9/29/2023

Winter Park Wellness Place

ASHRAE Level II Energy Audit

15 lightyears

Energy Testing | Solar Power | Green Certification

TLC ENGINEERING SOLUTIONS

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Executive Summary

TLC Engineering Solutions (TLC) and 15 Lightyears performed an ASHRAE Level 2 facility energy audit of the Winter Park Wellness Place as a part of a contract with the City of Winter Park.

This report is related to the energy-consuming systems only and is intended to fulfill the requirements of an ASHRAE Level 2 Energy Audit, per the guidelines set forth by the ASHRAE document "Procedures for Commercial Building Energy Audits." The purpose was to observe existing conditions and gather information that would enable TLC to render an opinion concerning conditions or deficiencies that could affect efficient use of this facility, and to identify potential areas for improvement. Neither the field visits nor this report is intended to uncover hidden defects or the presence of hazardous materials.

TLC reviewed current utility bills from January 2021 through December 2022, subsequent project documentation, and visited the site in January 2023 to review the mechanical and electrical equipment, the HVAC and lighting controls systems, and observe each space type and its general energy use intensity. In the course of its work, TLC obtained extensive photo documentation of the conditions of the facility. Several of the photographs are included in Appendix C of this report, and the reader is encouraged to thoroughly review the photographs and descriptions, as they are intended to support and supplement the observations described herein.

After the time on site, TLC developed energy saving spreadsheets to assist with the analysis of recommended Energy Conservation Measures (ECMs) and Facility Improvement Measures (FIMs). The combination of all the walkthrough and post-walkthrough activities led to the development of the ECM and FIM list. A complete description and analysis of each ECM, as well as a table summarizing estimated cost and savings of each measure, can be found later in this report in the Energy Saving Opportunities section.

Project Information & Contacts

ASHRAE Level II Audit of the Winter Park Wellness Place.
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General Facility Description

The Winter Park Wellness Place is a one-story civic building of approximately 1,682 square feet. An aerial view of the Wellness Place is shown below.

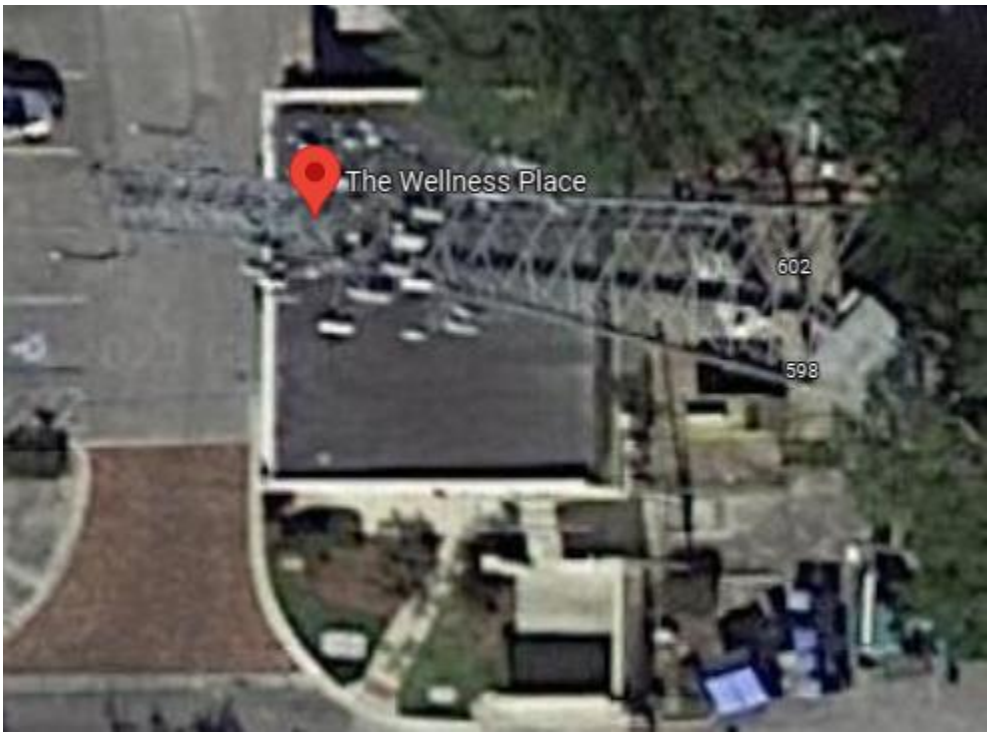


Figure 1: Aerial View of the Winter Park Wellness Place

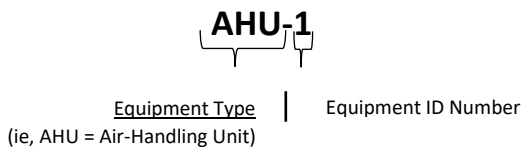
The building houses a primary care clinic, as well as support spaces dedicated to medical care. The spaces in the building include a patient waiting room, breakroom, medical supply room, restroom, patient-care room, restrooms, and a mechanical room.

Mechanical Systems

The Winter Park Wellness Place features relatively new mechanical systems, including a wall-mounted split-system air conditioning unit, vertical split systems, and exhaust fans. Mechanical system information came from a combination of resources, including information gathered during TLC's audit walk-through of the building and building automation system review. The below breakdown of the mechanical systems and areas they serve is TLC's best attempt to consolidate all avenues of information into one master list.

Equipment Naming Convention

The general naming convention used on the mechanical drawings is shown below. Please note, this convention applies to most of the equipment, but not all equipment.



Air Handling Units

Air conditioning for the majority of the building is provided by one (1) wall-mounted split-system and two (2) vertical split-system air handling units. The units operate at a single capacity, and are enabled via the wall-mounted thermostat to provide cooling and heating to their respective spaces.

Exhaust Fans

Exhaust for the restrooms located within Wellness Place are provided via ceiling-mounted exhaust fans. The fans are enabled via the wall switch that controls the restroom lights.

Building Controls

The site is not currently controlled by a centralized Building Automation System (BAS). Each system within the Wellness Place, including all lighting, water heating, and HVAC, is a standalone system. However, the HVAC equipment in the building has been outfitted with an Ecobee smart thermostat, which allows for remote adjustment of temperature setpoints and minimum operation periods, as well as limited operation trending. Additionally, through the Ecobee interface, the units are capable of 7-day setpoint scheduling.

Lighting Systems

Interior lighting throughout the facility is predominantly linear fluorescent fixtures utilizing T8 lamps. The lighting is controlled manually with no occupancy controls.

Domestic Water Fixture (Plumbing) Systems

The building is served by one (1) electric water heater. The water heater has a storage capacity of 50 gallons, and a heating capacity of up to 4500 watts.

Building Envelope

The building envelope consists of a stucco façade over CMU block walls. The roof is a flat, built-up construction with equipment located on the roof. There were no issues noted in relation to the audit scope from the observable elements of the building envelope. However, the audit team noted that there were some windows that showed signs of water intrusion.

Key Operating Parameters

The building is currently operated 7am-1pm on Monday, Tuesday, Thursday, and Friday, and operates 10am-6pm on Wednesday. The Wellness Place is closed on weekends.

Site Visit

The site was audited by TLC engineers and 15 Lightyears in January 2023. A full evaluation of existing energy consuming systems, compliant with ASHRAE Standard 211-2019 was performed. During the audit, TLC personnel were escorted by the City of Winter Park facilities manager, Leif Bouffard. He, as well as any facility staff that were available for comment, were questioned on system operation, condition, and maintenance of the building systems.

Utility Analysis

Historical Utility Data

The building is currently provided with electricity and water utilities. Electrical utility consumption and demand values were provided for the months of January 2021 through June 2023. The monthly baseline is mostly flat, with some usage increasing at the beginning and end of the warmer months due to cooling needs, and in January from increased electrical heating needs. No billing statements were provided, but a blended rate for kWh savings was determined based on published rates. Calculation of the blended utility rate takes into account the non-fixed costs associated with electrical utilities use by the facility, including fuel charges, per-kWh cost, demand charges, etc. Table 3 details the components of the blended rate calculation.

Table 1: Annual Baseline Energy Consumption

Utility	Total
Annual Electrical Consumption (kWh)	58,295
Annual Electrical Cost	-

The following graph and table show the total consumption and demand per monthly billing period for electricity.

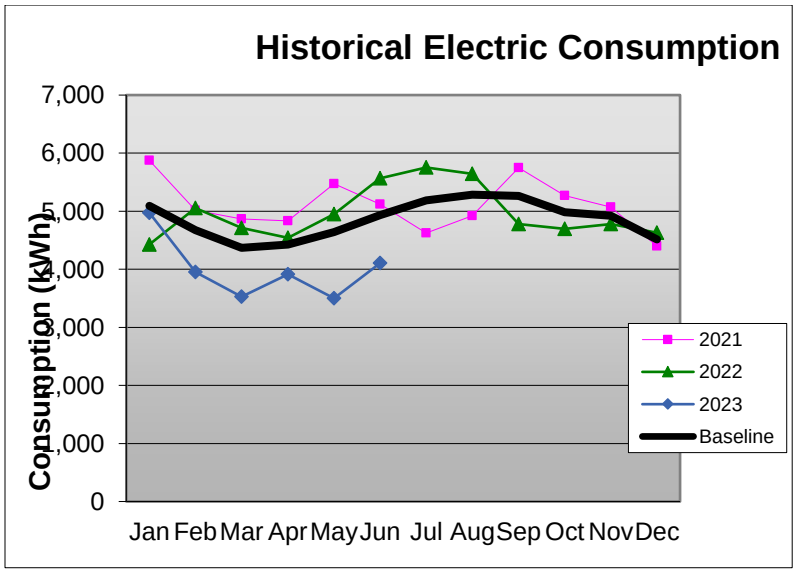


Figure 2: Wellness Place Electric Consumption

Table 2: Wellness Place Electricity Consumption Data

Date	Consumption (kWh)	Demand (kW)
Jan-21	5,528	30
Feb-21	4,666	33
Mar-21	4,553	32
Apr-21	4,436	29
May-21	5,078	29
Jun-21	4,740	28
Jul-21	4,176	29
Aug-21	4,591	9
Sep-21	5,346	10
Oct-21	4,689	10
Nov-21	4,598	12
Dec-21	4,023	14
Jan-22	4,085	14
Feb-22	4,571	18
Mar-22	4,227	18
Apr-22	4,112	18
May-22	4,488	18
Jun-22	5,145	18
Jul-22	5,313	18
Aug-22	5,171	-
Sep-22	4,302	37
Oct-22	4,239	18
Nov-22	4,296	18
Dec-22	4090	18
Jan-23	4,178	18
Feb-23	3,348	18
Mar-23	3,065	18
Apr-23	3,370	18
May-23	3,078	18
Jun-23	3,618	18

Benchmarking

TLC compared energy consumption for Wellness Place using common benchmarks to gauge how the site compares to similar ones both regionally and nationally, principally through the use of Energy Star Portfolio Manager. The building's Energy Use Intensity (EUI), which is used by energy engineers to determine overall energy consumption to a common unit of measure, was compared to other similar buildings throughout the United States. The Energy Use Intensity measures annual consumption of electricity per square foot, in kBTU/sf/year.

These benchmark tools were developed by the Department of Energy and are based on feedback from building operators all over the country. Using the utility billing information and observing the system operation allows the energy profiles to be broken down to greater detail. The facility was modeled in Portfolio Manager as an outpatient clinic.

The historical energy consumption was entered into Portfolio Manager. Based on most recent 24-months of utility data, the chart below compares Wellness Place to the average energy use intensity (EUI) of similar buildings in Energy Star's database.

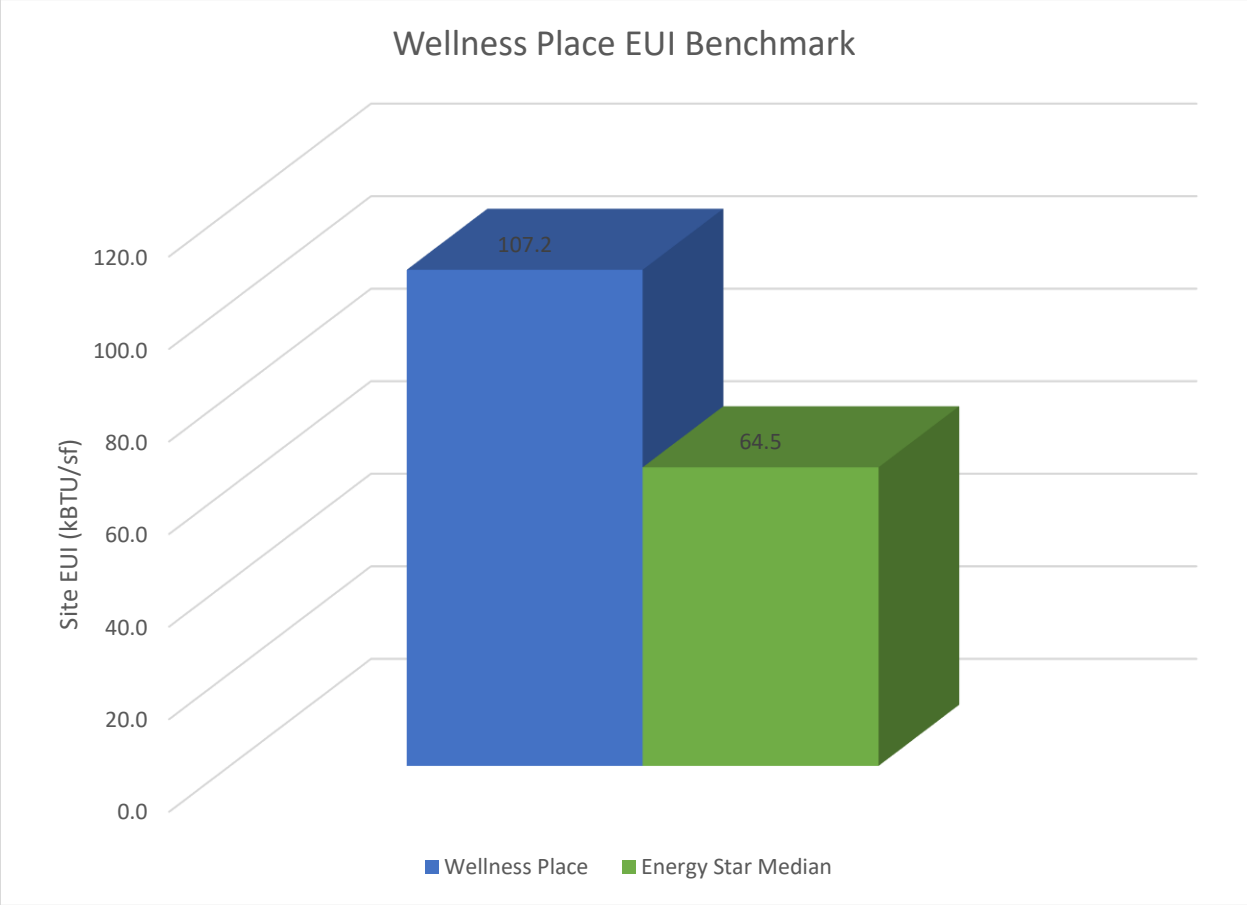


Figure 3: Wellness Place Energy Performance Comparison

Based on most recent 24 months of utility data, a comparison can be drawn between Wellness Place and the average energy use intensity (EUI) of similar buildings throughout the United States. The median EUI for an outpatient clinic building in the United States is 64.5 kBTU/sf, and the calculated EUI of Wellness Place is 107.2 kBTU/sf. It is worth noting that the median value reported by Energy Star is dependent on the annual responses from building surveys, and that the occupant load and climate conditions of buildings of the same type can vary significantly, as well as the equipment in use within similar clinics. The energy conservation measures detailed in this report will serve to decrease the EUI of the Wellness Place facility through efficiency increases.

Utility Rate Analysis

The building is provided with electricity by the City of Winter Park (CoWP), following their Rate Schedule GSD-1, General Service – Demand. The utility rate charges shown below were used to calculate the costs associated with the provided consumption and demand. Energy savings calculated for this building have been assigned a blended rate of $0.1091/kWh, which is the calculated blended rate not including fixed customer charges.

Table 3: Utility Rate Schedule

Description	Charge
Demand Charge	$5.05 per kW of billing demand
Energy Charge	$0.04216 per kWh
Fuel Cost Recovery Factor	$0.02281 per kWh
Gross Receipts Tax	2.5641%
Franchise Fee	6.00%
Electric Utility Tax	10.00%
EL State Sales Tax (Commercial Only)	7.45% (First $5,000)
EL State Sales Tax (Commercial Only)	6.95% (Over $5,000)

Average Rates

As noted above, a blended cost per kWh has been calculated from the rate schedule. Savings for this building have been calculated using the blended rate. The following table details the average rate over the period of analysis.

Table 4: Average Utility Rate

Utility	Average
Electricity	$0.1091/kWh

Energy Saving Opportunities

The operation and condition of equipment at the Wellness Place building was observed to offer a few different avenues for improvement. This is to be expected given the age of the equipment itself and how long it has been in service. Improvements can be made by replacing the aging equipment as well as optimizing the control sequences and settings. The following table summarizes the recommended ECMs for this facility that should be considered for future projects. In addition, the table distinguishes between measures specifically intended to save energy (ECMs) and facility improvement measures (FIM) that benefit the overall operation of the facility but may not provide significant energy savings.

Table 5: ECM/FIM Summary

Energy Savings Measure	FIM/ECM	ECM Category	Annual kWh Savings	Annual $ Savings	Cost $	Payback (years)

Interior Lighting Improvements	ECM	No Cost	751	$82	$383	4.7
Interior Lighting Controls	ECM	Moderate Cost	237	$26	$1,323	51.2
DHW Retrofit	FIM	Capital Improvement	--	--	$1,962	--
Totals			**988**	**$108**	**$1,706**	15.8

*ROI calculations exclude capital improvement items, as they are intended more for facility improvement than for energy savings.

The cost and paybacks shown in the table above are estimates based on the information gathered during the auditing process. TLC utilized RSMeans 2023, as well as engineering best practices, to estimate the cost of these suggested measures. Final pricing will vary based on contractors' estimation and final equipment selections. Final payback periods are also dependent on contractor pricing and the facility's negotiated utility price.

Interior Lighting Improvements

General Description

This measure involves converting older style lighting fixtures, such as fluorescent and incandescent, to modern LED lighting fixtures and lamps. Unless a building has been built or renovated in the past few years, it is common to find extensive use of fluorescent and incandescent fixtures throughout the building. Fluorescent and incandescent lighting technologies are a product of their time and often remain without intentional replacement. Older lighting technologies require more wattage to produce the same amount of light as LED fixtures. This also results in a higher heat output from the lamps which raises HVAC cooling costs.

Existing fluorescent and incandescent lighting fixtures will be replaced/retrofitted with new LED lighting fixtures. This will greatly reduce the energy required to illuminate the building. Additionally, cooling systems will have to run less often to offset the heat generated by the lighting. There are several additional benefits to LED lighting technology. LED lighting has longer burn hour life, faster on/off response time, and easier dimming capabilities compared to fluorescent and incandescent technologies. Because LED light fixtures have longer burn hour life, this will reduce the material and time cost of replacing burned out lamps.

Site Specifics

The facility was observed to have predominantly linear fluorescent fixtures with T8 lamps. Existing non-LED lighting will be replaced with new LED lighting on a one-for-one basis. Existing lighting material waste will be disposed of according to local regulations.

Interior Lighting Controls

General Description

This measure encompasses the installation of various lighting controls such as remote wireless controllers, dimming modules, and exterior photocells. Light fixtures within the existing system currently

lack such controls options and are controlled only by manual on-off switches or simple timers. These methods are less efficient and may regularly allow conditions for lighting energy to be wasted running at their full output levels or during daylight outdoors.

New lighting controls systems will be implemented in interior and exterior areas suited to the space and usage. These changes allow for occupants to have more efficient usage of light fixtures and more easily create modular groupings of fixtures. Remote controls applications also require less wiring and thus lowered costs for installation, maintenance, and future customization of lighting scenes and groupings. In school and office settings, dimming controls have become more commonplace and are reported to also result in an increase to productivity and comfort levels.

Site Specifics

Even though the building is not occupied on a 24/7 basis, the facility was observed to have predominantly manual on/off light switches as a means of lighting control. This building could benefit from the installation of occupancy sensors as a form of lighting control which will allow lighting to shut off in unused areas after a set period of time.

Facility Improvement Measures

TLC identified additional Facility Improvement Measures (FIM) that do not provide energy savings but should be addressed. By implementing the recommended FIM, the facility will experience improved equipment reliability, increased thermal comfort for occupants, and be able to operate as originally designed. While it is possible that these measures may decrease energy consumption, this has not been quantified as their purpose is focused on performance and reliability.

DHW Retrofit

Domestic hot water for the facility is provided by an electric water heater manufactured in 1997. This water heater is at the end of its useful life and a scheduled replacement is recommended to preemptively avoid any unplanned maintenance to the facility.

Calculation Methodology – Spreadsheet System Models

Savings for this report were evaluated using spreadsheet building models for the lighting and HVAC systems. The methodologies used for each measure are described separately in this section. Industry Standard methods of evaluation were used and are detailed in this section. Additionally, assumptions made to calculate the energy savings are detailed.

Interior Lighting Improvements and Controls

Savings for this measure have been based on a reduction in the lighting energy based on a reduction in lighting installed wattage. The following table shows the major inputs used in the calculation of savings for this measure.

Table 4: Lighting Improvements Major Inputs

Input Name	Bldg./Area Affected	Input Value	Basis of Input
Building Area	Entire building	1,682sf	Provided value
Existing Lighting Power Density	Entire building	0.89 W/sf	Typical value for T8 lamps throughout
Proposed Lighting Power Density	Entire building	0.6 W/sf	Typical value for LED lamps throughout
Existing Annual Burn Hours	Entire building	1,564	Building schedule
Proposed Annual Burn Hours	Entire building	1,095	Engineering Judgement

Calculations:

Savings for this measure were comprised of energy savings. The energy savings were the difference in the existing and proposed kWh for all the lighting fixtures in the building. The energy usage in kWh for the building was calculated using the following formula.

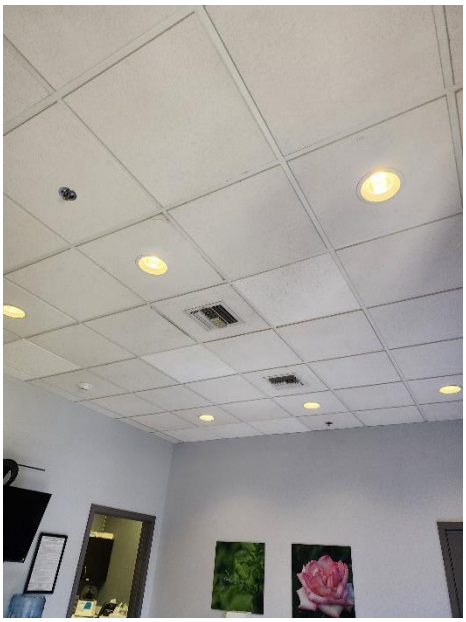
$$Energy\ Usage = \frac{Building\ Area \times LPD \times Hours}{1{,}000}$$

Appendix A – Mechanical Equipment

The following table shows a listing of all recorded major equipment in the building.

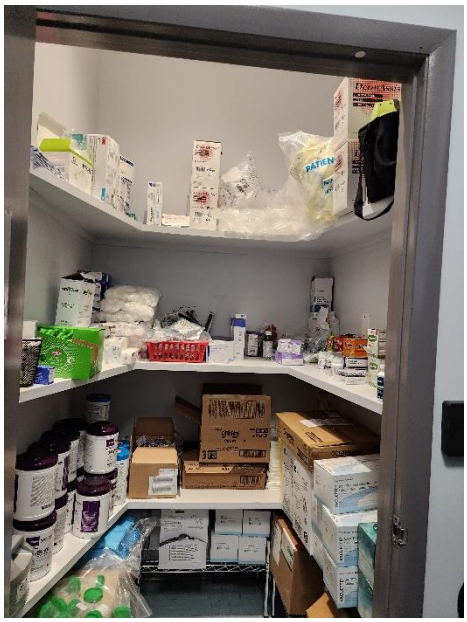
Building	Type	Equip	Location Served	Tag	Qty	Capacity	Units	Make	Model	Serial Number	Year
Wellness Place	FCU	Fan Coil Unit - Mini Split			1			Daikin	FTX18UVJU	E005068	2021
Wellness Place	AHU	Air Handler			1	3/4	HP	Goodman	ARUF61D14AC	1902290860	2019
Wellness Place	AHU	Air Handler			1	1/3	HP	Goodman	ARUF37C14AD	2007122439	2020
Wellness Place	CU	Condensing Unit			1	1.50	Tons	Daikin	RXL18UMVJUA	E002449	2021
Wellness Place	CU	Condensing Unit			1	4.00	Tons	Goodman	GSX140481KD	1901069969	2019
Wellness Place	CU	Condensing Unit			1	3.00	Tons	Goodman	GSX140361KF		2020
Wellness Place	Water Heater	Water Heater - 50 Gallons			1	4500	Watt	Rheem	82V52-2	RH 0904B35187	2004

Appendix B – Site Walkthrough Photos

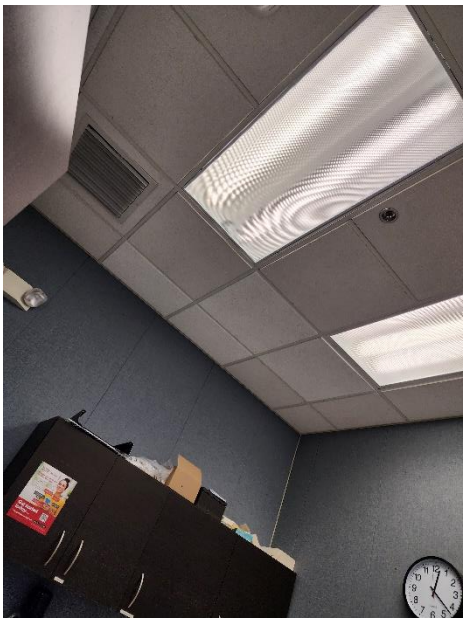


C-1: Entrance lighting

C-2: Thermostat



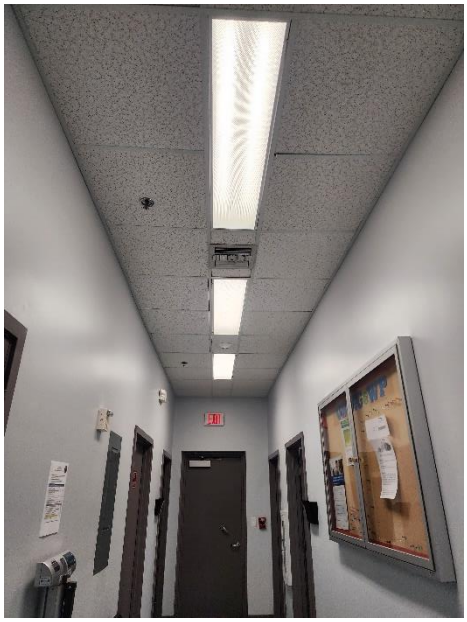
C-3: Medical supply closet



C-4: Fluorescent lighting

C-5: Restroom fixtures

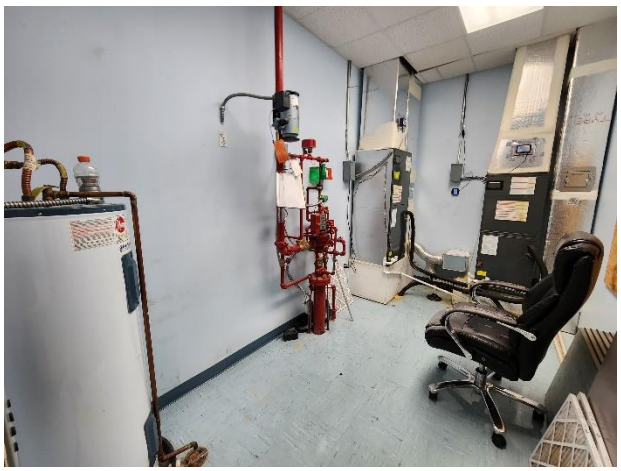
C-6: Shower



C-7: Hallway fluorescent lighting

C-8: Tech room

C-9: Fan Coil Unit



C-10: Electric Water Heater and Air Handling Units

C-11: Mini-split condensing unit

C-12: Condensing units

C-13: Window frame showing water intrusion