	107.11	120.20	899.89

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	4.67	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.67	899.90	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	27.93	-	-	-
Pumps & Aux.	11.93	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	39.41	-	-	-
Task Lights	-	-	-	-
Area Lights	199.79	-	-	-
Total	284.40	899.90	-	-

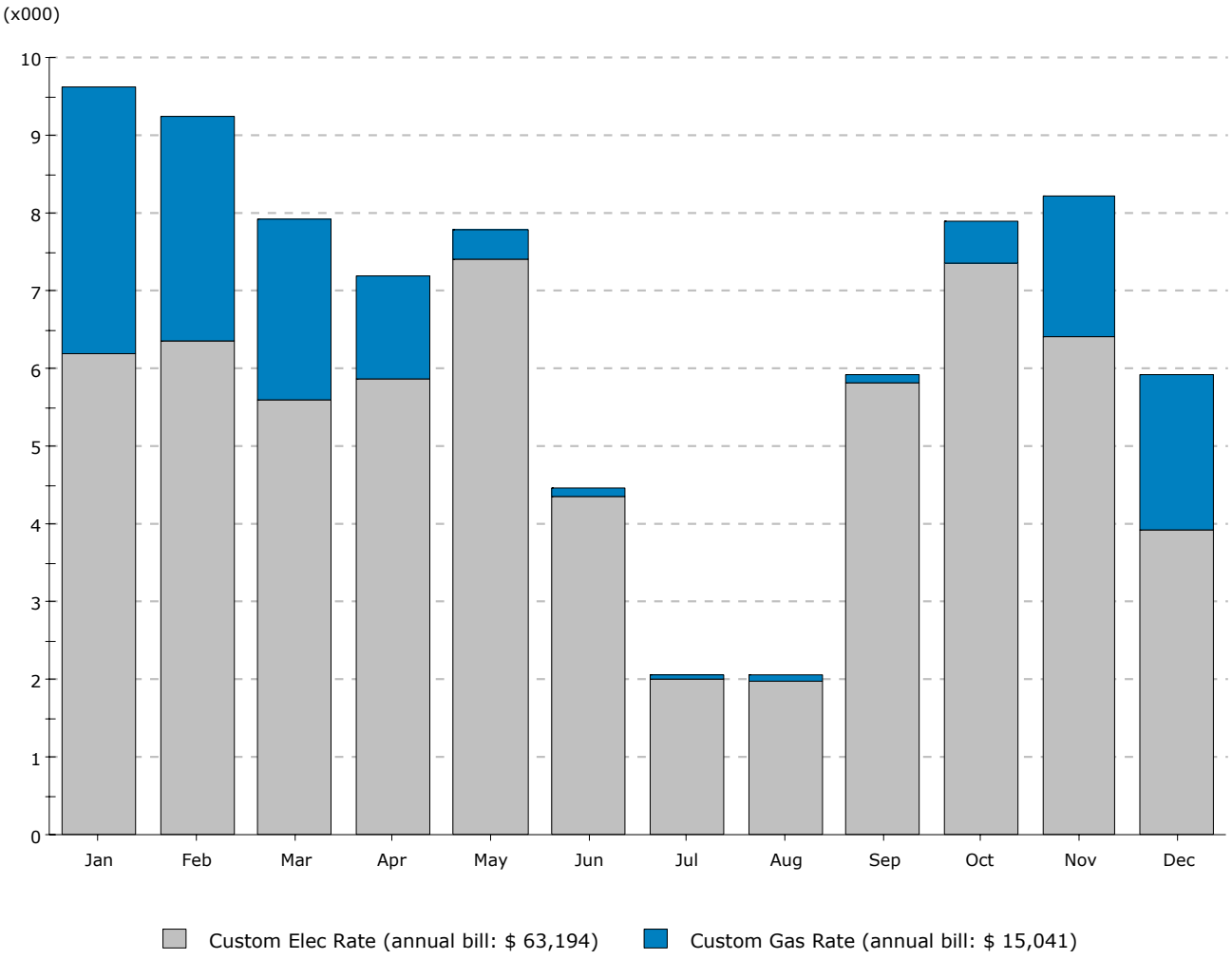


Electricity

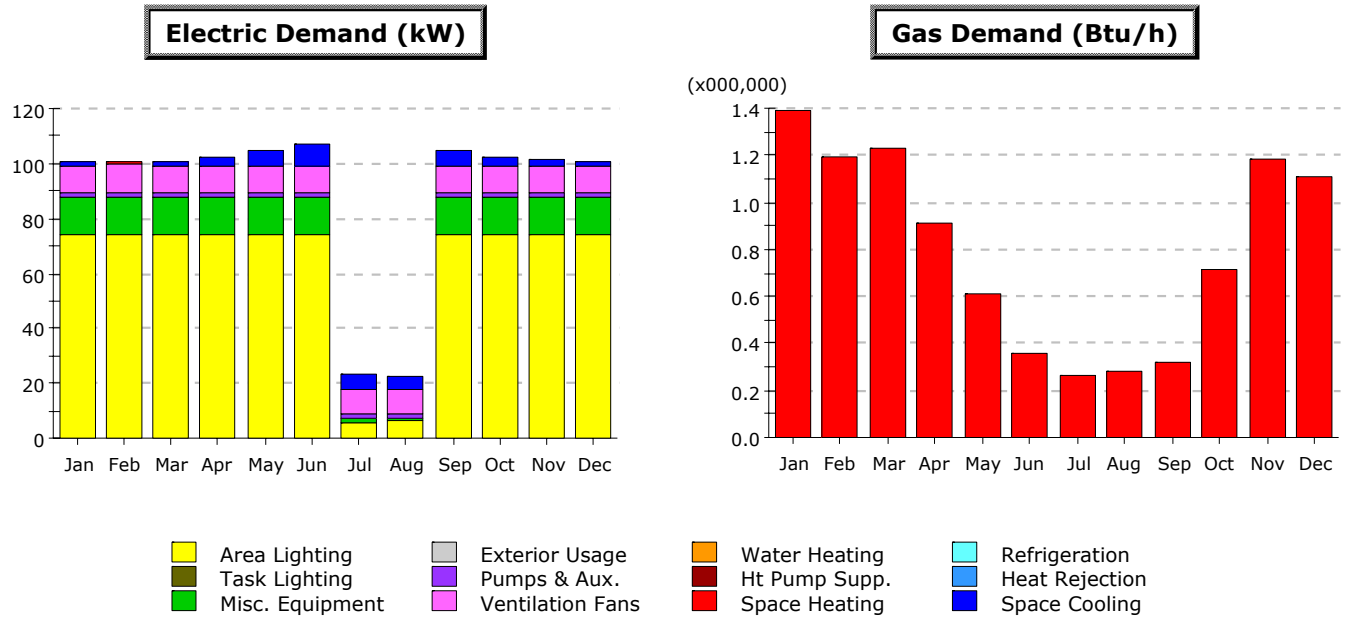


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 78,235



Electric Demand (kW)

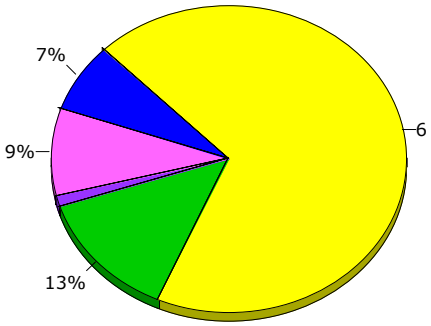
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.8	-	1.8	3.5	5.8	7.7	5.9	4.9	5.7	3.5	2.2	1.8	44.7
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.2	0.6	0.2	-	-	-	-	-	-	-	0.0	0.2	1.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	9.5	10.2	9.5	9.6	9.7	10.0	9.3	9.2	9.8	9.6	9.6	9.5	115.5
Pumps & Aux.	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	15.9
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	14.4	14.4	14.4	14.4	14.4	14.4	1.2	1.3	14.4	14.4	14.4	14.4	146.2
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	73.7	73.7	73.7	73.7	73.7	73.7	5.9	6.1	73.7	73.7	73.7	73.7	749.5
Total	100.9	100.4	100.9	102.5	105.0	107.1	23.6	22.8	104.9	102.5	101.2	101.0	1,072.9

Gas Demand (Btu/h x000,000)

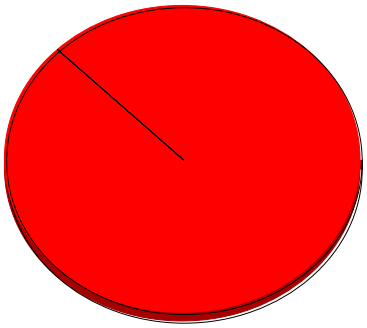
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.39	1.20	1.23	0.91	0.61	0.35	0.26	0.29	0.32	0.72	1.19	1.11	9.58
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.39	1.20	1.23	0.91	0.61	0.35	0.26	0.29	0.32	0.72	1.19	1.11	9.58

Annual Peak Demand by Enduse

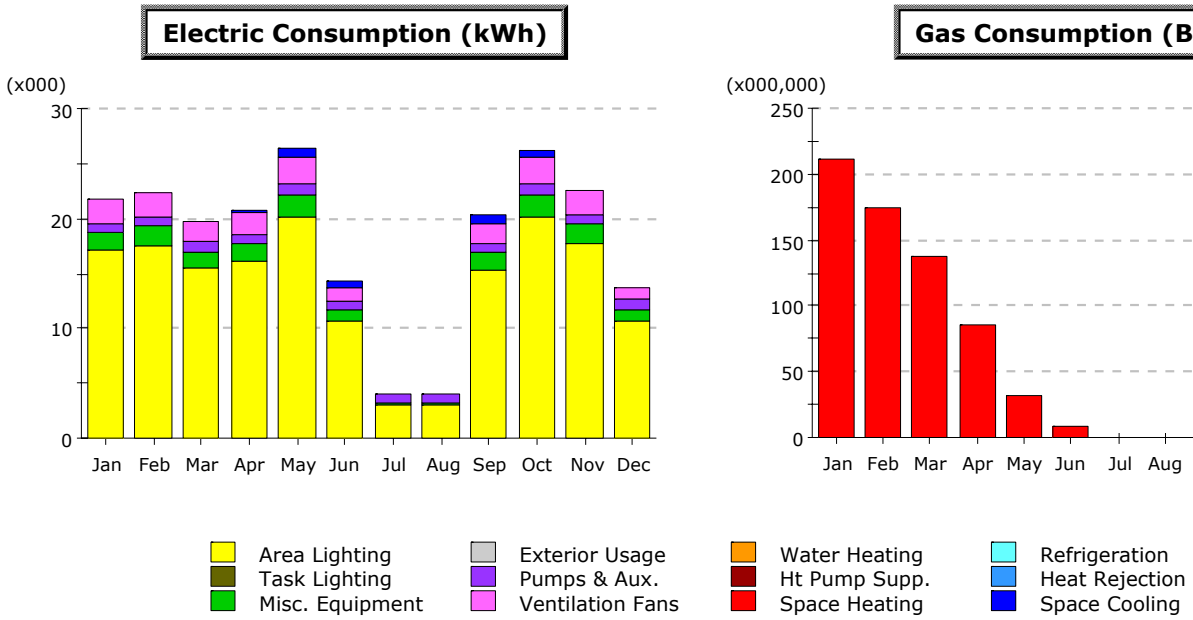
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	7.72	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,392.7	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	9.97	-	-	-
Pumps & Aux.	1.31	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	14.37	-	-	-
Task Lights	-	-	-	-
Area Lights	73.75	-	-	-
Total	107.11	1,392.7	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

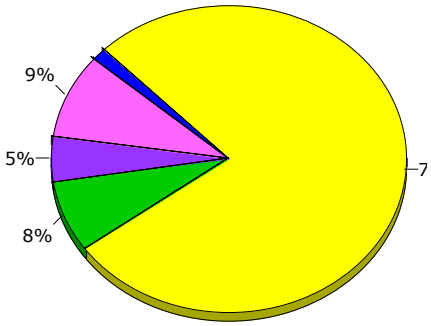
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.01	-	0.01	0.09	0.69	0.51	-	-	0.77	0.51	0.05	0.01	2.65
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	2.08	2.20	1.85	1.96	2.56	1.18	-	-	1.89	2.55	2.19	1.15	19.61
Pumps & Aux.	0.91	0.82	0.90	0.87	0.85	0.81	0.83	0.83	0.81	0.86	0.87	0.90	10.26
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	1.70	1.75	1.54	1.61	2.01	1.06	0.28	0.28	1.53	2.01	1.77	1.06	16.60
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	17.02	17.55	15.42	16.13	20.20	10.67	2.92	2.92	15.38	20.20	17.73	10.64	166.80
Total	21.71	22.32	19.71	20.66	26.32	14.24	4.04	4.04	20.38	26.14	22.60	13.77	215.93

Gas Consumption (Btu x000,000)

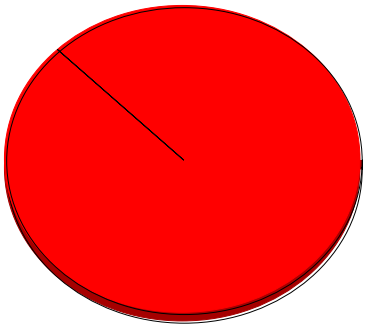
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	212.06	174.49	137.77	84.90	32.32	8.88	-	-	11.55	41.94	105.61	133.99	943.52
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	212.06	174.49	137.77	84.90	32.32	8.88	-	-	11.55	41.94	105.61	133.99	943.52

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	2.65	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	943.52	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	19.61	-	-	-
Pumps & Aux.	10.26	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	16.60	-	-	-
Task Lights	-	-	-	-
Area Lights	166.80	-	-	-
Total	215.93	943.52	-	-

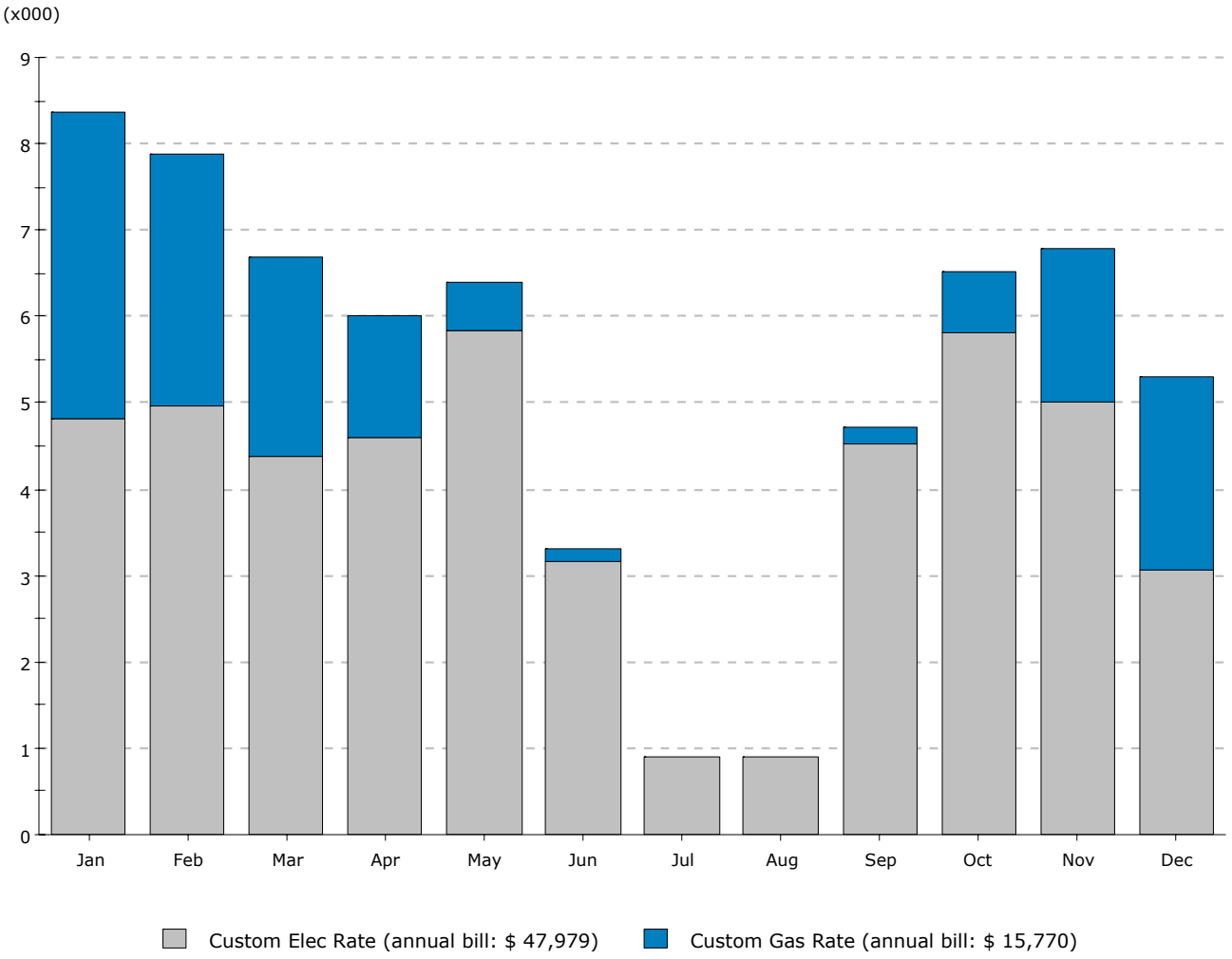


Electricity

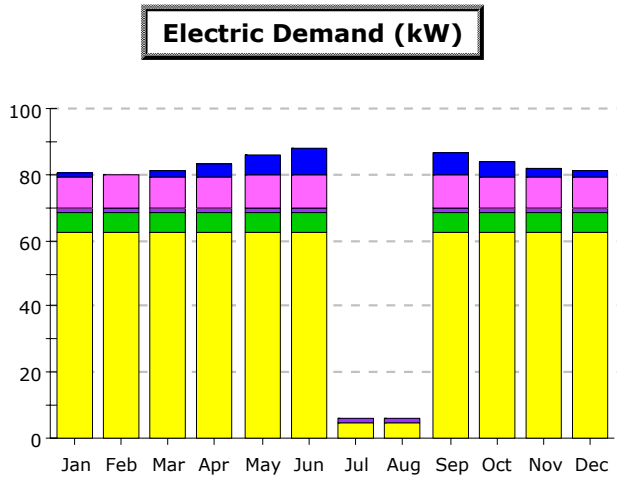


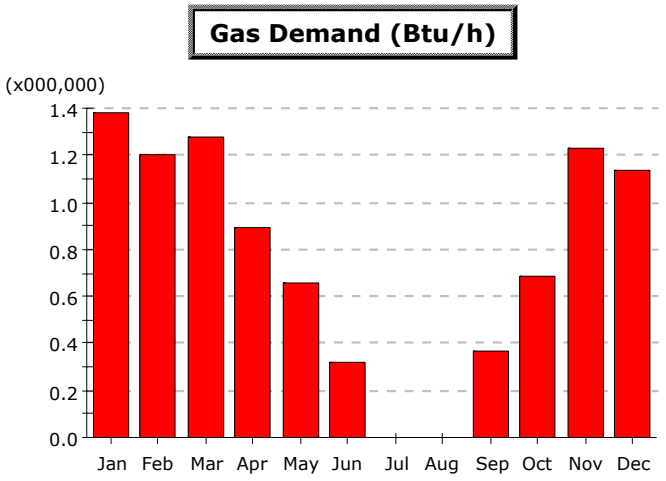
Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 63,749





Electric Demand (kW)

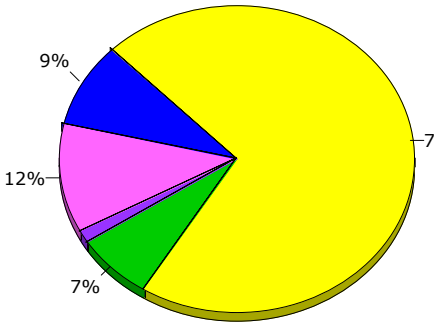
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.62	-	1.70	4.14	6.62	7.87	-	-	6.71	4.44	2.59	1.93	37.61
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	9.60	9.95	9.61	9.74	9.92	10.16	-	-	10.13	9.78	9.69	9.62	98.20
Pumps & Aux.	1.12	1.22	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	13.56
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	6.20	6.20	6.20	6.20	6.20	6.20	0.42	0.42	6.20	6.20	6.20	6.20	62.82
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	62.30	62.30	62.30	62.30	62.30	62.30	4.53	4.53	62.30	62.30	62.30	62.30	632.07
Total	80.84	79.67	80.93	83.49	86.16	87.65	6.07	6.07	86.46	83.84	81.90	81.17	844.26

Gas Demand (Btu/h x000,000)

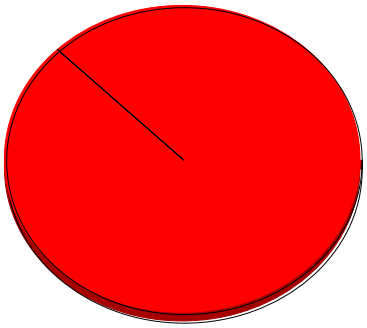
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.38	1.20	1.28	0.90	0.66	0.32	-	-	0.37	0.68	1.23	1.14	9.15
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.38	1.20	1.28	0.90	0.66	0.32	-	-	0.37	0.68	1.23	1.14	9.15

Annual Peak Demand by Enduse

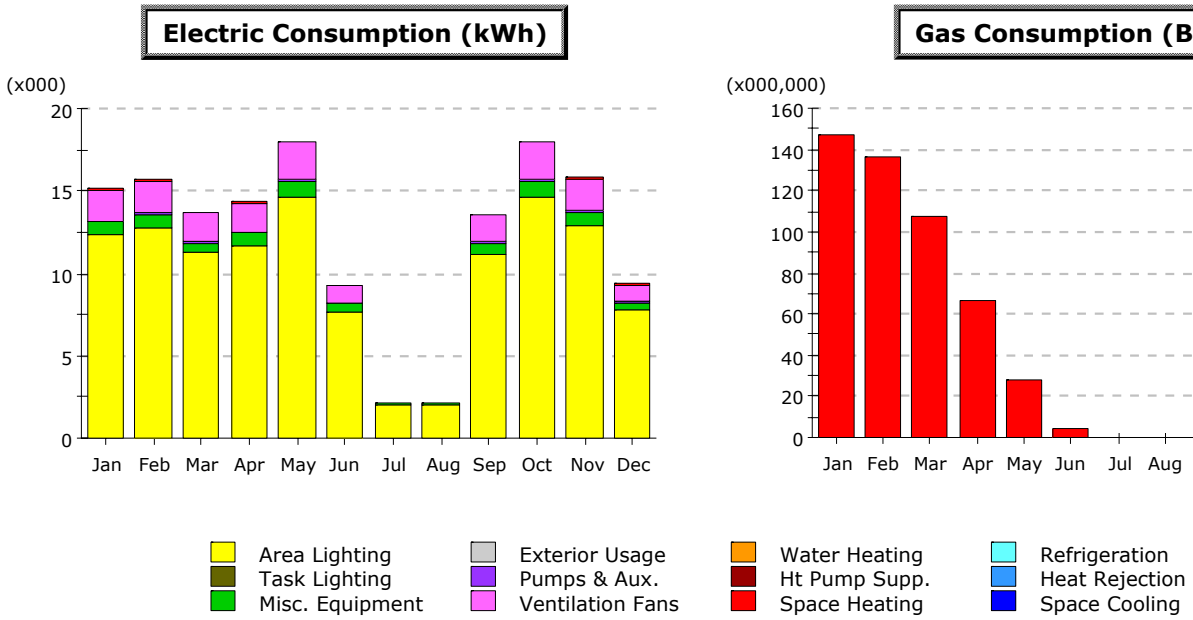
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	7.87	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,380.2	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	10.16	-	-	-
Pumps & Aux.	1.12	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	6.20	-	-	-
Task Lights	-	-	-	-
Area Lights	62.30	-	-	-
Total	87.65	1,380.2	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

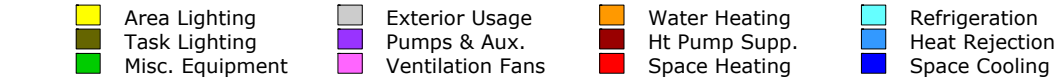
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.08	0.07	0.06	0.04	0.02	0.00	-	-	0.01	0.03	0.06	0.03	0.40
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.86	1.97	1.66	1.76	2.28	1.04	-	-	1.66	2.28	1.97	1.04	17.50
Pumps & Aux.	0.12	0.12	0.10	0.11	0.14	0.06	-	-	0.10	0.14	0.12	0.06	1.09
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	0.73	0.76	0.67	0.70	0.87	0.46	0.12	0.12	0.66	0.87	0.77	0.46	7.18
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	12.36	12.75	11.21	11.72	14.67	7.68	1.96	1.96	11.14	14.67	12.88	7.74	120.77
Total	15.15	15.67	13.69	14.33	17.99	9.24	2.08	2.08	13.57	18.00	15.79	9.33	146.93

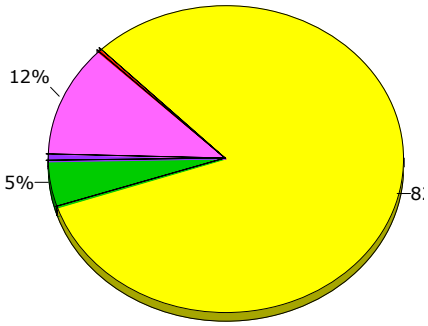
Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	146.86	136.33	107.47	66.55	27.89	4.25	-	-	6.96	38.76	97.24	57.02	689.33
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	146.86	136.33	107.47	66.55	27.89	4.25	-	-	6.96	38.76	97.24	57.02	689.33

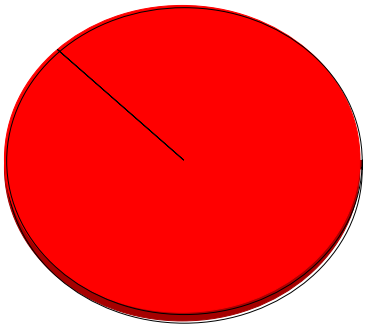
Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	-	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.40	689.33	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	17.50	-	-	-
Pumps & Aux.	1.09	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	7.18	-	-	-
Task Lights	-	-	-	-
Area Lights	120.77	-	-	-
Total	146.93	689.33	-	-



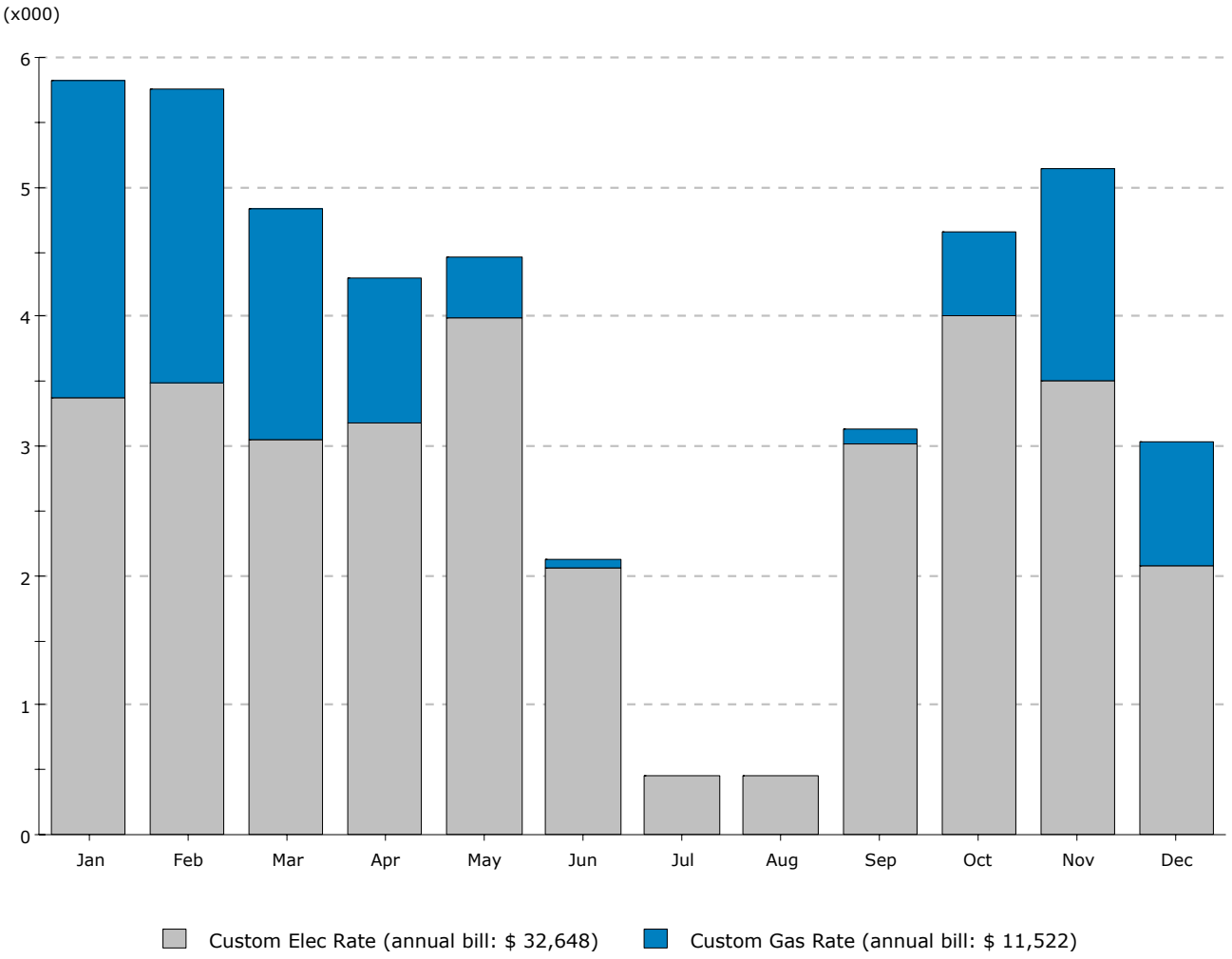


Electricity

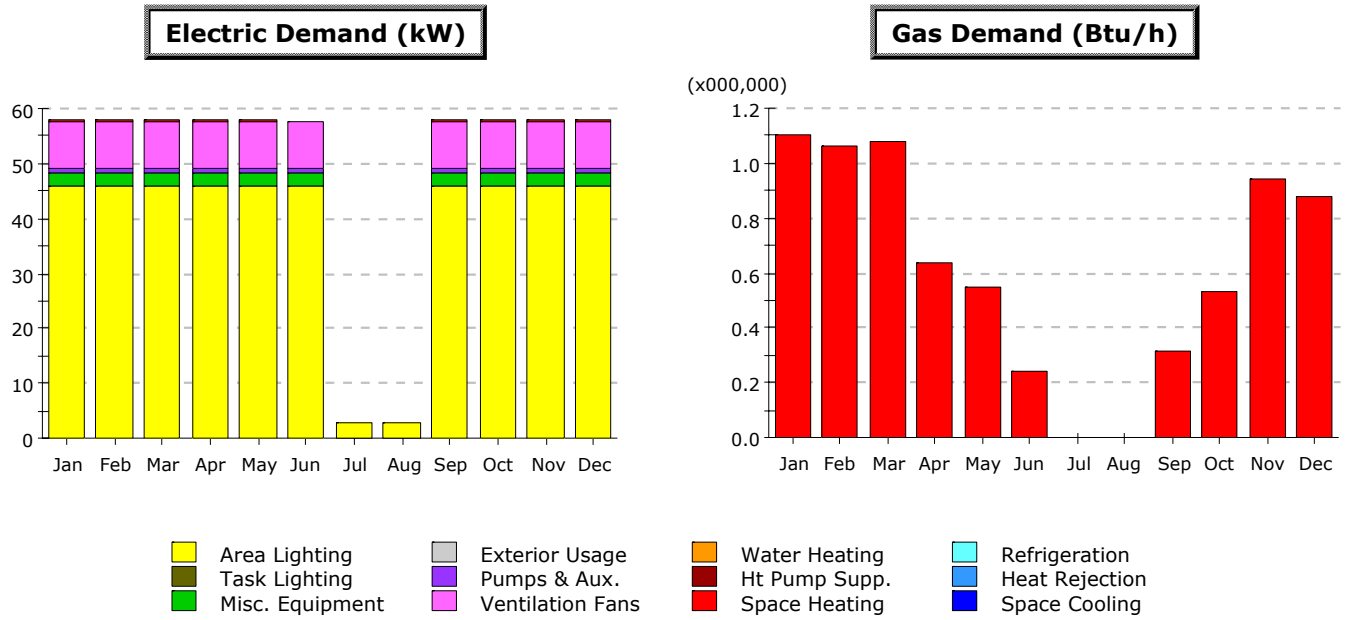


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 44,170



Electric Demand (kW)

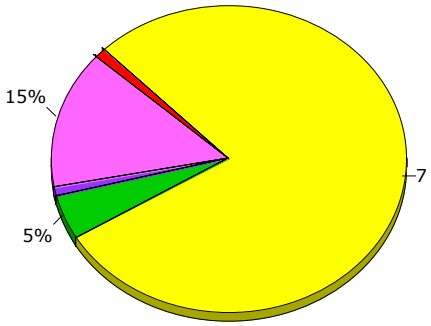
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.52	0.43	0.44	0.27	0.26	0.10	-	-	0.16	0.25	0.39	0.34	3.16
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	8.63	8.63	8.63	8.63	8.63	8.63	-	-	8.63	8.63	8.63	8.63	86.28
Pumps & Aux.	0.54	0.54	0.54	0.54	0.54	0.54	-	-	0.54	0.54	0.54	0.54	5.38
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	2.70	2.70	2.70	2.70	2.70	2.70	0.16	0.16	2.70	2.70	2.70	2.70	27.37
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	45.79	45.79	45.79	45.79	45.79	45.79	2.75	2.75	45.79	45.79	45.79	45.79	463.39
Total	58.18	58.09	58.10	57.93	57.92	57.76	2.91	2.91	57.82	57.91	58.05	58.00	585.59

Gas Demand (Btu/h x000,000)

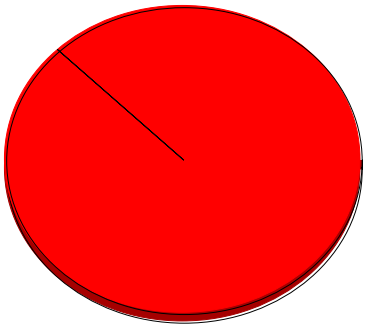
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.10	1.06	1.08	0.64	0.55	0.25	-	-	0.31	0.53	0.94	0.88	7.34
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.10	1.06	1.08	0.64	0.55	0.25	-	-	0.31	0.53	0.94	0.88	7.34

Annual Peak Demand by Enduse

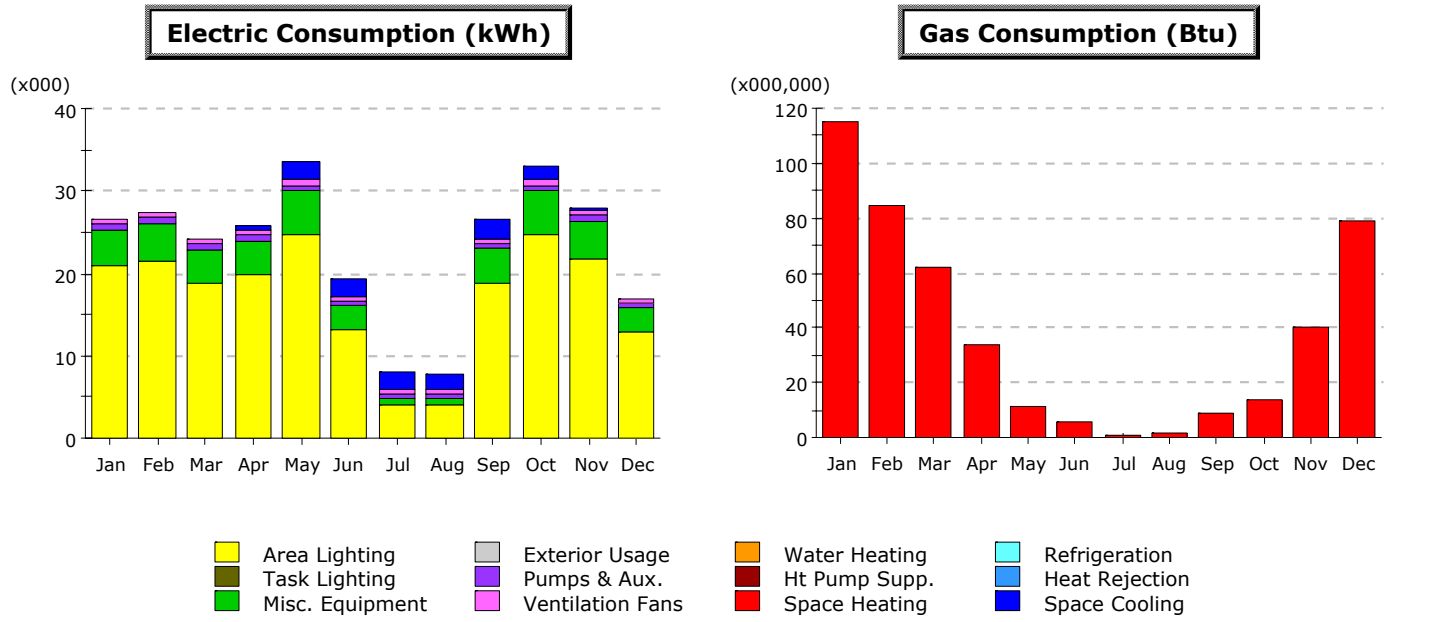
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	-	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.52	1,101.9	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	8.63	-	-	-
Pumps & Aux.	0.54	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	2.70	-	-	-
Task Lights	-	-	-	-
Area Lights	45.79	-	-	-
Total	58.18	1,101.9	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

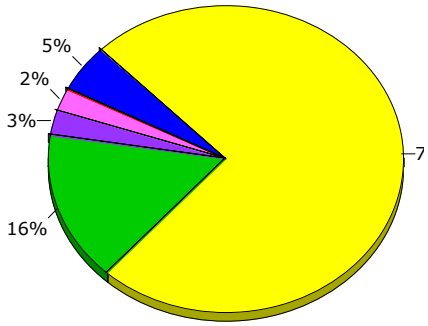
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.06	0.11	0.16	0.54	2.26	2.20	2.07	1.78	2.49	1.66	0.41	0.14	13.88
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.08	0.06	0.04	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.03	0.06	0.33
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.57	0.58	0.48	0.52	0.72	0.55	0.41	0.39	0.65	0.68	0.56	0.36	6.49
Pumps & Aux.	0.70	0.63	0.69	0.65	0.60	0.57	0.59	0.59	0.57	0.62	0.65	0.69	7.54
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.47	4.61	4.05	4.24	5.31	2.86	0.89	0.89	4.06	5.31	4.66	2.79	44.11
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	20.83	21.50	18.87	19.75	24.76	13.26	4.01	4.01	18.92	24.76	21.71	12.98	205.37
Total	26.71	27.49	24.29	25.72	33.66	19.44	7.97	7.66	26.69	33.04	28.02	17.02	277.72

Gas Consumption (Btu x000,000)

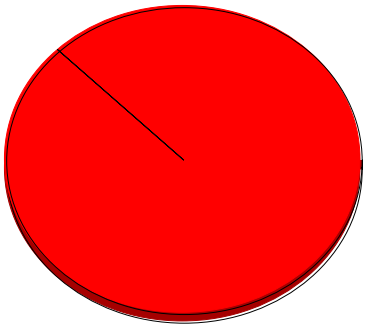
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	114.77	84.39	61.95	34.08	10.99	5.80	0.99	1.41	9.13	14.03	40.59	78.84	456.99
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	114.77	84.39	61.95	34.08	10.99	5.80	0.99	1.41	9.13	14.03	40.59	78.84	456.99

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	13.88	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.33	456.99	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	6.49	-	-	-
Pumps & Aux.	7.54	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	44.11	-	-	-
Task Lights	-	-	-	-
Area Lights	205.37	-	-	-
Total	277.72	456.99	-	-

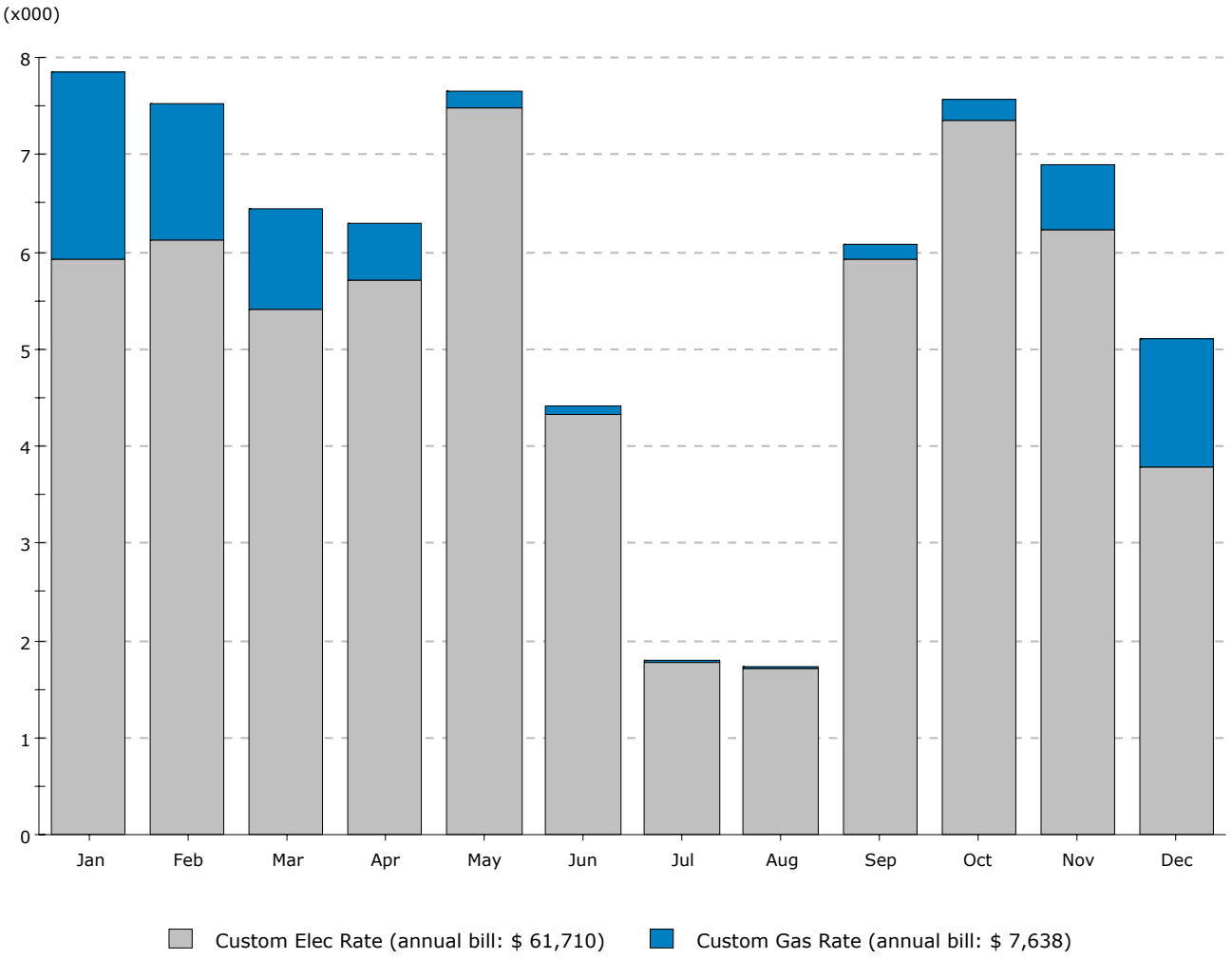


Electricity

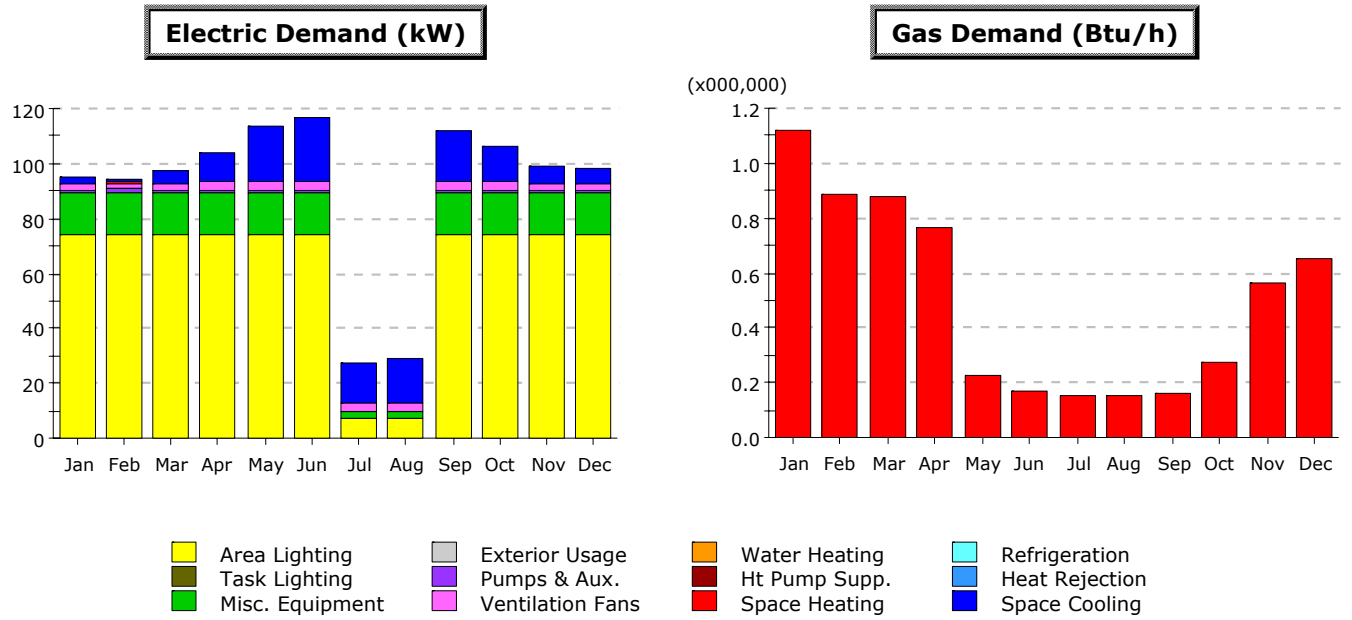


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 69,348



Electric Demand (kW)

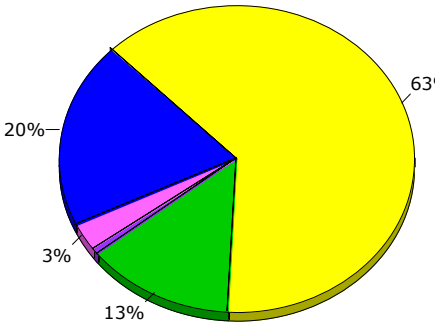
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	2.5	1.2	4.9	11.2	20.5	23.1	14.8	16.0	18.4	12.8	5.8	5.1	136.2
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.0	0.1	0.0	-	-	-	-	-	0.0	0.0	0.0	0.0	0.3
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	2.3	2.3	2.3	2.5	3.2	3.4	2.6	2.9	3.2	2.6	2.4	2.3	32.0
Pumps & Aux.	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	9.6
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	15.8	15.8	15.7	15.8	15.7	15.7	1.6	1.6	15.8	15.8	15.8	15.8	160.9
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	74.0	74.0	73.7	74.0	73.7	73.7	7.6	7.6	74.0	74.0	74.0	74.0	754.2
Total	95.4	94.3	97.4	104.2	113.9	116.7	27.5	28.9	112.2	106.0	98.7	97.9	1,093.2

Gas Demand (Btu/h x000,000)

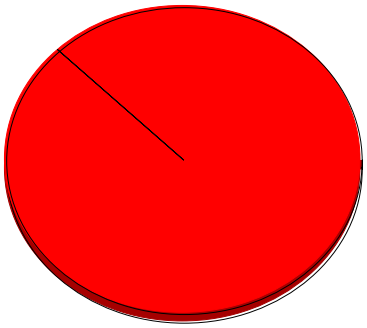
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.12	0.89	0.88	0.76	0.22	0.17	0.15	0.15	0.16	0.28	0.56	0.65	5.99
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.12	0.89	0.88	0.76	0.22	0.17	0.15	0.15	0.16	0.28	0.56	0.65	5.99

Annual Peak Demand by Enduse

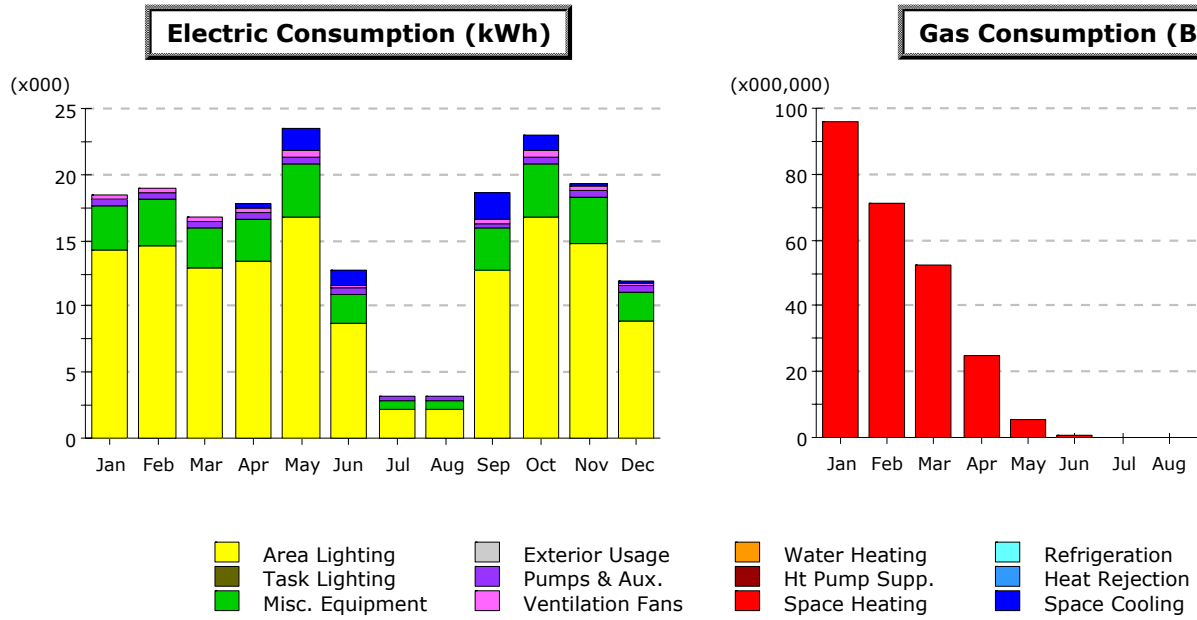
	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	23.12	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	1,118.8	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.39	-	-	-
Pumps & Aux.	0.79	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	15.72	-	-	-
Task Lights	-	-	-	-
Area Lights	73.71	-	-	-
Total	116.75	1,118.8	-	-



Electricity



Natural Gas



Electric Consumption (kWh x000)

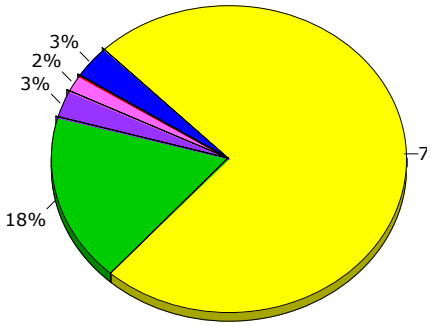
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	0.02	0.04	0.26	1.65	1.18	-	-	1.86	1.16	0.08	0.04	6.30
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.07	0.05	0.04	0.02	0.00	0.00	-	-	0.00	0.01	0.02	0.05	0.26
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.37	0.37	0.30	0.32	0.47	0.27	-	-	0.41	0.42	0.35	0.25	3.53
Pumps & Aux.	0.50	0.45	0.50	0.47	0.44	0.42	0.43	0.43	0.42	0.45	0.47	0.50	5.48
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.41	3.52	3.09	3.24	4.05	2.12	0.54	0.54	3.08	4.05	3.56	2.14	33.35
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	14.18	14.62	12.85	13.44	16.83	8.81	2.25	2.25	12.78	16.83	14.77	8.88	138.50
Total	18.53	19.03	16.83	17.75	23.45	12.79	3.23	3.23	18.55	22.92	19.26	11.85	187.42

Gas Consumption (Btu x000,000)

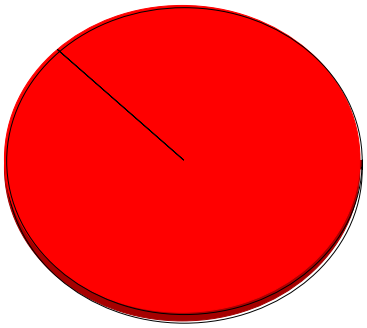
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	95.81	71.26	52.66	25.14	5.09	0.38	-	-	0.30	6.93	35.66	71.05	364.27
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	95.81	71.26	52.66	25.14	5.09	0.38	-	-	0.30	6.93	35.66	71.05	364.27

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	6.30	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.26	364.27	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.53	-	-	-
Pumps & Aux.	5.48	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	33.35	-	-	-
Task Lights	-	-	-	-
Area Lights	138.50	-	-	-
Total	187.42	364.27	-	-

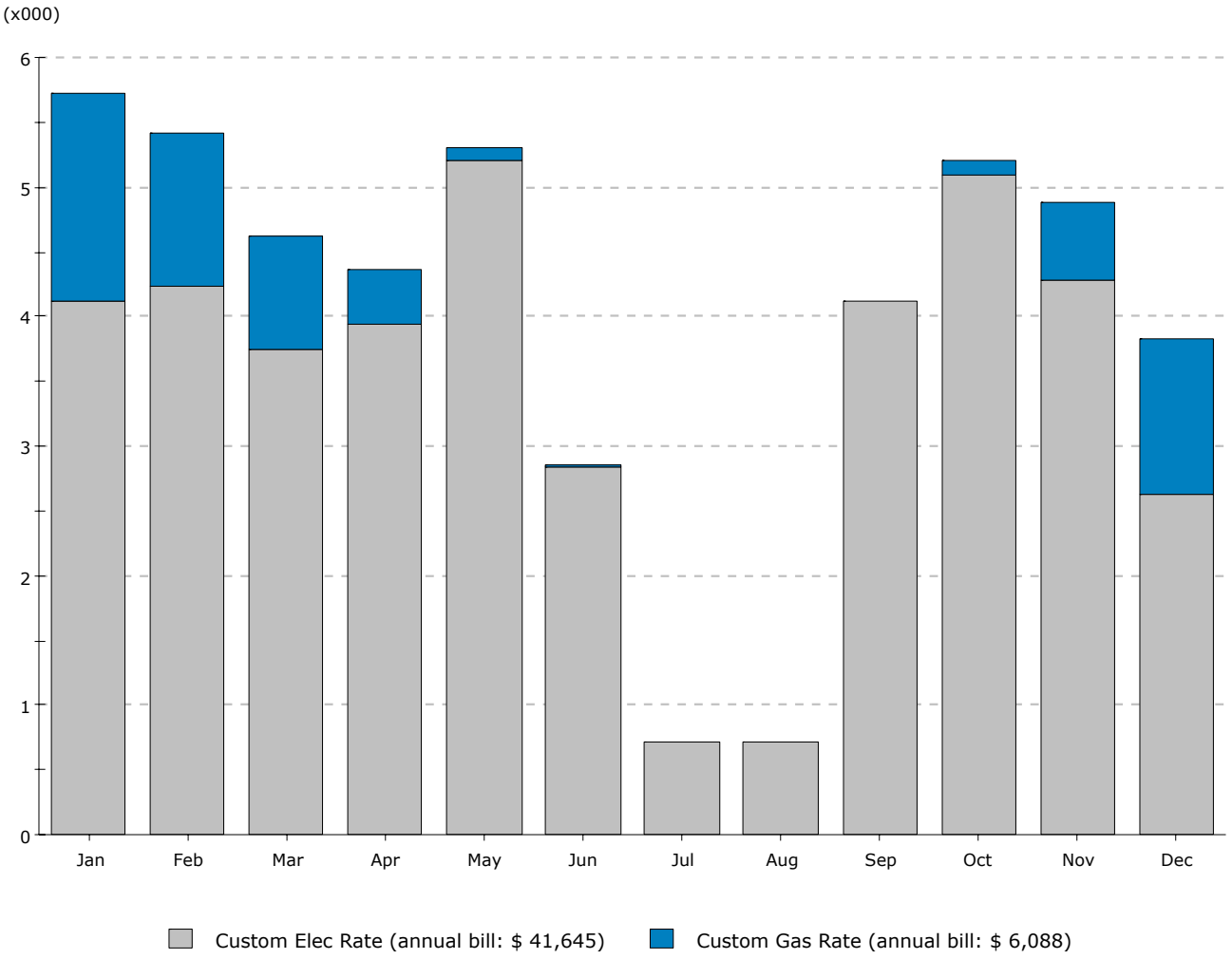


Electricity

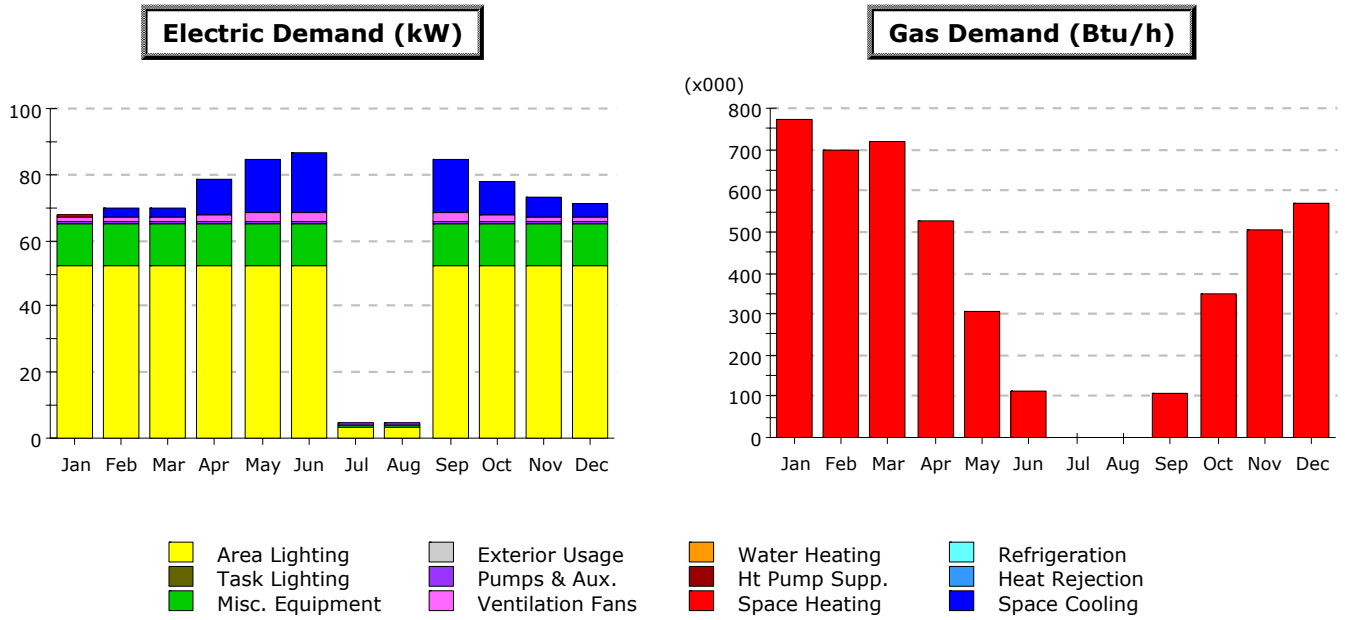


Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 47,733



Electric Demand (kW)

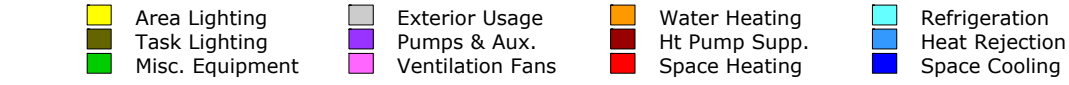
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	2.66	2.77	10.86	16.10	17.87	-	-	15.75	10.52	5.93	3.82	86.27
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.28	0.03	0.03	-	-	-	-	-	-	-	-	0.02	0.36
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.53	1.53	1.54	1.85	2.50	2.97	-	-	2.85	1.81	1.65	1.53	19.78
Pumps & Aux.	0.68	0.63	0.63	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	7.13
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	12.56	12.56	12.56	12.56	12.56	12.56	0.75	0.75	12.56	12.56	12.56	12.56	127.15
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	52.51	52.51	52.51	52.51	52.51	52.51	3.15	3.15	52.51	52.51	52.51	52.51	531.44
Total	67.57	69.93	70.04	78.37	84.25	86.50	4.48	4.48	84.25	77.98	73.24	71.02	772.11

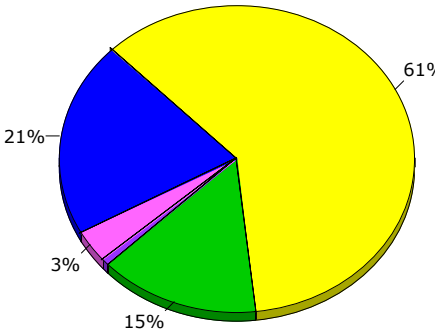
Gas Demand (Btu/h x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	773.2	695.5	719.2	525.2	306.7	110.6	-	-	109.4	349.3	505.3	567.4	4,661.9
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	773.2	695.5	719.2	525.2	306.7	110.6	-	-	109.4	349.3	505.3	567.4	4,661.9

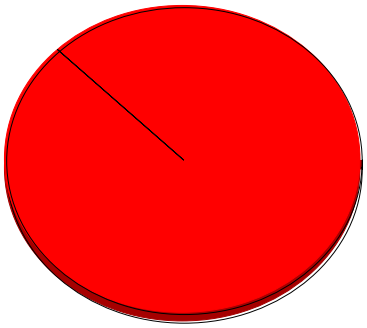
Annual Peak Demand by Enduse

	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	17.87	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	773.23	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	2.97	-	-	-
Pumps & Aux.	0.58	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	12.56	-	-	-
Task Lights	-	-	-	-
Area Lights	52.51	-	-	-
Total	86.50	773.23	-	-

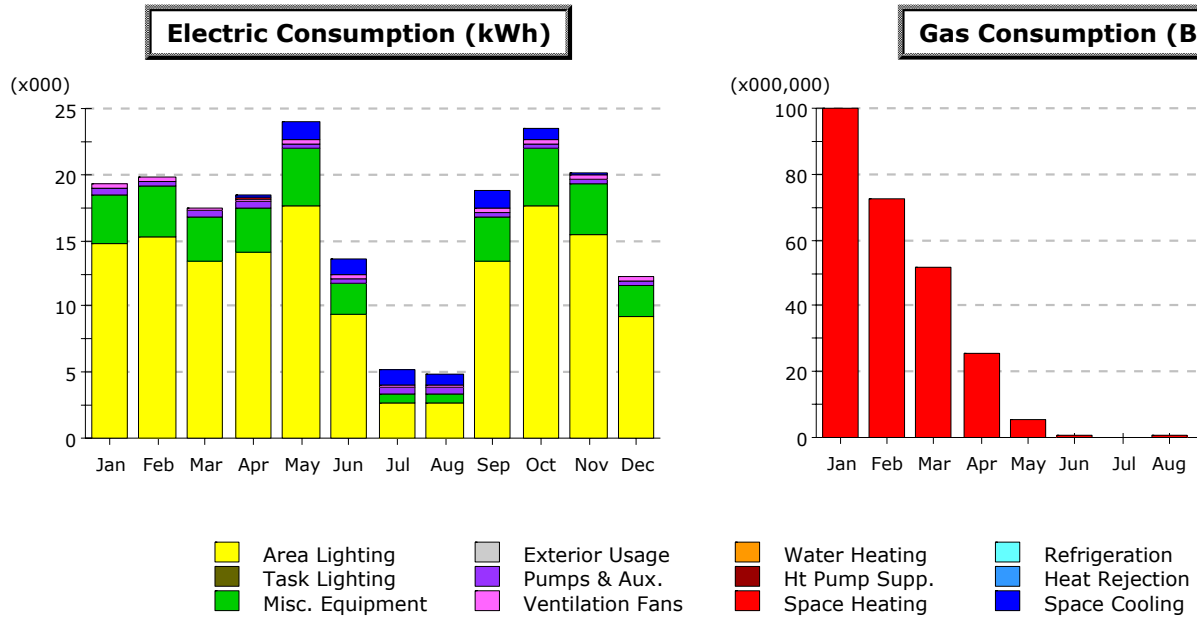




Electricity



Natural Gas



Electric Consumption (kWh x000)

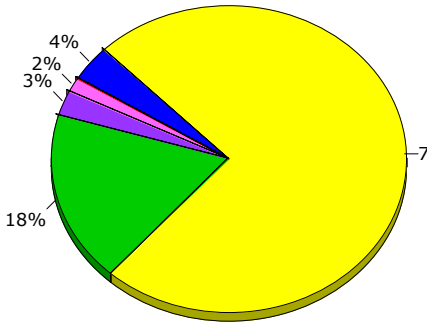
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.02	0.02	0.04	0.29	1.27	1.24	1.10	0.92	1.38	0.87	0.10	0.03	7.29
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.07	0.05	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.25
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.28	0.28	0.23	0.25	0.34	0.26	0.20	0.18	0.28	0.32	0.27	0.20	3.08
Pumps & Aux.	0.47	0.42	0.46	0.44	0.41	0.38	0.40	0.40	0.38	0.42	0.44	0.46	5.08
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	3.64	3.76	3.30	3.45	4.33	2.32	0.70	0.70	3.31	4.33	3.79	2.27	35.88
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	14.84	15.32	13.44	14.07	17.64	9.39	2.74	2.74	13.46	17.64	15.47	9.25	145.98
Total	19.31	19.85	17.51	18.51	23.98	13.60	5.13	4.94	18.81	23.57	20.09	12.26	197.55

Gas Consumption (Btu x000,000)

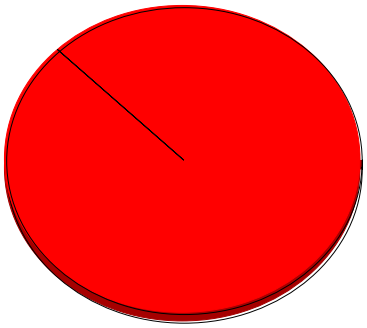
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	99.70	72.76	51.72	25.53	5.07	0.85	0.28	0.34	0.90	5.91	37.25	70.30	370.60
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	99.70	72.76	51.72	25.53	5.07	0.85	0.28	0.34	0.90	5.91	37.25	70.30	370.60

Annual Energy Consumption by Enduse

	Electricity kWh (x000)	Natural Gas MBtu	Steam Btu	Chilled Water Btu
Space Cool	7.29	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	0.25	370.60	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	3.08	-	-	-
Pumps & Aux.	5.08	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	35.88	-	-	-
Task Lights	-	-	-	-
Area Lights	145.98	-	-	-
Total	197.55	370.60	-	-

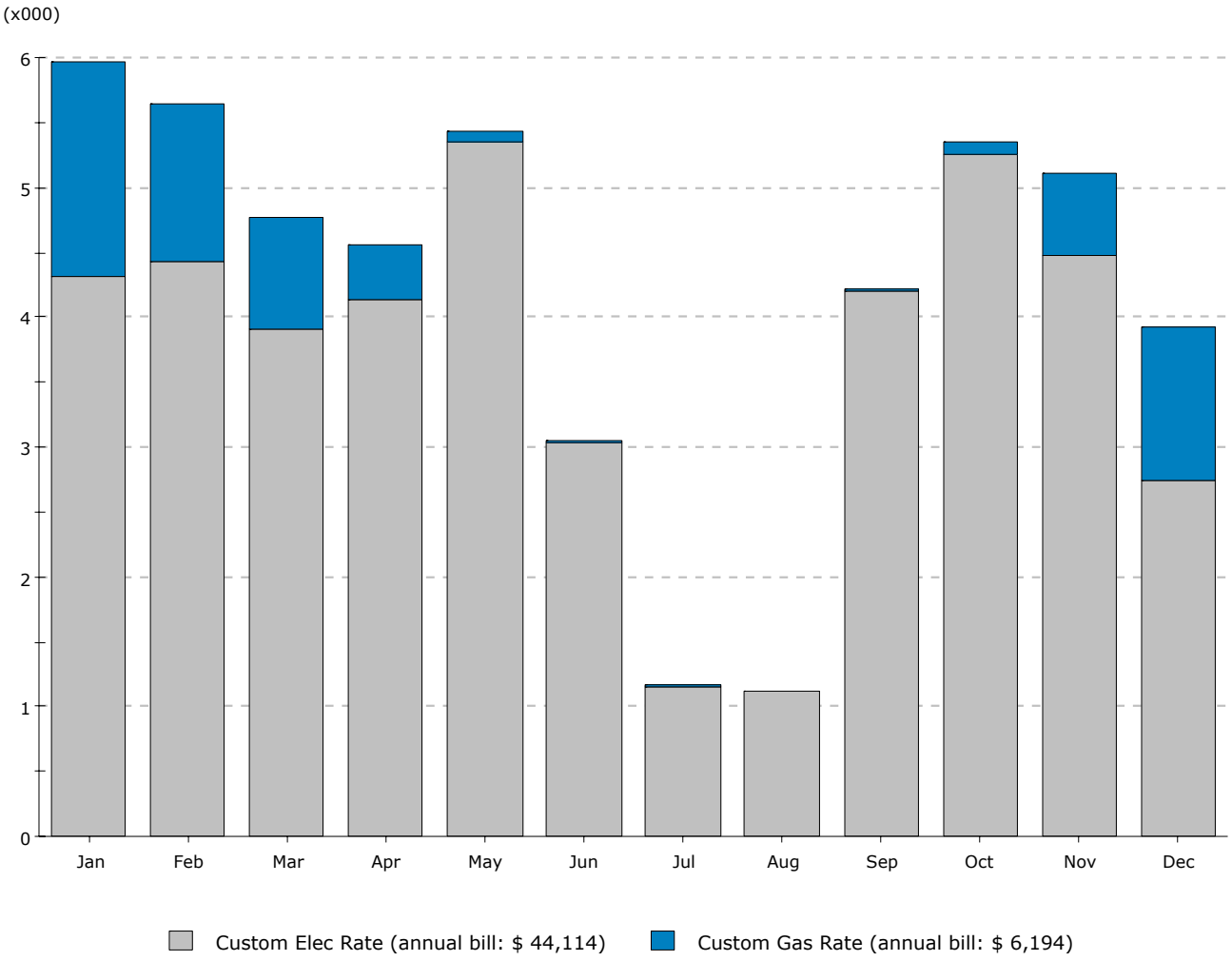


Electricity

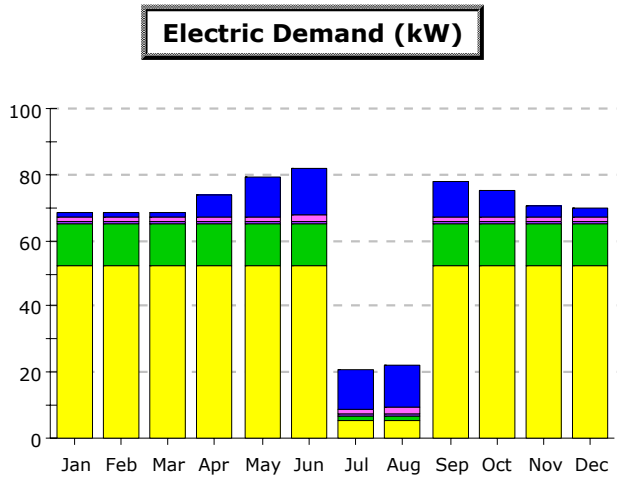


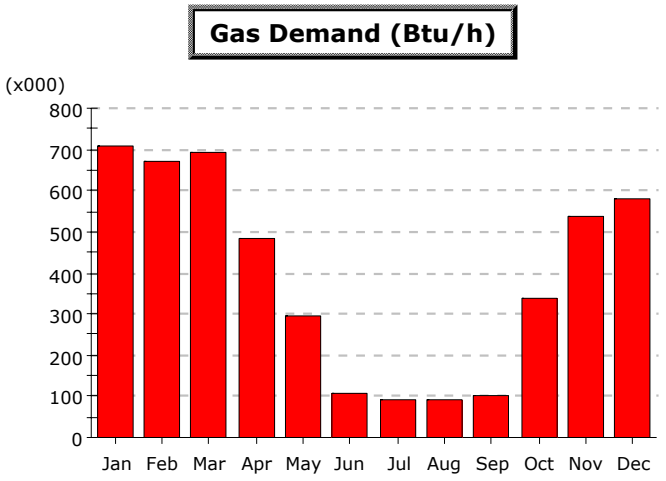
Natural Gas

Monthly Utility Bills ($)



Total Annual Bill Across All Rates: $ 50,308





Electric Demand (kW)

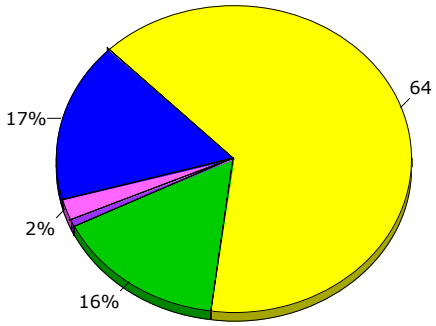
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.57	1.57	1.57	6.56	11.56	13.89	11.62	12.86	10.69	7.90	3.46	2.96	86.20
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.17	0.15	0.14	-	-	-	-	-	-	-	0.01	0.02	0.49
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	1.07	1.07	1.07	1.17	1.42	1.81	1.73	1.92	1.40	1.24	1.10	1.07	16.08
Pumps & Aux.	0.58	0.58	0.58	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	6.53
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	12.82	12.82	12.82	12.82	12.82	12.82	1.32	1.32	12.82	12.82	12.82	12.82	130.85
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	52.54	52.54	52.54	52.54	52.54	52.54	5.43	5.43	52.54	52.54	52.54	52.54	536.22
Total	68.75	68.74	68.72	73.62	78.87	81.58	20.63	22.06	77.98	75.03	70.47	69.94	776.38

Gas Demand (Btu/h x000)

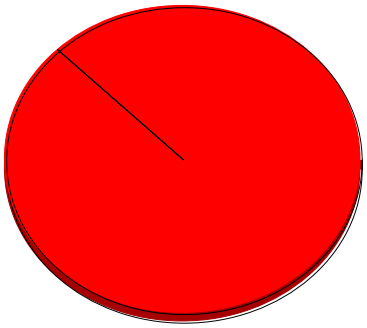
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	707.2	673.4	690.2	485.1	295.7	107.5	92.8	92.1	100.1	337.8	538.6	581.7	4,702.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	707.2	673.4	690.2	485.1	295.7	107.5	92.8	92.1	100.1	337.8	538.6	581.7	4,702.2

Annual Peak Demand by Enduse

	Electricity kW	Natural Gas Btu/h (x000)	Steam Btu/h	Chilled Water Btu/h
Space Cool	13.89	-	-	-
Heat Reject.	-	-	-	-
Refrigeration	-	-	-	-
Space Heat	-	707.23	-	-
HP Supp.	-	-	-	-
Hot Water	-	-	-	-
Vent. Fans	1.81	-	-	-
Pumps & Aux.	0.53	-	-	-
Ext. Usage	-	-	-	-
Misc. Equip.	12.82	-	-	-
Task Lights	-	-	-	-
Area Lights	52.54	-	-	-
Total	81.58	707.23	-	-



Electricity



Natural Gas