9/29/2023

Winter Park Golf Course Pro Shop & Country Club

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) performed an ASHRAE Level 2 facility energy audit of the Winter Park Golf Course Clubhouse and Pro Shop as a part of its 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 the 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. During this time, TLC was granted access to the building automation system to view the operation remotely. 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), Facility Improvement Measures (FIMs), and evaluated BAS trends. 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 Golf Course Clubhouse and Pro Shop
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General Facility Description

The Winter Park Golf Course Clubhouse and Pro Shop are two separate one-story buildings of approximately 3,737 square feet. The clubhouse acts as an events and gathering center, and the Pro Shop is a space dedicated to golf merchandise sales. An aerial view of the Winter Park Golf Course Clubhouse and Pro Shop is shown below.

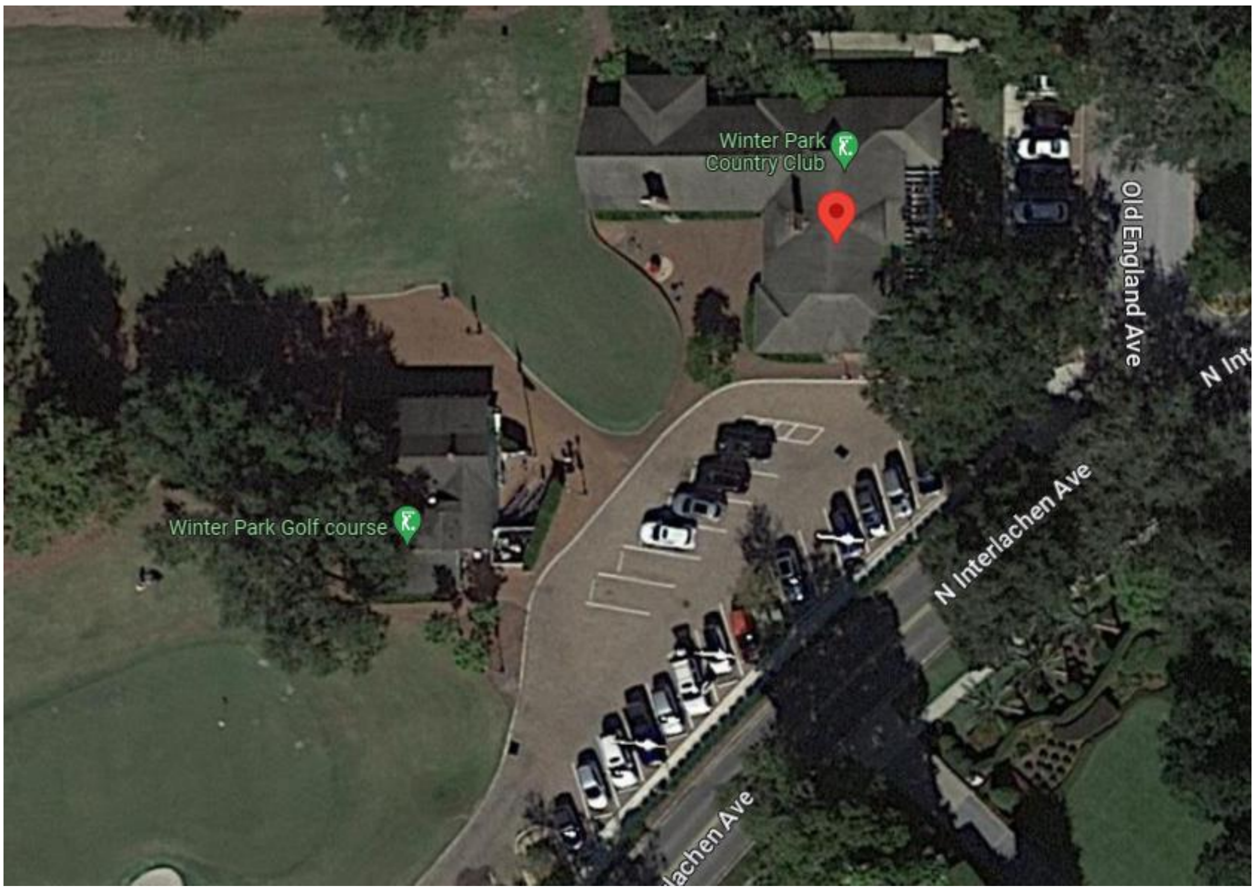


Figure 1: Aerial View of the Winter Park Golf Course Clubhouse and Pro Shop

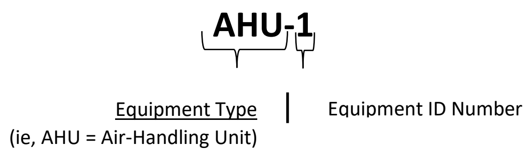
The clubhouse contains an events space and restrooms, as well as a small catering kitchen, and is open to the public. The pro shop has an open sales floor dedicated to showcasing merchandise. Within the pro shop, there is also an office area and storage area.

Mechanical Systems

The Winter Park Golf Course Clubhouse and Pro Shop features mechanical systems dating back to 2010. 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. It is important to note that there were no system drawings available for TLC's review.

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 site is provided by three (3) direct expansion (DX) split-system air handling units. The clubhouse has two split-systems. The indoor units are located in the attic, which was not accessible at the time of the audit walk, so information such as the fan horsepower of these two indoor units is unknown. The condensing units, located outside the building near the events space, are Trane models from 2010. The Pro Shop is conditioned by a single system. The air conditioning system for the Pro Shop was installed in 2021. Areas served by the AHUs include the clubhouse's event space and restrooms, and the pro shop's merchandise floor and office.

Exhaust Fans

Each restroom in the facility contains a ceiling-mounted exhaust fan, providing code-required ventilation for occupants. These exhaust fans are controlled in tandem with the restroom lights, and are energized and de-energized via the light switch on the wall.

Building Controls

The site is not currently controlled by a centralized Building Automation System (BAS). Each building system within the Pro Shop and Clubhouse, including all lighting, water heating, and HVAC, is a standalone system. However, the HVAC equipment in each 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 LEDs and incandescent bulbs. The lighting is controlled manually with no occupancy controls.

Domestic Water Fixture (Plumbing) Systems

The clubhouse is served by one (1) tankless electric water heater, located near the ice maker in the events support space. The water heater has a 4.5 kW capacity, providing hot water for the whole building. The pro shop is served by one (1) 4-gallon electric mini tank water heater. The water heater has a 1.4 kW capacity.

Building Envelope

Built in 1914, the Clubhouse building is included in the registry of historic places and is a sought-after venue for weddings, parties, and other celebrations. While the building has been renovated throughout the decades, it has maintained its historic façade and interior charm. The Pro Shop is a newer building and is constructed of modern materials. TLC was unable to obtain construction documents for each building. However, review of the accessible building envelope systems onsite did not indicate any significant insulation or construction issues.

Key Operating Parameters

The Pro Shop building is currently operated from 6:30am to 6:30pm from March to November, and 6:30am to 5pm November to March. The Clubhouse, due to its operation as an events space, is available for rental and occupied hours are subject to change.

Site Visit

The site was audited by TLC engineers 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 served by electricity and water utilities. Electrical utility consumption values were provided for the months of January 2021 through June 2023. The monthly consumption profile is as expected, where values increase in the warmer months due to cooling 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)	87,842
Annual Electrical Cost	-

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

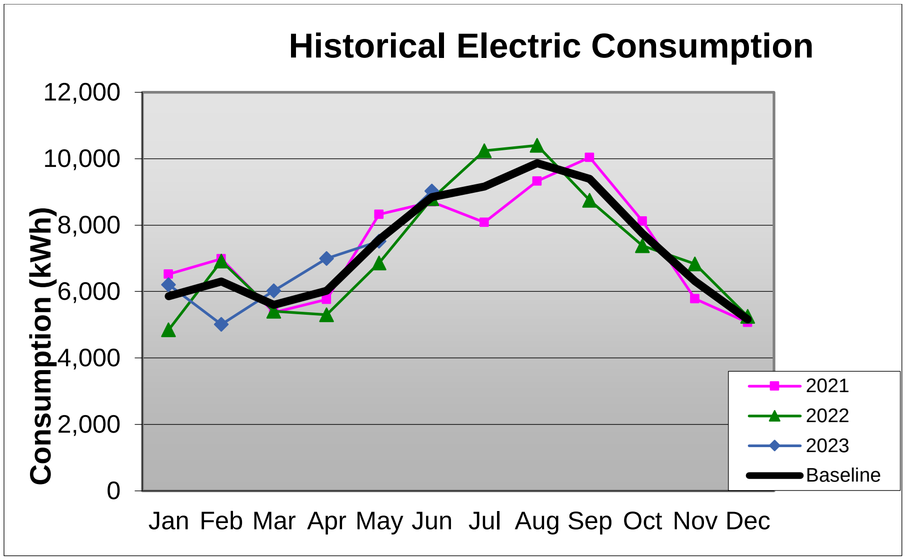


Figure 2: Golf Course Clubhouse/Pro Shop Electric Consumption

Table 2: Golf Course Clubhouse/Pro Shop Electricity Consumption Data

Date	Consumption (kWh)	Demand (kW)
Jan-21	6,525	41.91
Feb-21	6,985	62.21
Mar-21	5,370	62.21
Apr-21	5,766	62.21
May-21	8,326	53.29
Jun-21	8,698	53.29
Jul-21	8,088	53.29
Aug-21	9,330	18.04
Sep-21	10,039	15.31
Oct-21	8,119	18.56
Nov-21	5,787	14.18
Dec-21	5,071	15.78
Jan-22	4,849	13.64
Feb-22	6,916	34.54
Mar-22	5,411	34.54
Apr-22	5,298	34.54
May-22	6,859	34.54
Jun-22	8,796	34.54
Jul-22	10,244	34.54
Aug-22	10,401	-
Sep-22	8,751	69.084
Oct-22	7,382	34.542
Nov-22	6,831	34.542
Dec-22	5,255	34.542
Jan-23	6,208	34.542
Feb-23	5,010	34.542
Mar-23	6,024	34.542
Apr-23	6,996	34.542

Date	Consumption (kWh)	Demand (kW)
May-2	7,517	34.542
Jun-23	9,025	34.542

Benchmarking

TLC compared energy consumption for the site 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 benchmarks 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 a Recreational building.

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

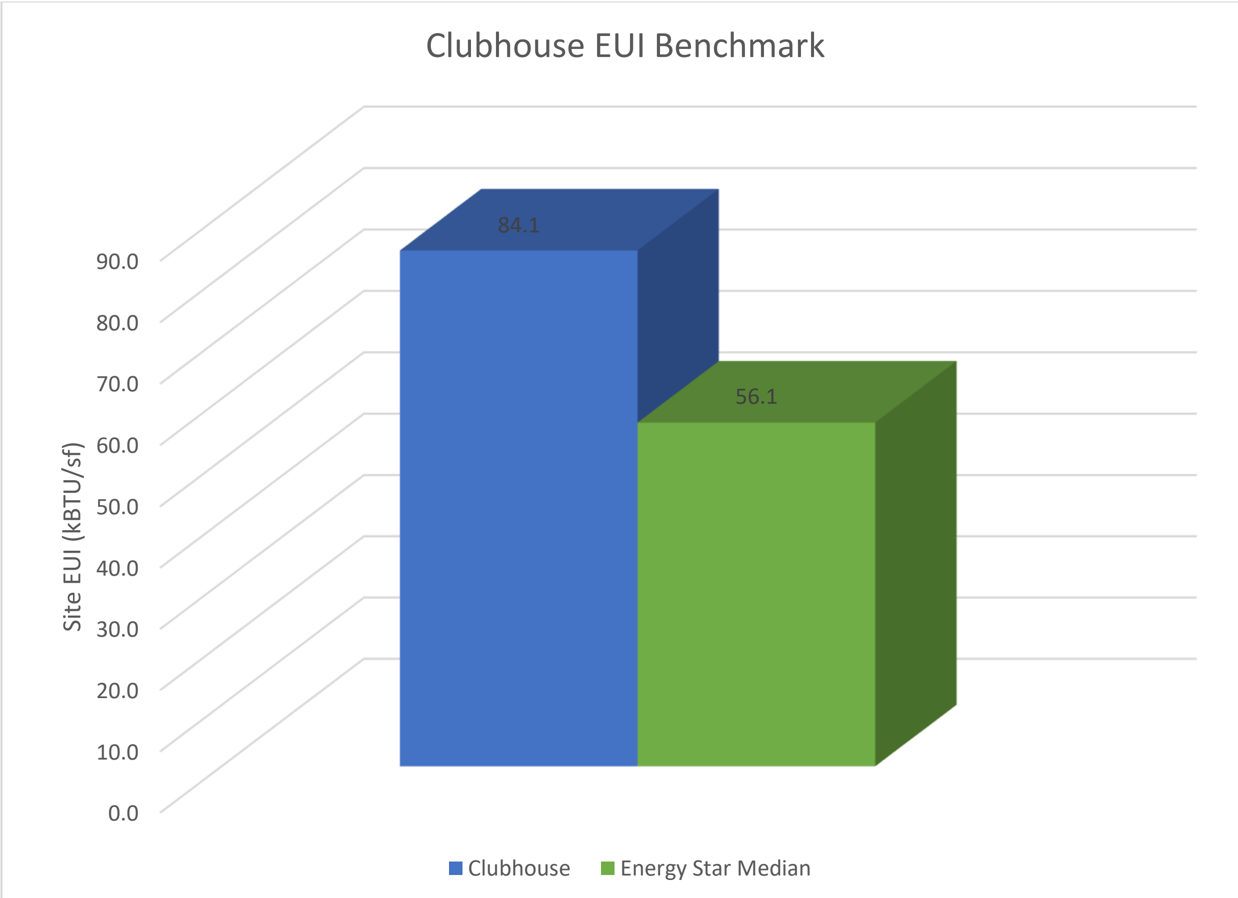


Figure 3: Clubhouse Energy Performance Comparison

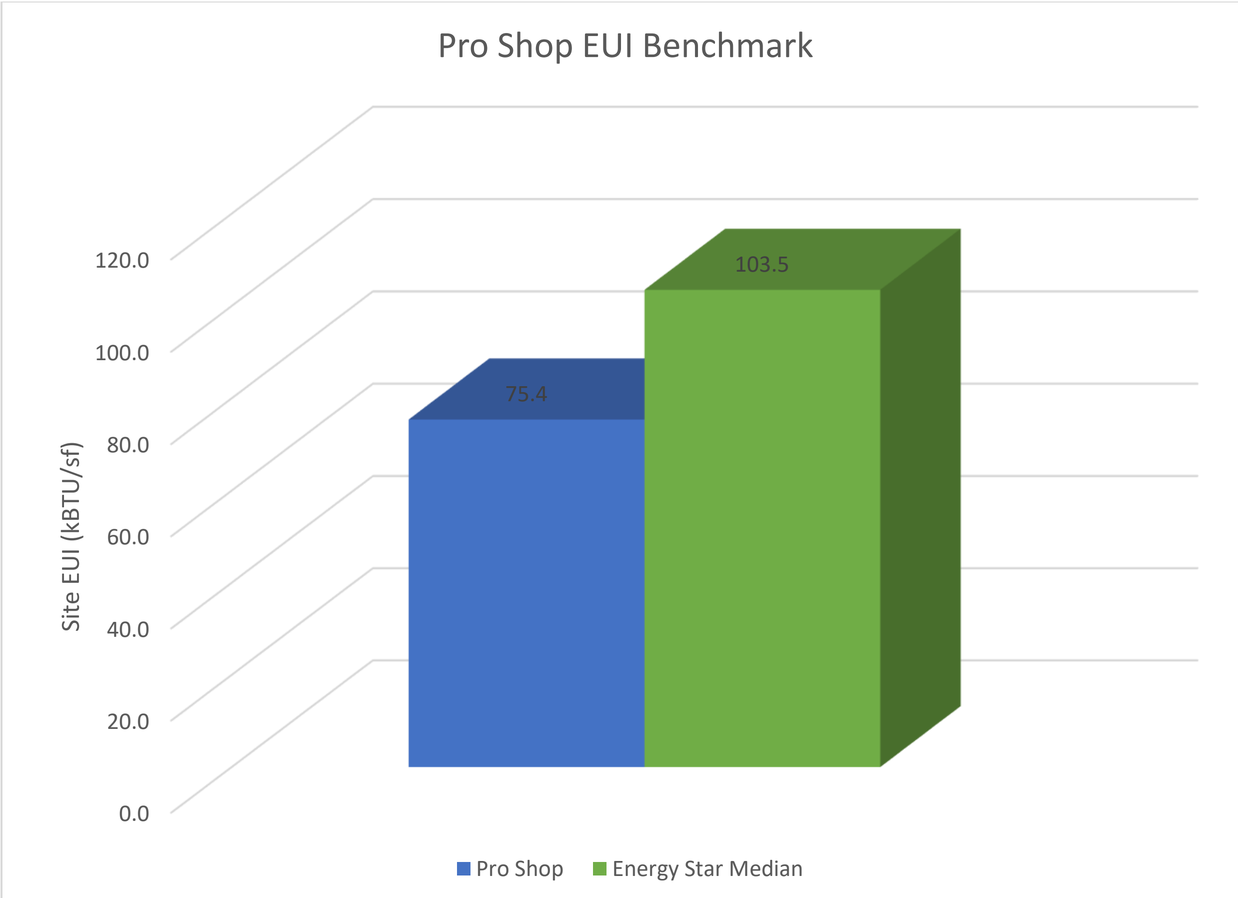


Figure 4: Pro Shop Energy Performance Comparison

The Clubhouse was modeled as an events venue in Portfolio Manager. The calculated site energy use intensity – the amount of electricity consumed onsite per square foot of building area – of the Clubhouse of 84.1 kBTU per square foot is approximately 49.9 percent higher than the baseline comparison value of 56.1 kBTU per square foot. Additionally, the Pro Shop was modeled as a retail store, and its calculated EUI of 72.8 kBTU per square foot is approximately 27.2% below the median reported by Energy Star.

This measure is based upon the feedback of building owners and operators for the previous year, and does not account for every variable in the operation and construction of the building. For example, the historic nature of the Clubhouse may be a contributing factor to its higher energy use, as construction standards for energy efficiency have become more strict in the subsequent decades. The energy conservation measures detailed later in this report are intended to improve the EUI of the buildings and reduce their overall energy consumption.

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 $0.1141/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. Water rates are based off the utility rate tables from the City of Winter Park under the assumption of a 2" water meter for combined water and sewer under Block 3 pricing. This table outlining these water rates is attached as Appendix D. The following table details the average rate over the period of analysis.

Table 4: Average Utility Rate

Utility	Average
Electricity	$0.1141/kWh
Water	$10.08/kgal

Energy Saving Opportunities

The operation and condition of equipment at the Golf Clubhouse and Pro Shop was observed to offer a few different avenues for improvement. 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 kgal Savings	Annual $ Savings	Cost $	Payback (years)
HVAC Controls Optimization	ECM	Low Cost	768	--	$88	$1,200	13.7
Plumbing Retrofits	ECM	Low Cost	--	3.285	$33	$2,124	64.4
Lighting Improvements	ECM	Low Cost	8,277	--	$944	$1,080	1.1
Exterior Lighting	ECM	Low Cost	273	--	$31	$745	23.9
Fireplace Damper	FIM	Low Cost	--	--	--	$280	
Total			**9,318**	**3.285**	**$1,096**	**$5,149**	**4.7**

*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.

HVAC Controls Optimization

General Description

The scope for this ECM involves optimizing the building HVAC controls through one or multiple controls strategies. For this project, the controls strategy recommended would be occupancy scheduling with setback temperatures.

Consistent occupied and unoccupied temperature settings will be implemented based on the building type and their needs. Occupied schedules for the HVAC controls will be set up to dictate the hours when the building is considered occupied versus unoccupied. Whenever a building enters unoccupied mode, the building HVAC controls will utilize the unoccupied settings in lieu of the occupied settings.

Site Specifics

It was observed by the auditors that the Clubhouse only sets back to 72 for cooling during its unoccupied hours. This current setpoint will have minimal energy savings during the unoccupied setback period. A more sizeable setback temperature like 77 should show greater energy savings.

Plumbing Fixture Retrofit

General Description

This measure proposes to replace existing plumbing fixtures, such as toilets, urinals, sinks, and showers, with low-flow fixtures. Toilets and urinals are rated based on the amount of water per flush, while showers and sinks are rated on their flow rate during use. Over time, building codes have changed to mandate lower flow fixtures than were previously allowed. Advances in technology allow for new low-flow fixtures to provide similar performance while using a fraction of the water.

The existing fixtures will be replaced, including all wear parts, with new low-flow equivalents. Replacing wear components puts the entire assembly back to its original condition and eliminates any potential for existing degradation to affect the new fixtures. While existing low flow fixtures may be excluded from this measure, including the replacement of their wear components will lead to standardized parts as well as resetting the expected lifespan of the fixtures, both of which reduce maintenance costs.

Site Specifics

The sinks and toilets observed in the Clubhouse are standard flow rated fixtures. Adding low flow aerators and sensors on sinks will reduce the gallons per minute flow rate and potentially the number of minutes used per day in order to save water. New lower flow toilet will produce water savings by using less water per flush. Additionally, energy savings should also be produced in addition to these savings by using less hot water for the sinks.

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 Clubhouse was observed to have predominantly CFL fixtures as well as some linear fluorescent fixtures utilizing 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.

Exterior 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 for exterior areas. These changes allow for more efficient usage of light fixtures.

Site Specifics

For the Clubhouse, there is an opportunity for lighting controls optimization as the existing exterior lighting fixtures have been observed to be operating even during daylight hours. Lighting controls will be provided for the exterior lighting so that they only operate during the night. Note that lighting controls may come with some annual maintenance savings. Because the burn hours will be reduced, the fixtures will not burn out as quickly and will not be replaced as often. No maintenance savings are included in the calculations at this time but may be calculated in a future phase of the project.

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.

Fireplace Damper

The damper for the fireplace in the Clubhouse is rusted through and allowing infiltration of outside air into the conditioned space. Replacement of the damper will improve occupant comfort in this area of 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.

HVAC Controls Optimization

Savings for this measure have been based on a reduction in cooling energy due to setting back non-critical portions of the building that are not always occupied. The following table shows the major inputs used in the calculation of savings for this measure.

Table 6: Controls Optimization Major Inputs

Input Name	Bldg./Area Affected	Input Value	Basis of Input
% Cooling Energy Reduction	Entire building	3%	Engineering judgment

Calculations:

Savings for this measure were based on calculating the annual cooling energy and saving a percentage of it. The existing annual cooling energy was calculated from the electric utility baseline as the sum of all the electrical consumption for each month exceeding the lowest month's consumption. The following formula was used to calculate existing annual cooling energy.

$$Existing\ Cooling\ kWh = Annual\ Total\ kWh - (12 \times Baseload\ Month\ kWh)$$

Plumbing Retrofits

Savings for this measure are based on a reduction in the water consumption by the replacement of sinks and toilets with more efficient fixtures with lower gallons per minute flow rate and gallons per flush ratings respectively. The following table shows the major inputs used in the calculation of savings for this measure.

Table 7: Plumbing Retrofits Major Inputs

Input Name	Bldg./Area Affected	Input Value	Basis of Input
Number of people	Entire building	4	Engineering judgement
Quantity of Sinks	Entire building	3	Provided value
Minutes of sink use/person/day	Entire building	1.5	Engineering judgement
Existing Sink Flow Rate	Entire building	1.20 GPM	Engineering judgement
Proposed Sink Flow Rate	Entire building	0.5 GPM	Engineering judgement
Quantity of Toilets	Entire building	3	Provided value
Flushes/person/day	Entire building	2	Engineering judgement
Existing Gallons Per Flush	Entire building	1.6	Engineering judgement
Proposed Gallons Per Flush	Entire building	1	Engineering judgement

Calculations:

Savings for this measure were comprised of water savings. The water savings were the difference in the existing and proposed annual water consumption based on assumed annual usage and flow rate of the fixture in GPM (gallons per minute) or GPF (gallons per flush). The water usage for existing and proposed fixtures were calculated using the following formulas for sinks and toilets respectively.

$$Water\ Usage = Number\ of\ people \times GPM \times Minutes\ of\ use\ per\ day \times 365\ days/year$$

$$Water\ Usage = Number\ of\ people \times GPF \times Flushes\ per\ day \times 365\ days/year$$

Lighting Improvements

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 8: Lighting Improvements Major Inputs

Input Name	Bldg./Area Affected	Input Value	Basis of Input
Building Area	Entire building	3,736sf	Provided value
Existing Lighting Power Density	Entire building	1.21 W/sf	Average values for 10% T8 and 90% CFL lamps throughout
Proposed Lighting Power Density	Entire building	0.6 W/sf	Typical value for LED lamps throughout
Annual Burn Hours	Entire building	3,650	Building schedule

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.

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

Exterior Lighting Controls

Savings for this measure have been based on a reduction in the burn hours of exterior lighting fixtures. The following table shows the major inputs used in the calculation of savings for this measure.

Table 9: Exterior Lighting Controls Major Inputs

Input Name	Bldg./Area Affected	Input Value	Basis of Input
Number of Fixtures	Fixture Type "WPL"	8	As-built drawings
Fixture Wattage	Fixture Type "WPL"	13 W	As-built drawings
Existing Burn Hours	Fixture Type "WPL"	7,008 Hrs	Lights mostly on
Proposed Burn Hours	Fixture Type "WPL"	4,380 Hrs	Lights on at night only

Calculations:

Savings for this measure were comprised of energy savings. The energy savings were the difference in the existing and proposed kWh for the exterior lighting fixtures at the building. The energy usage in kWh for a particular light fixture was calculated using the following formula:

$$Energy\ Usage = \frac{Burn\ Hours \times Fixture\ Wattage}{1{,}000}$$

In the formula above, burn hours represents the annual hours that the light fixture was estimated to be energized.

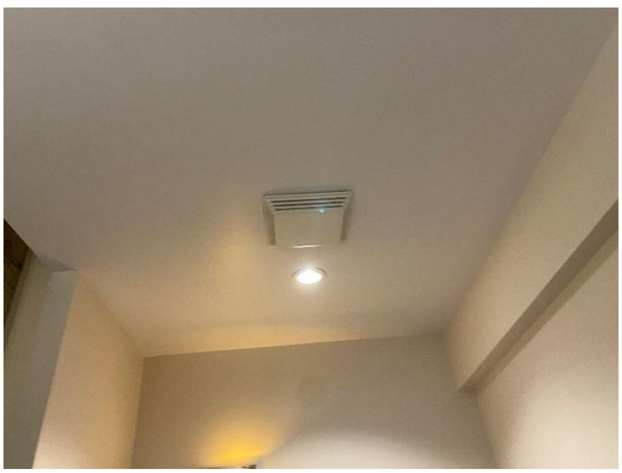
Appendix A – Mechanical Equipment

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

Building	Type	Equip	Location Served	Tag	Qty	Capacity	Units	Make	
f Course and Pro S	Fan Coil Unit	Split System Fan Coil Unit			1	1/2	HP	Carrier	
f Course and Pro S	Water Heater	4 Gallon Electric Mini Tank Water Heater			1	1.4	kW	Eemax	
f Course and Pro S	Condensing Unit	Split System Condensing Unit			1		Tons	Carrier	
f Course and Pro S	Condensing Unit	Condensing Unit			1	7.5	Tons	Trane	T
f Course and Pro S	Condensing Unit	Condensing Unit			1	5.0	Tons	Trane	4T
f Course and Pro S	Water Heater	Electric Water Heater			1	4.5	kW	Rheem	P
f Course and Pro S	AHU	Indoor Air Conditioning Unit							
f Course and Pro S	AHU	Indoor Air Conditioning Unit							

*Note: No equipment tags were found

Appendix B – Site Walkthrough Photos

 C-1: Pro Shop Lighting	 C-2: Pro Shop Thermostat
 C-3: Pro Shop Bathroom Light and Exhaust Fan	 C-4: Pro Shop Bathroom Sink Fixture

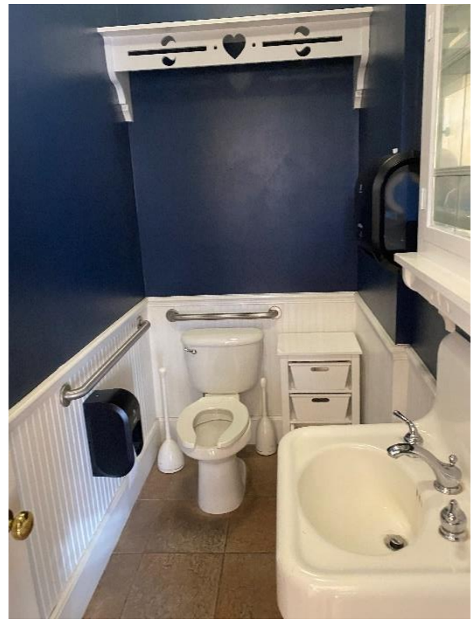
C-5: Pro Shop Air Handling Unit

C-6: Pro Shop Condensing Unit

C-7: Clubhouse Condensing Unit (1)

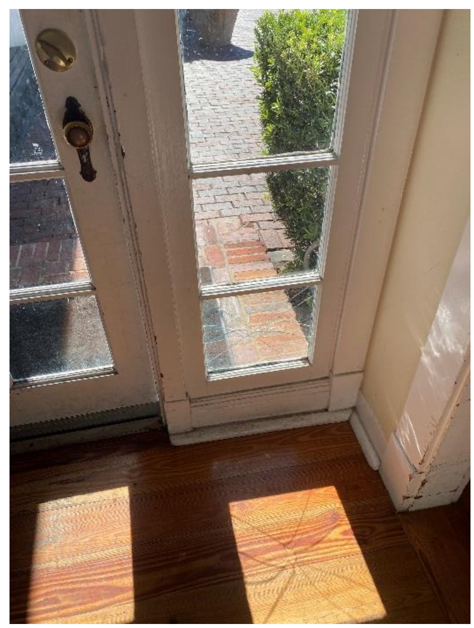
C-8: Clubhouse Condensingt Unit (2)

C-9: Clubhouse Event Space



C-10: Clubhouse Restroom

C-11: Cluhouse Electric Water Heater



C-12: Clubhouse Broken Window

 C-13: Clubhouse Lighting Fixture	 C-14: Clubhouse Thermostat

Appendix D – Water Rates for City of Winter Park

COUNTY
WATER & SEWER (COMMERCIAL & PUBLIC AUTHORITY)

Effective 10/01/2022

DEPOSIT REQUIREMENTS

	3/4" Mtr	1" Mtr	1 1/2" Mtr	2" Mtr	3" Mtr	4" Mtr	6" Mtr	8" Mtr	10" Mtr
Water Service	75.00	100.00	130.00	165.00	270.00	375.00	690.00	Avg x 3	Avg x 3
Water & Sewer Service	145.00	165.00	195.00	570.00	675.00	780.00	1,140.00	Avg x 3	Avg x 3

WATER RATES

Meter Size	Availability (Base)	Block 1 (1,000 gallons)	Block 1 ($$ per 1,000)	Block 2 (1,000 gallons)	Block 2 ($$ per 1,000)	Block 3 (1,000 gallons)	Block 3 ($$ per 1,000)	Block 4 (1,000 gallons)	Block 4 ($$ per 1,000)	Block 5 (1,000 gallons)	Block 5 ($$ per 1,000)
3/4"	11.87	(4) 1 to 4	1.68	(4) 5 to 8	2.48	(4) 9 to 12	3.55	(8) 13 to 20	4.72	21 & Greater	6.07
1"	29.70	(10) 1 to 10	1.68	(10) 11 to 20	2.48	(10) 21 o 30	3.55	(20) 31 to 50	4.72	51 & Greater	6.07
1 1/2"	59.39	(20) 1 to 20	1.68	(20) 21 to 40	2.48	(20) 41 to 60	3.55	(40) 61 to 100	4.72	101 & Greater	6.07
2"	95.03	(32) 1 to 32	1.68	(32) 33 to 64	2.48	(32) 65 to 96	3.55	(64) 97 to 160	4.72	161 & Greater	6.07
3"	190.05	(64) 1 to 64	1.68	(64) 65 to 128	2.48	(64) 129 to 192	3.55	(128) 193 to 320	4.72	321 & Greater	6.07
4"	296.96	(100) 1 to 100	1.68	(100) 101 to 200	2.48	(100) 201 to 300	3.55	(200) 301 to 500	4.72	501 & Greater	6.07
6"	593.91	(200) 1 to 200	1.68	(200) 201 to 400	2.48	(200) 401 to 600	3.55	(400) 601 to 1,000	4.72	1,001 & Greater	6.07
8"	950.24	(320) 1 to 320	1.68	(320) 321 to 640	2.48	(320) 641 to 960	3.55	(640) 961 to 1,600	4.72	1,601 & Greater	6.07
10"	1,365.98	(460) 1 to 460	1.68	(460) 461 to 920	2.48	(460) 921 to 1,380	3.55	(920) 1,381 to 2,300	4.72	2,301 & Greater	6.07

SEWER RATES

	Availability Charge (Base)		3/4" Mtr	1" Mtr	1 1/2" Mtr	2" Mtr	3" Mtr	4" Mtr	6" Mtr	8" Mtr	10" Mtr
			14.03	35.07	70.14	112.21	224.43	350.67	701.33	1,122.13	1,613.08
	(1,000 gallons)	($$ per 1,000)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)
	1	6.53	20.56	41.60	76.67	118.74	230.96	357.20	707.86	1,128.66	1,619.61
	2	13.06	27.09	48.13	83.20	125.27	237.49	363.73	714.39	1,135.19	1,626.14
	3	19.59	33.62	54.66	89.73	131.80	244.02	370.26	720.92	1,141.72	1,632.67
	4	26.12	40.15	61.19	96.26	138.33	250.55	376.79	727.45	1,148.25	1,639.20
	5	32.65	46.68	67.72	102.79	144.86	257.08	383.32	733.98	1,154.78	1,645.73
	6	39.18	53.21	74.25	109.32	151.39	263.61	389.85	740.51	1,161.31	1,652.26
6.53	7	45.71	59.74	80.78	115.85	157.92	270.14	396.38	747.04	1,167.84	1,658.79
	8	52.24	66.27	87.31	122.38	164.45	276.67	402.91	753.57	1,174.37	1,665.32
	9	58.77	72.80	93.84	128.91	170.98	283.20	409.44	760.10	1,180.90	1,671.85
	10	65.30	79.33	100.37	135.44	177.51	289.73	415.97	766.63	1,187.43	1,678.38
	11	71.83	85.86	106.90	141.97	184.04	296.26	422.50	773.16	1,193.96	1,684.91
	12	78.36	92.39	113.43	148.50	190.57	302.79	429.03	779.69	1,200.49	1,691.44