COVER PAGE

Recipient Organization:	Forest County Potawatomi Community
Project Title:	Developing Residential Energy Usage Baselines and Energy Efficiency Options
Covering Period:	August 1, 2017 to April 13, 2022
Date of Report:	April 13, 2022
Award Number:	Award No. DE-IE0000065
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EXECUTIVE SUMMARY

The Forest County Potawatomi Community (FCPC) energy project was conducted on the Tribe's Forest County reservation land, which includes more than 250 homes that, to-date, have not been assessed for baseline energy usage or efficiency options.

This project attempted to gather energy usage data for ~250 homes on the FCPC Reservation and conduct energy audits for ~115-130 of those homes. Energy audits were also conducted at four additional facilities, including the Caring Place (an assisted living facility for Tribal members), the elder apartment building, and two transitional living facilities. The Tribe anticipates the identification of significant energy efficiency options at all homes and facilities. Once implemented, FCPC expects an overall energy consumption reduction of at least 15% in each of the audited homes and buildings. This outcome would greatly support the Tribe's overall energy mission of achieving 100% carbon-neutrality.

Figure 1

FCPC has been a leader in energy conservation not only in the State of Wisconsin, but nationally, as well. In 2016, the Environmental Protection Agency (EPA) ranked FCPC 11th in its Top 30 Local Government List1 because of the extensive measures the Tribe has taken toward its goal of achieving 100% carbon-neutral energy independence. Some of these efforts include the reduction of the Tribal government workweek to four days instead of five, the purchase of renewable energy certificates to more than offset the Tribe's annual energy consumption, the installation of solar photovoltaic systems, and the completion of energy audits of Tribal government facilities.

Until now, FCPC has focused on energy efficiency options for government and enterprise buildings, but it is now time to broaden the scope of energy efficiency to include the Tribe's residential community. The Tribe's Energy Working Group has identified the completion of home energy audits as one of its more imminent goals, as formal energy evaluations have yet to be completed on residential dwellings on the FCPC reservation. Tribal

leadership is already looking ahead to the anticipated outcome of these energy audits and has taken steps to develop a cost sharing program that will assist Tribal homeowners to implement identified efficiency options because of this project.

DESCRIPTION OF ACTIVITIES

Task #1.0 Establish Tribal homes to be Included in Project

a. **Plan and Hold Informational Community Presentations**
Successfully completed and reported in the project's earlier quarterly reports.

b. **Additional Community Outreach Efforts**
Successfully completed and reported in the project's earlier quarterly reports.

c. Participant Homes Identified
The master list of participating homes was continually updated as new members sign-up for the free home energy audits. The project originally planned on gathering baseline energy usage of ~250 homes, and then performing audits on ~115-130. While the effort to gather baseline energy usage was much more manual and time-intensive than hoped, the Tribe attempted a pivot by sending more staff to receive BPI certification training, which would then allow for more door-to-door home energy audits; however, due to COVID, this plan was nixed. Ultimately, data was collected only on the 117 buildings that would also be audited.

Task #2.0 Determine Baseline Year/s to Establish Energy Usage

Selected January 2015 to December 2017 as the baseline period for establishing baseline energy usage profiles.

Task #3.0 Gather Home Energy Data from Baseline Years

a. Energy Service Providers Listed and Contacted
Compiled a list and contacted energy service providers utilized by homeowners for electric, natural gas, and propane.

b. Release of Utility Information
Utility usage information for 117 Tribal homes participating in the project was received from the utility company and the data for 117 of these homes have been uploaded on FCPC's EnergyCAP platform and will being stored longer term within Excel going forward.

Task #4.0 Conduct Energy Audits to Identify Significant Energy Users/Efficiency Options

a. Home Energy Audits
During the second quarter of 2021 and with the release of COVID restrictions, FCPC was able to contract with a qualified vendor and was able to schedule and conduct the remaining home energy audits. To date, 117 home energy audits have been completed.

For all completed audits, Focus on Energy's SnuggPro software-based Whole Home Energy Assessment protocol, which covers DOE's Home Energy Score number, was adopted for entering energy audit assessments. These investigations covered the blower door and other diagnostic

testing procedures. Major findings from the completed audits are as follows:

- Inadequate ceiling/attic insulation.
- Inadequate building tightness.
- Window/Door weather sealing is often damaged or missing.
- Heating systems are fairly new (direct vent, sealed combustion).
- Ducts in intentionally conditioned space.
- Most window systems are vinyl framed, double glazed.
- Most door systems are steel-framed, insulated, no or ½ lite double glazed, with storm doors.
- Most homes are on full, 8" poured concrete basement walls with finished (4" poured cement) basement floor and 2"(R-10), rigid exterior, subgrade insulation(exterior) on the wall.
- Most above-grade wall systems are, 2x6 frame, 16" on center, many with 1"(R-5) rigid foam on the exterior.
- Typical roof is 4/12 pitch with fiberglass shingles and soffit/ridge passive (no mechanical venting).
- Almost ½ of the thermostats on heating/cooling systems are programmable, although almost none of them take advantage of setbacks (are not programmed).
- Most homes utilize about 50% energy efficient light bulbs (LED or CFL's).
- Summer cooling is a mix of window venting, window a/c units, and split system.
- Box sill insulation is typically less than wall insulation (less than R-19) and not air sealed.
- Mechanical ventilation is typically less than recommended, creating moisture related issues.
- Exhaust flow of less than100 cfm in bathrooms is resulting in moisture related problems.

Energy Conservation opportunities identified with the assessed homes included efficient bathroom exhaust fan/lights with low restriction ducting and humidity-controlled motors (100cfm, dc motor, 6" exhaust, LED light), door and window weather stripping, and insulation, weather-stripping, and latch-secured attic/crawl space access panels.

b. Previously, H&H Energy Services, Inc. completed commercial-grade energy audits on the four residential living facilities, the results of which are provided in Appendix A

Task #5.0 Develop Action Plans

a. Findings of the four residential living facility audits were analyzed and documented in Appendix A.
b. Staff created and delivered 117 action plans to tribal participants.

Task #6.0 Progress Presentation

a. FCPC presented the project's updates at the 2018, 2019, 2020, and 2021 Annual Indian Energy Program Review meetings in Denver.

CHANGES/PROBLEMS

a. The bid for the energy audit of the 4 residential living facilities was higher than anticipated so FCPC submitted a Budget Modification in August, however we missed the deadline for processing award modifications in FY19. Even though we missed the deadline, the DOE Contracting Officer gave us approval to move forward with the audits, however we cannot request the associate

reimbursement until the modification is approved. The budget modification #4 was approved and acknowledged by both the Tribe and DOE.

b. DOE approved FCPC's request to improve our efficiencies and workforce for conducting home energy audits to achieve our project goals and use a portion of grant funds to cover travel expenses for two staff to attend an energy audit certification class. Adding these certifications would double our labor force which would drastically speed up the current first steps project and all future energy audit projects. In response to COVID-19 and travel restrictions, FCPC staff are unable to attend the scheduled training as this time. As soon as the travel restrictions are lifted, we will actively pursue the next available certification classes for our labor force to continue performing certified home energy audits and meet project goals. Currently, multiple training dates are available throughout the summer months.

c. In response to the pandemic, Tribal leadership has had to make some difficult decisions and is operating with limited staff who continue to work remotely. To keep everyone safe and because of these challenges and necessary travel restrictions, FCPC has been unable to attend and obtain the BPI certification training class and conduct the door-to-door home energy audits within the remaining project period. Due to the extenuating circumstances, we requested a 1- year no-cost time extension to complete the project deliverables associated with this award. DOE approved this request and processed a one-year extension to extend the project end date to 10/30/2021. As soon as the current situation resolves and travel restrictions are lifted, FCPC is prepared to expedite the remaining activities associated with the scope of work

CONCLUSIONS AND LESSONS LEARNED

The project is considered successful within the Forest County Potawatomi Community because it not only alerted tribal members to issues and concerns within their homes, but it has also provided baseline of data that will be used in the future to reduce the amount of energy that is used on the reservation to improve the tribal members' quality of life. During the project there were some interesting findings that were seen in almost every home, which was that most of the homes were in desperate need of insulation, air sealing, mold prevention, and system upgrades. It is estimated that changing these elements in the homes could save some tribal members 20%-30% on their energy bills while others could see even greater savings because they had greater opportunities.

Even though the project is considered successful by all accounts, that does not mean it was without challenges along the way. Those challenges are listed in the bullets below.

- Pandemic (caused the project to stop and forced the project to file for extensions due to the closer of the reservation); and
- The pandemic forced the tribe to take a different direction with the loss of staff to hire an outside licensed auditor to evaluate the homes.

The data that was generated in this project is already being used to look for funding to improve the building envelope and the mechanical systems of the tribal members homes. Once funding can be acquired then FCPC will look to implement all the finds for each specific home energy audit on a case-by-case basis.

Task Schedule

Task #	Title or Brief Task Description	Task Completion Date				Progress Notes
		Original Planned	Revised Planned	Actual	Percent Complete	
1	Establish Tribal homes to be Included in Project	Oct. 2017		Oct. 2017	100%	Although the subtasks have been completed, community outreach will resume and continue when it is safe to do so to increase community participation.
2	Determine Baseline Year/s to Establish Energy Usage	Oct-Nov. 2017		Oct.-Nov. 2017	100%	01/2015 to 12/2017 has been identified as the period to establish baseline energy uses
3	Gather Home Energy Data from Baseline Years	Nov.2017-Jan. 2018	Nov. 2017-Oct. 2021		100% (117/117)	FCPC's EnergyCAP, a utility and energy management platform, is planned for the management of tribal home energy use information. Additional EnergyCAP meters have been procured. Year 2015 to 2017 energy use data received so far for the participating FCPC Tribal homes located on the reservation has been uploaded on the EnergyCAP platform. FCPC Energy Specialist will continue uploading the additional utility usage data as it becomes available for the homes that are participating in energy audits. This quarter, we were able to collect 8 new release forms and were able to collect corresponding propane billing data.
4	Conduct Energy Audits to Identify Significant Energy Users/Efficiency Options	Jan.2018-July 2019	Jan.2018-Oct. 2021		100% (117/117)	To expedite the remaining audits and meet grant deadlines, FCPC contracted with an independent outside BPI certified contractor to conduct the 43 remaining home energy audits. This quarter 17 of these audits were conducted. This quarter, five of the homeowners asked to be removed from the list and are no longer interested in participating; however, thirteen new homeowners enlisted, resulting in a total of 125 homes participating in the home energy audit opportunity. At this time, we only have funding available to conduct 117 homes, so we are working to identify additional funding in order to conduct the additional 8 audits that were requested.
5	Develop Action Plans	Aug. to Oct. 2019	Aug. 2019 to Oct. 2021		100% (117/117)	This quarter, staff created 17 Home Energy Action Plan presentations. 17 of them were either presented to residents virtually via

						WebEx and Zoom or held in person. Staff have completed 117 Home Energy Action plans.
6	Progress Presentation	2017, 2018, 2019,	2017, 2018, 2019, 2020		100%	FCPC attended the 2018 and 2019 annual energy conference in Denver to present project progress updates. FCPC presented updates at the Virtual Annual Indian Energy Program Review meeting in December 2020.

Appendix A


Return On
Investment
Measure
ROI
Business
Performance
Efficiency
Risk
Decision

The Facility and Energy Experts

Energy and Capital Improvement Report for:

Forest County Potawatomi

November 15, 2019

FOREST COUNTY POTAWATOMI
Keeper of the Fire

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Forest County Potawatomi Audit

Forest County Potawatomi currently manages 47 buildings in Forest County, WI that houses a multitude of different tribal enterprises that work to support and improve the health, wellness, education, and future of its people.

It was determined that Potawatomi was highly interested in auditing four healthcare-oriented buildings due to existing grant money available. With H&H's ability to identify energy savings measures and Tweet Garot's expertise in completing mechanical installations, repairs, retrofits, etc., the H&H and Tweet Garot partnership was built upon complimenting the others' skillsets.

Figure 1: Executive and Administrative Building (left) and Forest County

H&H performed an American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) level 2 audit for the four buildings listed below. ASHRAE Level 2 audit is intended to be a detailed assessment any potential energy and cost savings opportunities identified during the walkthrough. Budgetary estimates on costs and energy savings were provided to assist Potawatomi County in making decisions of which measures to further explore.

Table 1: Audited Buildings

Facility	Address	Square Footage	General Description of Building & Use
Caring & Elderly Bldg.	5456 Kak Yot Lane Crandon, WI 54520	15,714	Wood Frame, wood siding, shingle roof. Patient rooms, commercial kitchen.
Assisted Living building (8 Units)	5450 Kak Yot Lane Crandon, WI. 54520	12,646	Wood Frame, Wood siding, Shingle roof. & elderly apartments.
Men's Transitional Living Bldg.	7870 Love Knot Lane Crandon, WI 54520	1,200	Wood Frame, residential construction. Living quarters for people in Rehab.
Women's Transitional Living Bldg.	5519 Wej Mogek Court Crandon, WI 54520	2,304	Wood Frame residential construction. Living quarters for people in Rehab.

The audit included the following steps:

- **Gather and review 24 months of utility billing** information and establish existing energy performance compared to other similar buildings. Provide a summary of energy usage by building and denote conclusions from any abnormal usage increases (if any) across the different seasons.
- **Interviews of site operating personnel** to discuss lighting, HVAC, building envelope systems, and modes of operations at each site.
- **Walk through during the daytime and night-time operations** of each building to survey the lighting, HVAC, building envelope systems, and the modes of operation.
- **Metering of key equipment** lighting and HVAC equipment to quantify energy usage.
- Identify and provide a **savings and cost analysis for every energy conservation measure identified** including payback period, internal rate of return, and net present value of potential projects. Priority will be placed upon energy conservation measures with less than five year payback.
- **Identify an implementation plan** for highest priority energy measures for each building.
- **Provide a final report** summarizing the findings that include:
    - Clear descriptions of the suggested energy conservation measures including pictures
    - Energy Usage and Cost analysis specific to each building
    - Energy saving calculations
    - Estimated installation costs for each energy conservation measure provided

Assisted Living Facility and Utility Information

Table 2: Assisted Living Facility Description

Building Name:	Assisted Living
Address:	5450 Kak Yot Lane Crandon, WI 54520
Facility Size (sq-ft):	12,646
Electric Utility / Rate:	WPS / Elec Sm Coml & Ind 1Ph Cg-1

Figure 2: Assisted Living Facility (left) and Satellite View

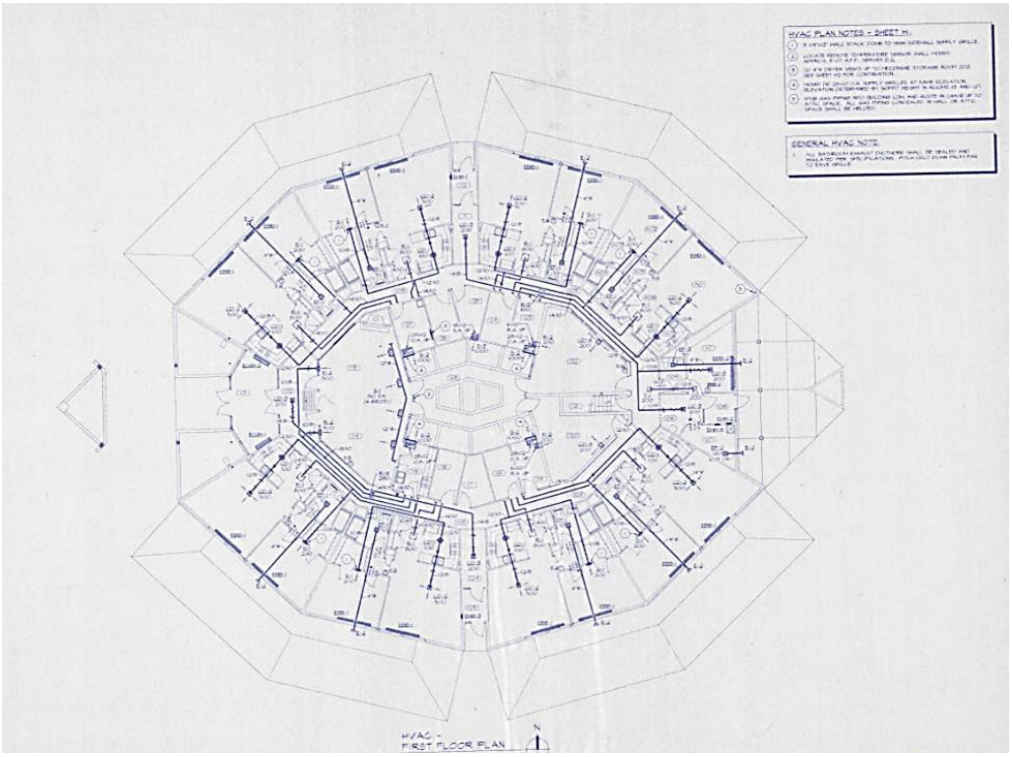


Figure 3: Assisted Living Floor

Table 3: Assisted Living Summary of Utility Rate Analysis

Year	Annual Cost ($) Metrics				Annual Use Metrics			
	Electric ($)	Propane ($)	Total Cost ($)	Total Cost ($/sq-ft)	Electric Use (kWh)	Propane Use (gal)	Total Energy Use (kBtu)	Total EUI kBtu/sq-ft
2017-18	$12,779	$4,720	$17,499	$1.38	118,285	4,725	835,945	66.1
2018-19	$12,226	$6,125	$18,351	$1.45	114,585	5,171	864,157	68.3
Average	**$12,502**	**$5,423**	**$17,925**	**$1.42**	**116,435**	**4,948**	**850,051**	**67.2**

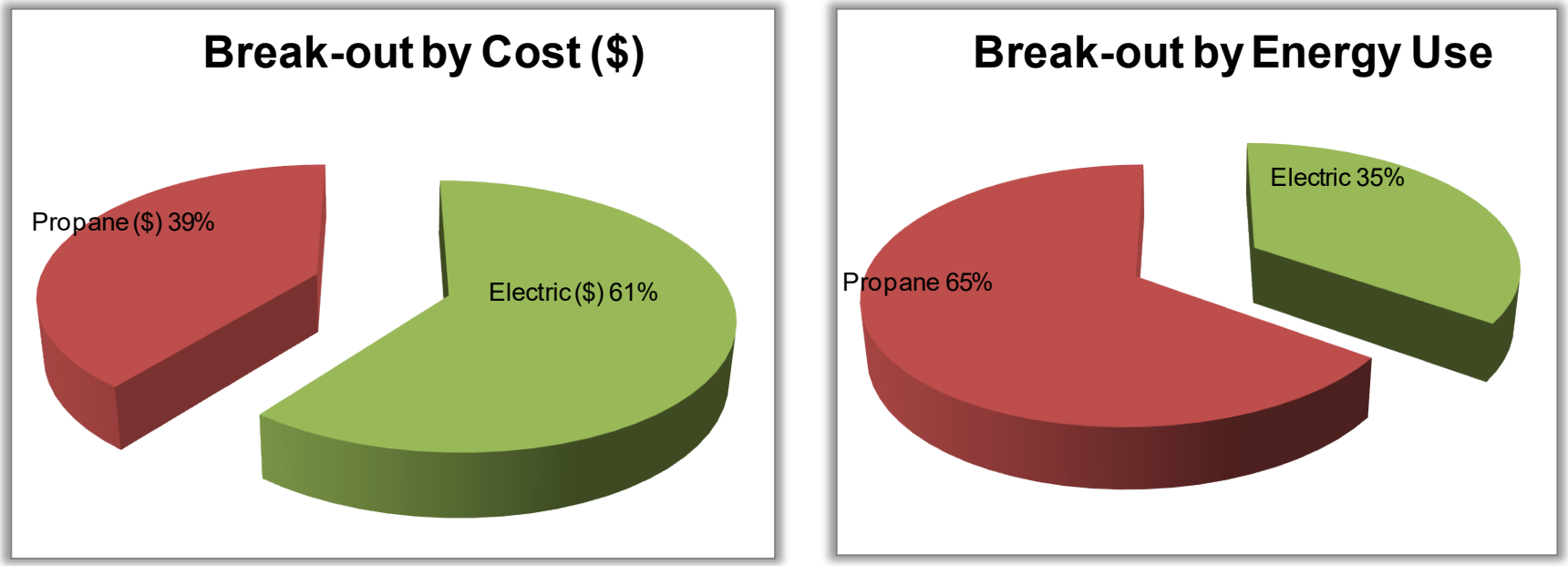


Figure 4: Assisted Living Break-out By Cost (left) and Break-out by Energy

Caring Place Facility and Utility Information

Table 4: Caring Place Facility Description

Building Name:	Caring Place
Address:	5456 Kak Yot Lane Crandon, WI 54520
Facility Size (sq-ft):	15,714
Electric Utility / Rate:	WPS Elec. Parallel Generation 1Ph-2A

Figure 5: Caring Place Facility (left) and Satellite View

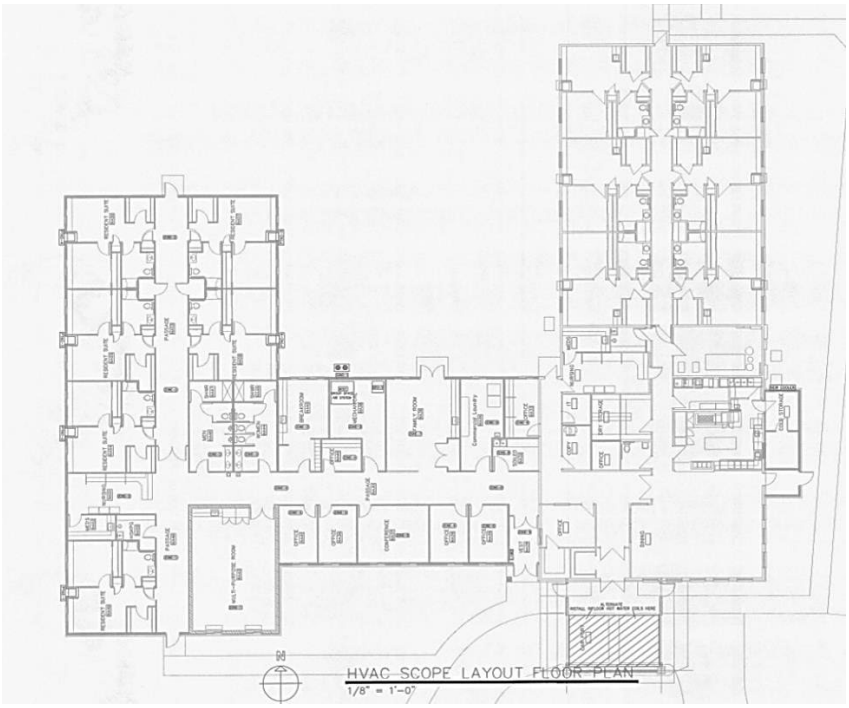


Figure 6: Caring Place Floor Plan

Table 5: Caring Place Summary of Utility Rate Analysis

Year	Annual Cost ($) Metrics				Annual Use Metrics			
	Electric ($)	Propane ($)	Total Cost ($)	Total Cost ($/sq-ft)	Electric Use (kWh)	Propane Use (gal)	Total Energy Use (kBtu)	Total EUI kBtu/sq-ft
2017-18	$15,077	$12,862	$27,939	$1.78	184,828	12,875	1,808,731	115.1
2018-19	$14,571	$14,121	$28,692	$1.83	170,050	11,834	1,663,082	105.8
Average	**$14,824**	**$13,491**	**$28,315**	**$1.80**	**177,439**	**12,355**	**1,735,906**	**110.5**

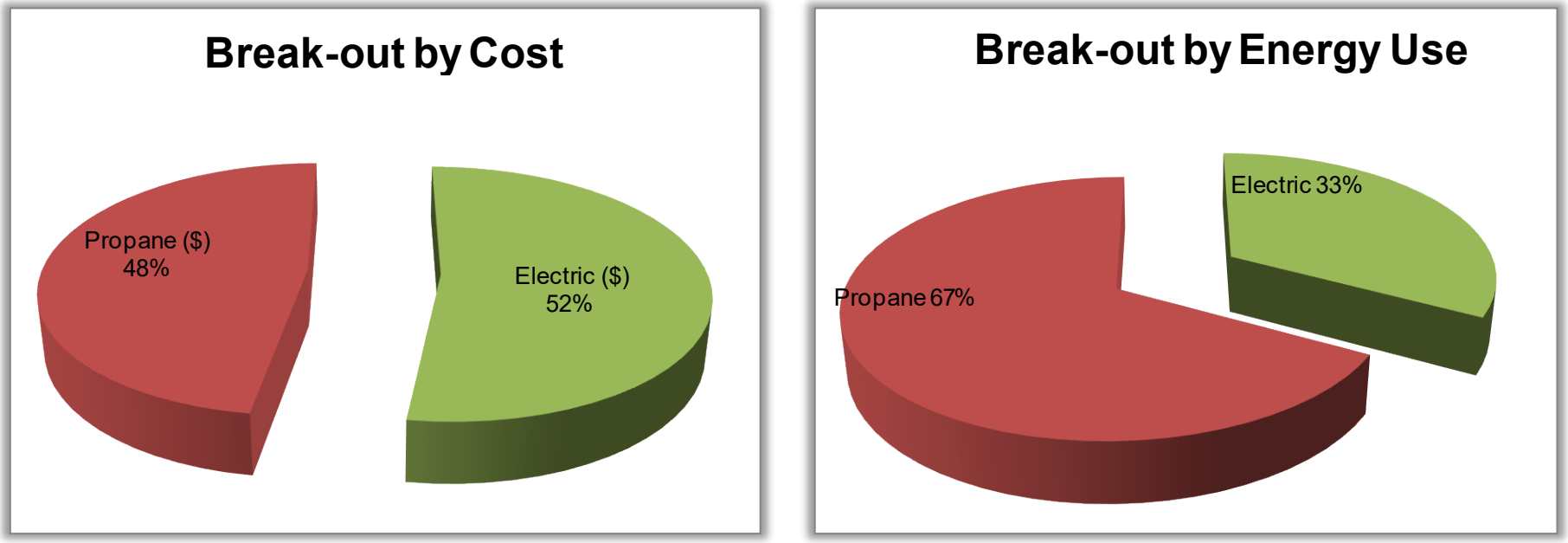


Figure 7: Caring Place Break-out By Cost (left) and Break-out by Energy

Women's Transitional Living Facility and Utility Information

Table 6: Women's Transitional Living Facility Description

Building Name:	Women's Transitional Living
Address:	5519 Wej Mo Gek Court Crandon, WI 54520
Facility Size (sq-ft):	2,304
Electric Utility / Rate:	WPS / Elec Sm Coml & Ind 1Ph Cg-1

Figure 9: Women's Transitional Living Facility (left) and Satellite View

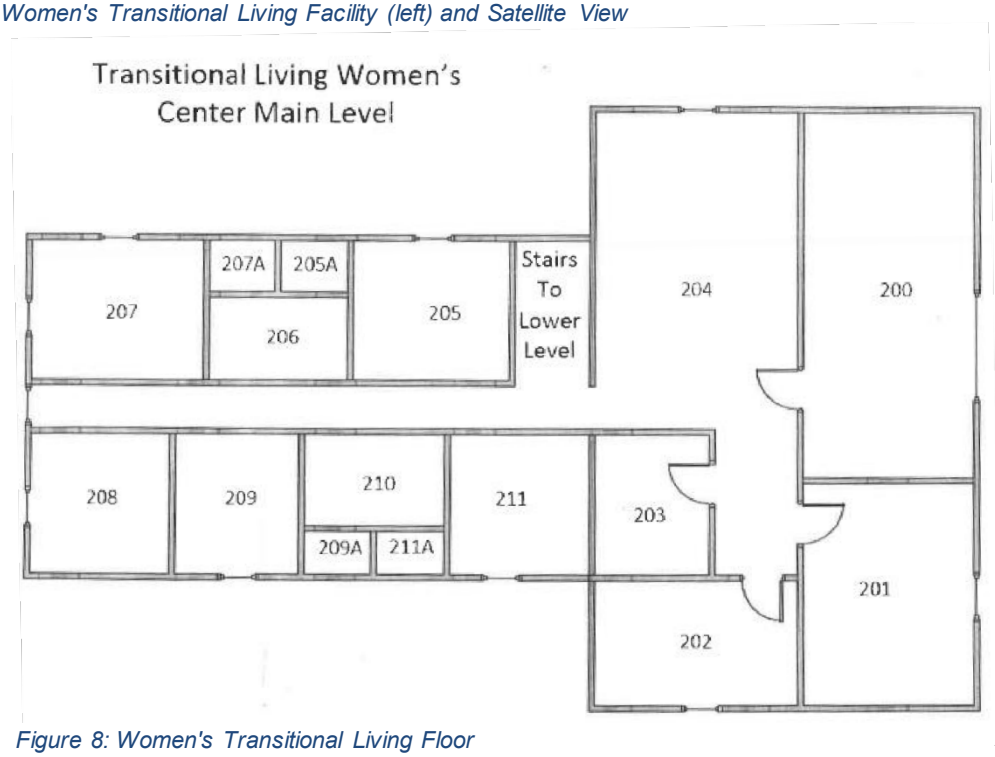


Figure 8: Women's Transitional Living Floor

Table 7: Women's Transitional Living Summary of Utility Rate Analysis

Year	Annual Cost ($) Metrics				Annual Use Metrics			
	Electric ($)	Propane ($)	Total Cost ($)	Total Cost ($/sq-ft)	Electric Use (kWh)	Propane Use (gal)	Total Energy Use (kBtu)	Total EUI kBtu/sq-ft
1	$225	$1,222	$1,447	$0.63	-4,156	1,223	111,907	48.6
2	$1,444	$1,821	$3,265	$1.42	10,733	1,538	177,360	77.0
Average	**$835**	**$1,521**	**$2,356**	**$1.02**	**3,289**	**1,381**	**144,634**	**62.8**

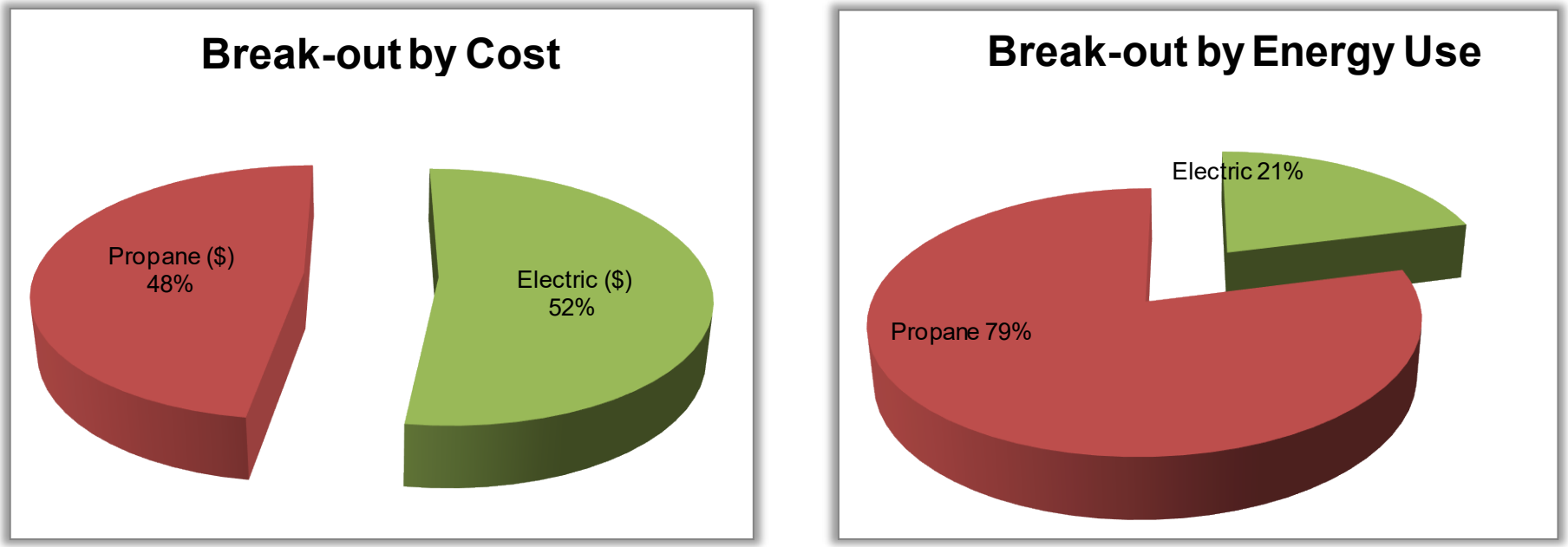


Figure 10: Women's Transitional Living Break-out By Cost (left) and Break-out by Energy

Men's Transitional Living Facility and Utility Information

Table 8: Men's Transitional Living Facility Description

Building Name:	Men's Transitional Living
Address:	7870 Love Knot Lane Crandon, WI 54520
Facility Size (sq-ft):	1,200
Electric Utility / Rate:	WPS / Elec Sm. Coml & Ind 1Ph Cg-1

Figure 11: Men's Transitional Living Facility (left) and Satellite View (right)

Men's Transitional Living Floor Plan of Facility not provided.

Table 9: Men's Transitional Living Summary of Utility Rate Analysis

Year	Annual Cost ($) Metrics				Annual Use Metrics			
	Electric ($)	Propane ($)	Total Cost ($)	Total Cost ($/sq-ft)	Electric Use (kWh)	Propane Use (gal)	Total Energy Use (kBtu)	Total EUI kBtu/sq-ft
1*	$82	$818	$899	$0.75	-6,941	818	74,885	62.4
2	$611	$2,496	$3,107	$2.59	1,852	2,106	199,059	165.9
Average	**$346**	**$1,657**	**$2,003**	**$1.67**	**-2,545**	**1,462**	**136,972**	**114.1**

*It was brought H&H's attention that the Men's Transitional Living was not utilized during the first year analyzed (August 2017 – July 2018).

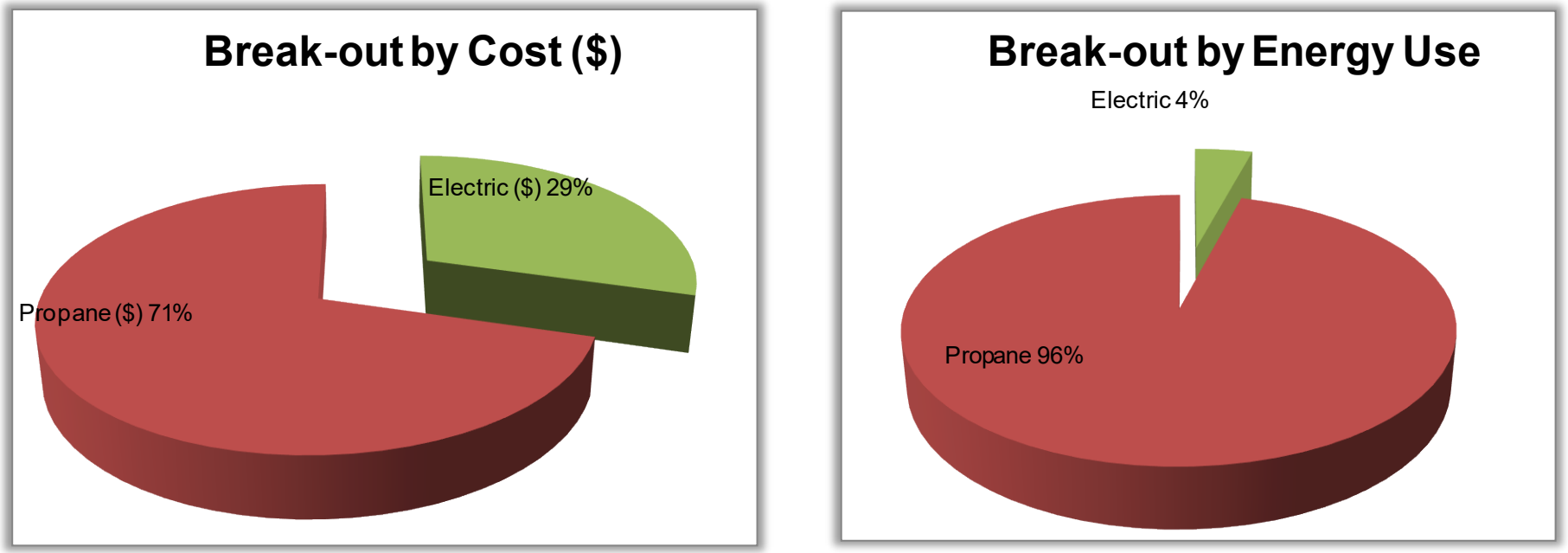
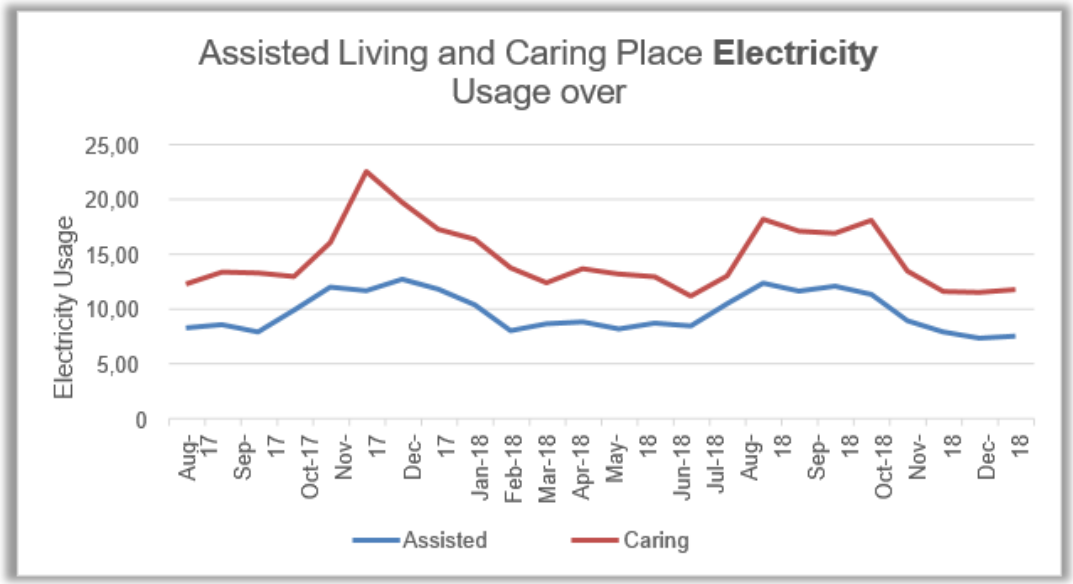
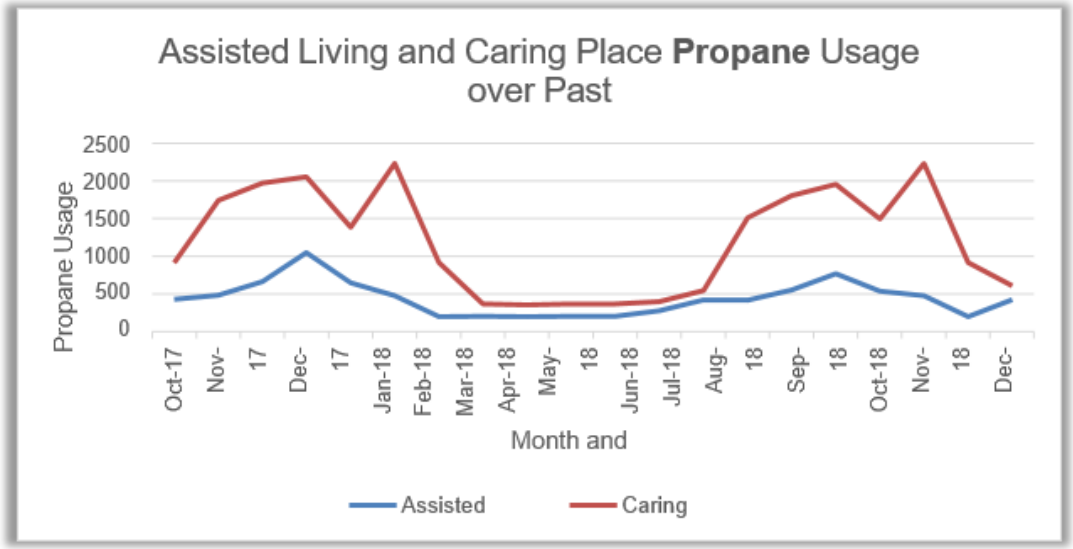
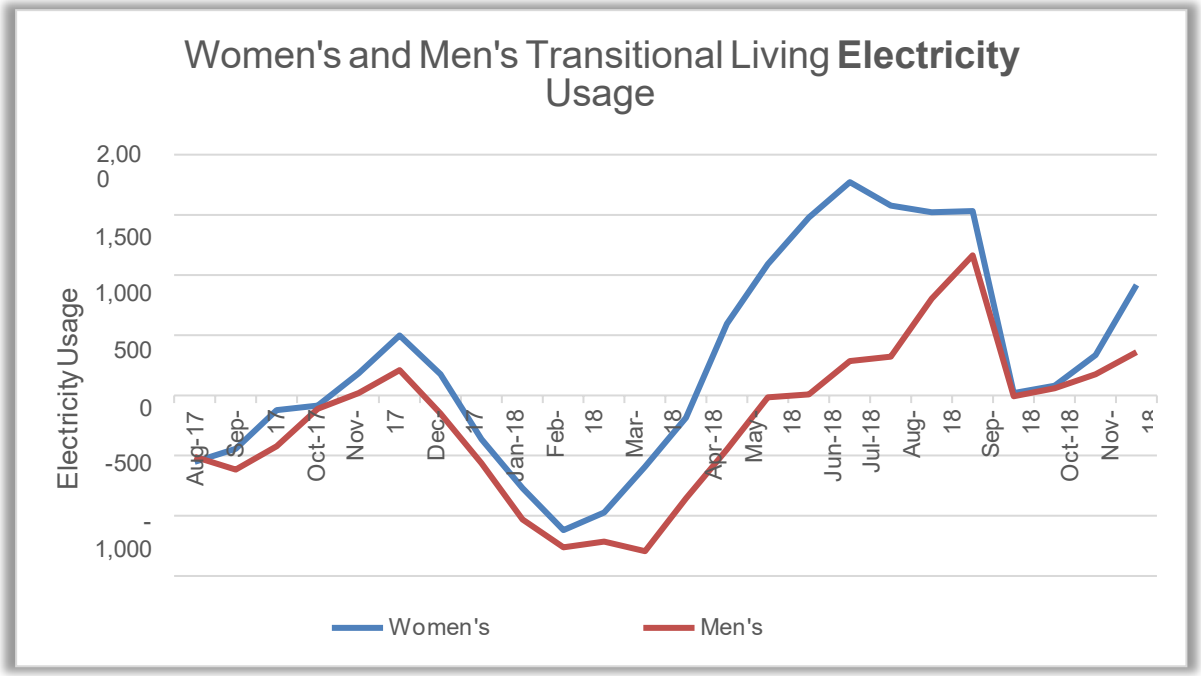


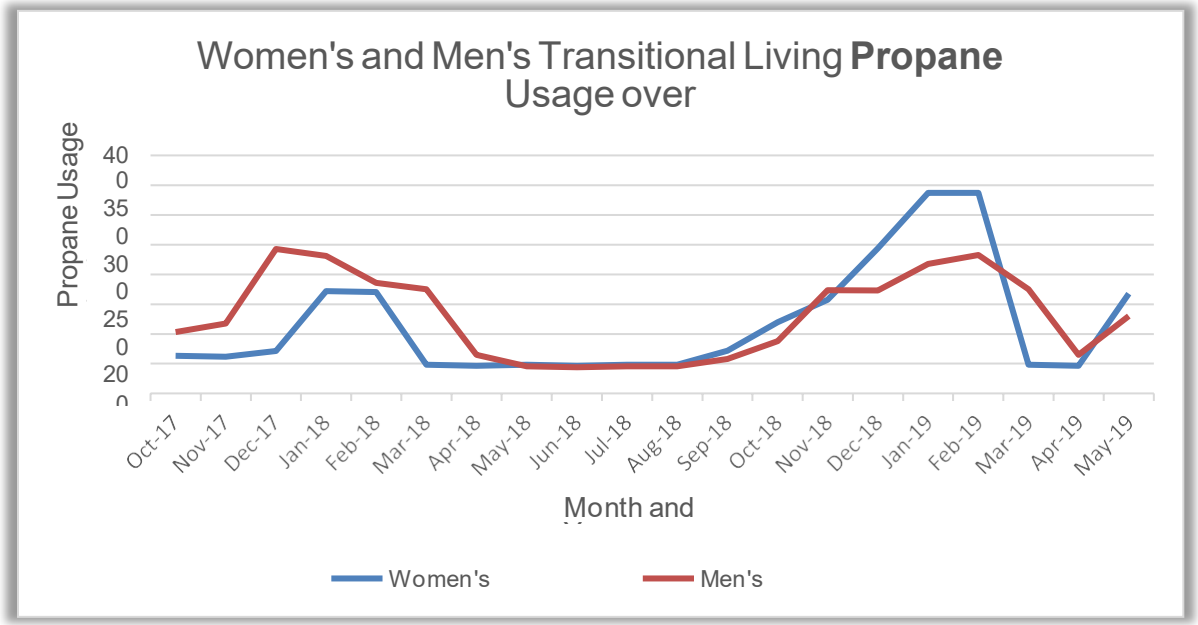
Figure 12: Men's Transitional Living Break-out By Cost (left) and Break-out by Energy





*propane usage has been averaged over the period


Women's and Men's Transitional Living Electricity Usage
Electricity Usage
2,000
1,500
1,000
500
0
-500
-1,000
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Women's
Men's


Women's and Men's Transitional Living Propane Usage over
Propane Usage
40
35
30
25
20
Oct-17
Nov-17
Dec-17
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Month and
Women's
Men's

Common Technologies Presented

LED Indoor Lighting

The audit identifies indoor lighting as a method to reduce energy usage on-site. It reduces the energy consumption of existing indoor linear fluorescent and incandescent lights by replacing them with more energy efficiency and long lasting LED fixtures. The new LED fixtures have a 5 year manufacturer warranty and are expected to last 20-30 years at an average operation of 3,000 hours per year. This will reduce operational & maintenance (O&M) costs of having to replace lamps and ballasts of the existing fixtures.

The wattage in most areas will be reduced by 50% this would provide a heat reduction, which would help with reducing the summer cooling load. It would also provide a more uniform and higher quality of light.

Figure 13: Examples of an LED

LED Outdoor Lighting

The audit identified existing HID (high intensity discharge) outdoor lights with new energy efficient and long lasting LED (light-emitting diode) fixtures. LED fixtures save money on utility costs as well operational & maintenance (O&M) costs of having to replace the lamps and ballasts of the existing HID fixtures. New LED fixtures will be installed to replace the existing pole mounted fixtures near the Assisted Living building, wall packs by Assisted Living and Caring Place, bollards, and soffit fixtures.

Figure 14: Difference between LED and HID lighting quality (left) and Close up of LED Pole Light (right)

LED fixtures typically have a 5 year manufacturer warranty and are expected to last 15-20 years depending on annual hours of use. LED fixtures will also dramatically improve the quality of light. Benefits associated with the proposed LED replacement fixtures include:

- Reduced energy use and cost per fixture by as much as 70%
- Reduced maintenance costs of having to replace ballasts, lamps, and lenses, as well as reducing the need for a bucket truck to replace lamps and ballast for the pole mounted fixtures
- Improved safety and security with improved light quality, better lumen maintenance, and better uniformity (reduced dark spots)

Weatherizing Building & Insulation

This project improves the building envelope performance by reducing thermal energy loss through areas such as gaps, cracks, and holes on the interior side of the building envelope by using appropriate materials such as foam, caulk, and weather stripping to reduce the uncontrolled air leakage through the envelope. The goal is to create a continuous plane of 'air-tightness' to completely encompass the building envelope.

Figure 15: Different Methods of Insulating Buildings

This report details building envelope measures to reduce air leakage, including:

- Exterior doors to be weather-stripped and sealed
- Interior doors to unconditioned rooms to be weather stripped and sealed

Energy Recovery Ventilators (ERV)

Installing energy recovery ventilators (ERVs) that are air-to-air heat exchangers can be used to recover approximately up to 70% of the heat and humidity of conditioned air leaving the building through exhaust fans, reducing the energy cost to heat the facility. These ERV's would replace the exhaust system. The heat that is recovered is used to pre-condition fresh outdoor (ventilation) air before it is introduced into the nearest return air ductwork or return air plenum.

Figure 16: Inner view of ERV

ERVs are an affordable way to provide higher

ventilation rates (fresh air), thereby improving the indoor air quality (IAQ) by flushing out contaminants and odors. Better ventilation rates have proven to increase productivity as well as create a healthier building environment. ERVs also reduce the peak heating and cooling loads (reducing the necessary size of HVAC equipment) because they are the most efficient when the outside air is extremely cold or extremely hot.

Pneumatic to DDC

Converting existing pneumatic controls to new direct digital controls (DDC) for the HVAC system. Pneumatic controls are outdated, hard to find parts for, and lose calibration easily. A conversion to DDC controls will provide the equipment necessary to optimize equipment performance, implement scheduling of equipment, proactively manage the facility, and improve comfort and productivity of students and staff. Fined tuned building automation systems can save on energy costs over a conventional pneumatic control or older DDC systems. The system will control all of the new HVAC equipment and will include a PC workstation, software, and training for facility personnel.

Upgrade Kitchen Equipment

The existing cooler & freezer systems in many locations are near the end of its useful life, has known issues, and needs replacement. This project installs a new equivalent cooler and freezer box and a new refrigeration system. In addition, there are several pieces of kitchen equipment that are beyond its useful life and operate off of electrical energy. This project will seek to update this equipment to new, more efficiency natural gas heating equipment.

Figure 17: Walk-in Cooler

Water Heater Upgrades

Commercial natural gas water heaters with heavy use have an average useful life of 10 years and 15 years for normal use. Water heaters over 10 years of age should be considered for replacement due to equipment past average useful life and to improve energy efficiency. Typical gains in efficiency are about 20% when going with an atmospheric gravity vented water heater to a new fully modulating condensing sealed combustion domestic water heater. Remove and dispose of existing units and install equivalent sealed combustion fully modulating water heater with a 5 year tank/heat exchanger limited warranty.

Figure 18: Water Heater

Convert constant volume air handling units to variable volume

Convert the existing multi-zone constant volume (CV) air handling units with booster heater to variable air volume (VAV). Instead of supplying a

constant air flow and running part of that air flow through a non-heated or non-cooled portion of the air handling unit, a variable air volume unit slows down the entire volume of air through the heating/cooling coils in order to control the supply temperature to a zone. An individual VAV box with a damper controls the amount of air flow into each zone and a pressure sensor is installed in order to slow down the speed of the supply fan motor to maintain a constant pressure in the entire system as dampers for each zone open/close.

Interior Lighting

Existing Conditions / Observations:

Non-LED Lighting: The lighting throughout the Assisted Living building all appeared to be non-LED. Hallways of the common areas were all 2x2 fluorescent fixtures running 24/7. The front lobby has ceiling fans with incandescent bulbs. A lighting count was performed by H&H to determine the type and quantity of lights throughout the common spaces of the Assisted Living building. Private rooms were not accessed due to the privacy of the residents.

Table 10: Lighting Count for Common Spaces in Assisted Living

Fixture Type	Quantity	Estimated Wattage per Fixture
2x2 U tube Fluorescent	27	56
4' 28W 2L Fluorescent	3	49
4' 32W 2L Wraparound	6	56
Incandescent Bulbs*	15	60

*It was noted that during the second site visit, incandescent bulbs in the main lobby area were being replaced with new incandescent bulbs.

Figure 19: Various Non-LED lighting viewed in Assisted

Light Loggers: When using the light loggers over a two week period of time, it was seen in the common hallways that lighting ran 24/7. One light logger had an occupancy sensor and indicated it was only occupied for 2% of the time. While the two week sample size might show an underrepresentation of how often the hallways are used, it definitely shows run hours can be significantly reduced by occupancy sensors especially during the night.

Recommendations:

Lighting Replacements: It is recommended for quality of light, life of the light, and cost savings to consider LEDs as lights are replaced. New LED bulbs and four foot tubes are 11w and 15w, respectively, with the same light output. They do make a direct replacement LED bulb that can replace the fluorescent tubes; however, the existing ballasts would have to be compatible with the new LED bulbs. Replacing the fixture is always the best option and will provide the best distribution and quality of light, however, it is more expensive than just replacing the bulbs. LEDs come in all shapes and sizes and even flood lights and spotlights have LED replacement options. H&H recommends looking for an LED option for any bulb or fixture being replaced at Assisted living and any other buildings.

Lighting Hours: Reducing the run hours of lighting will have a significant impact on the lifetime of the bulbs and how much energy is being consumed. By installing occupancy sensors, light run time can be reduced by upwards of 50%. Timeclocks can be used in conjunction with the sensors if lighting is desired in the hallways or common areas for specific periods throughout the day.

Exterior Lighting

Existing Conditions / Observations:

Exterior Lighting: The exterior lighting consists of four light poles approximately 20' tall, canopy lighting, and wallpacks at the two entrances. Two of the bulbs in the pole lights were replaced with LEDs and two appeared to still be high pressure sodium lights. The Pole lights operate on a manually adjusted timeclock. The entrance way lighting operates 24/7.

Table 11: Exterior Lighting Count for Assisted Living

Fixture Type	Quantity	Estimated Wattage per Fixture
LED bulb Pole Lights	2	100
HPS Pole Light	2	250
LED 6" Can Light	7	10
Wallpacks	2	75

Figure 20: Assisted Living Existing Exterior Lights – Wallpack (left) and Pole Light (right)

Recommendations:

Wallpack Replacements: Replace the existing wallpack lights with new LED wallpacks. The existing wallpack lenses have had a lot of yellowing reducing the light output. New wallpacks could be installed with photoeyes to turn off during the day instead of running 24/7. This would improve the amount of light provided, reduce energy costs, as well as reduce the reoccurring maintenance involved with replace the lights in that fixture.

Lighting Controls: Connect the outdoor lights into the centralized lighting control system for Potawatomi. This will automatically turn the lights on based on the dusk and dawn times each day. The canopies currently do not shut off, although they are LED and have a small energy cost, this would double the life of the existing LEDs installed, thus further pushing out the replacement cost.

LED Reuse due to Pole Removal: Based on the construction of the new building in the existing parking lot, it is assumed that two of the pole lights will be moved or completely removed. Utilize the existing LED bulb in the pole light being eliminated by removing its LED and placing it in the HPS light.

Mechanical

Existing Conditions / Observations:

Occupied rooms: The existing HVAC is served primarily by ten separate propane furnaces and condensing units. The furnaces operate each zone independently controlled by a thermostat in the space. The furnaces provide a set amount of outdoor ventilation air; however, the only exhaust is being provided through small residential bathroom exhaust fans controlled via switch. A “balanced” HVAC system would provide as much exhaust air as fresh outside air. The exhaust fan would need to operate in conjunction with the furnace in order the maintain a somewhat balanced system. Currently, the HVAC system is pressurizing the space if the bathroom exhaust is not on. This means that the spaces are likely not receiving the designed amount of fresh air.

Ventilation: Sufficient ventilation is required by code. Typically, in a commercial building the fan would operate during all occupied hours in order to continuously supply fresh air to the zone. Currently, the furnace fan is being cycled based upon demand for heating or cooling. It is assumed that the space is being over-ventilated during the periods that the fan is operating, thus it would not need to run continuously per code. Exact ventilation values would need to be reviewed for code compliancy.

Center Room Housing the Tree: The existing center area is designed as a "greenhouse", but the actual usage of the space is "undetermined." It has two make-up air fans and two larger exhaust fans for the space. It is heated only by a single propane furnace with no outside air. Currently, only one exhaust fan and one make-up air fan run only when the space needs to be cooled. The make-up air is the only the only source of ventilation air in this space, meaning no mechanical ventilation is provided all winter long as the space does not need to be cooled. Another issue that could persist is that if the space needs to be cooled, the make-up air could actually heat the space when the outside temperature is above the space temperature.

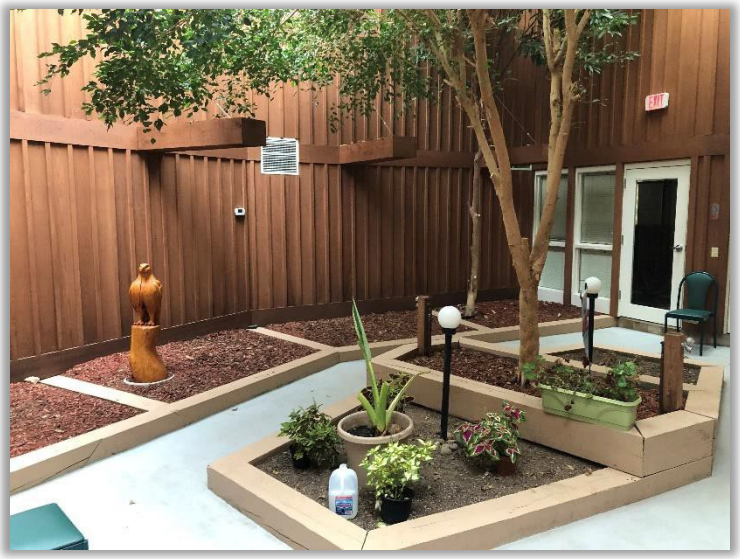


Figure 21: Center Room Housing the

Vestibules: The vestibules are all heated by electric wall heaters. The temperature of each zone varies, but the temperatures are set by an internal dial on the heater. There is no display to view the temperature setpoint.

Domestic Hot Water: The domestic hot water is fed by a high efficiency propane water heater set to 120 degrees.

Recommendations:

Furnaces and Condensing Units: When the furnaces and condensing units are replaced, replace with higher efficiency models. They are slightly more expensive upfront but will save money over the life of the standard models. The estimated savings are not enough to justify replacing the units until they are end of life. If budget would allow, install a centralized HVAC system. Decentralized systems cost more in energy and maintenance costs but have a less expensive upfront cost.

Energy Recovery Ventilator (ERV): Install a small ERV for each occupant's apartment. The existing bathroom exhaust fan would be removed, and the bathroom exhaust air would be used for the ERV. The outdoor air on the furnace could be closed, and outdoor air would run through the ERV and be supplied to the furnace. If the furnace were to operate, the ERV would provide operate and provide fresh air that has been "pre-heated"

to help reduce energy usage in the furnace. The ERV would also operate if the bathroom exhaust fan was turned on via switch.

Water Temperature Set Point: If the building is registered as "healthcare" the water temperature would need to be set to 140 degrees to minimize the growth of legionella or other microorganisms. If this is pursued, mixing valves would need to be added to the fixtures in order to prevent scalding water temperatures. A burn can happen after being in contact with 140 degree water for 6 seconds. It is especially important to monitor this temperature closely as some occupants may not have the sensory ability to determine or react if the water is too warm. However, 120 degrees is good for every savings, it just might not be the right temperature selection for the facility.

Vestibule Temperature Set Point: Temperatures for the vestibules should be set to 55 degrees. The vestibules are to act as an intermediate between the outdoors and the internal conditioned spaces. They are not intended to be heated to an occupied space temperature and the electric heaters can cost a lot of money to maintain warm temperatures in the winter.

Center Room Housing the Tree: The usage of the middle space should be determined and then the correct HVAC system can be determined. Changes are recommended but would vary based upon usage of the space.

Building Envelope

Existing Conditions / Observations:

Building Condition: The existing structure appears to be in good condition. No major leaks or lack of insulation was found or detected. The windows appear to be fairly new doubled paned standard windows with a white paint finish. The seals on the windows appeared to be in good shape with minimal drafts. It was observed that one occupant had sealed the window with plastic indicating that a draft was present, but all weather stripping and seals appeared in good condition.

Figure 22: Door to Center Room Housing the Tree (left) and its lack of weatherstripping (right)

Doors all appeared to be in good shape with relatively good sealing weather stripping. The main two exterior doors had new weatherstripping, but light could be seen between the weather stripping which indicates some air leakage. After viewing the attic, the blown

in insulation appeared to be relatively new and was estimated to about twelve inches deep which is sufficient for thermal performance. The soffits and ceilings of the attic are all drywalled, taped and mudded which helps reduce air leakage.

Center Room Housing the Tree: The center room's roof has poor insulation. It should be evaluated for improvement once the usage of the space is determined. Since this space is not mechanically cooled is should be treated as an outside space with proper sealing and insulation.

Recommendations:

Windows and Doors: When windows and doors are replaced in the future, it is recommended to go with a higher quality double or triple pane commercial window. The existing windows and doors do not warrant replacement but a higher quality window with a better thermal break will improve occupant comfort, last longer, and provide better energy savings.

Weatherstripping: Treat the center room housing the tree as an exterior room due to poor insulation and lower temperatures. Seal the doors into the middle greenhouse area with weatherstripping. Also, the weatherstripping on the main doors in the front vestibule needs a better seal between the two doors because significant air can penetrate through the current weatherstripping.

Controls

Existing Conditions / Observations:

Decentralized Thermostats: The existing HVAC controls for the building are all decentralized single zone thermostats. Based on our observation, the occupants have no limits on what they can set the thermostats to and there is no ability of the staff to easily monitor all the set points or whether they are in heating or cooling mode.

Recommendations:

WIFI Thermostats: Install thermostats that can be intertied to a remote supervisory device that would allow the maintenance staff to remotely check on the settings of the thermostats, adjust the thermostats, and add temperature extremes. Remote monitoring would cut down on calls for unimportant issues, and maintenance could properly identify if the issue is user generated or an HVAC operational issue.

BAS Controls System: A building automation system could be extended from the new building being installed between Caring Place and Assisted living. This would allow maintenance to have a graphical display of all the mechanical systems within the building, as well as receive alerts when issues arise. This system would improve upon the abilities of the WIFI thermostats and be able to set further parameters to maintain comfort and energy savings. Concerning temperature set points, ASHRAE dictates that 68 – 80 degree Fahrenheit is acceptable depending on the season. It is common for individuals to turn their thermostat way up or down in an attempt to "speed up" the requested heating or cooling. Since mechanical systems do not operate this way, this can affect energy and comfort negatively. Installing some sort of temperature parameters is a good practice

while still allowing the occupant to control their own temperature. The systems could also be set so that heating and cooling could not be operated simultaneously. Most buildings or campuses are going to a centralized BAS system in order to better provide maintenance supervision to the issues that might occur. This allow maintenance to have a better response time as well as check issues early before they turn into a larger issue down the road.

Table 12: Assisted Living Cost, Savings, and Financial Parameters of Energy Conservation Measures

Measure	Savings				Paybacks		
	Cost	Savings	Savings	Savings	Payback	NPV	IRR
	($)	elec kwh	LP Gal	$	Yrs	$	%
Indoor Lighting	$3,420	11,419	0	$1,226	2.8	$10,042	37%
Outdoor Lighting	$2,798	3,201	0	$344	8.1	$1,063	10%
Vestibule Setpoints	$0	23	34	$40	-	-	-
Weatherstrip Front Doors	$75	22	31	$37	2.0	$326	50%
ERVs[1,2]	$47,500	624	1,503	$1,715	25.4	-$24,956	-5%
WIFI Thermostats[2]		597	83	$155			
BAS Controls[2,3]	$48,000	1,194	166	$310	-	-	-
Total	**$101,793**	**17,080**	**1,818**	**$3,827**	**26.6**	**-**	**-**

[1]Based off savings from code ventilation rates not existing ventilation rates.
[2]Cost is estimated from a lump sum price for both Assisted Living and Caring Place price.
[3]BAS Controls has a marginal energy savings, however it has a larger O&M savings that wasn't evaluated in this report.

Interior Lighting

Existing Conditions / Observations:

Non-LED Lighting: The lighting throughout the old wing of the Caring building all appeared to be non-LED. The old wing had a collection of two and three lamp fluorescent wraparounds, 2x4 fluorescents, and incandescent bulbs in occupant rooms. A lighting count of the old wing was performed by H&H to determine the type and quantity of lights throughout the common spaces of the Caring Place. One private room was accessed and used to give an estimate of the number of bulbs in the other occupant rooms.

Table 13: Lighting Count for Old Wing of the Caring Place

Fixture Type	Quantity	Estimated Wattage per Fixture
4' 32W 2L Wraparound	9	56
4' 32W 2x4 2L Fluorescent	12	56
4' 32W 3L Wraparound	8	86
Can Lights	5	10
Incandescent Bulbs	54	30

Light Loggers: When using the light loggers over a two week period of time in the hallway by rooms NA42 and NA20, it was seen that the lighting in the old wing hallways lighting ran 24/7. The light logger data can be seen in Appendices.

Recommendations:

Lighting Replacements: It is recommended for quality of light, life of the light, and cost savings to consider LEDs as lights are replaced. New LED bulbs and four foot tubes are 11w and 15w, respectively, with the same light output. They do make a direct replacement LED bulb that can replace the fluorescent tubes; however, the existing ballasts would have to be compatible with the new LED bulbs. Replacing the fixture is always the best option and will provide the best distribution and quality of light, however, it is more expensive than just replacing the bulbs. LEDs come in all shapes and sizes and even flood lights and spotlights have LED replacement options. H&H recommends looking for an LED option for any bulb or fixture being replaced at Assisted living and any other buildings.

Lighting Hours: Reducing the run hours of lighting will have a significant impact on the lifetime of the bulbs and also how much energy is being consumed. By installing occupancy sensors, light run time can be reduced upwards of 50%. Timeclocks can be used in conjunction with the sensors if lighting is desired in the hallways or common areas for specific periods throughout the day.

Exterior Lighting

Existing Conditions / Observations:

LED Wallpacks: The exterior lights all appear to be LED wallpacks of relatively new age. They are controlled via a photoeye but were unfortunately were observed on at 10:12 am.

Figure 23: Night view of Caring Place with Exterior Lights

Recommendation:

Photoeye Adjustment: Because the photoeye did not turn off the wallpack at 10:12 am, it indicates the photoeye needs to be adjusted. Adjusting the photoeye positioning or sensitivity will help ensure the outdoor lights are off during the daytime hours and come on near dusk. Although they are LED with limited energy impact, extended use will reduce their life and prompt a sooner replacement.

Mechanical

Existing Conditions / Observations:

New Wing of Building: There are two separate wings of the building. The new section has four propane furnaces and four condensing units serving the space. There is one ERV serving this zone as well. Each zone operates independently with a single thermostat controlling the zone. Because each zone consists of multiple rooms, the thermostat in one room does not accurately display the temperatures in the other rooms which can cause temperature complaints. The furnaces have two high efficiency condensing hot water heaters set to 140 degrees that supply the domestic hot water.

Older Wing of Building: The old section has two high efficiency condensing propane boilers up to 95% efficient. These boilers provide the in-floor heat for the wing, as well as provide heating through a closed loop for the domestic water. The units operate on a demand call for the domestic hot water currently maintaining 120 degrees. There are two air handlers providing air to the common areas. The fresh air is currently supplied via an ERV. The ERV is taking return air and exhausting it, while preheating the outdoor ventilation air. The outdoor air vents on the units are closed and the unit have gravity exhaust/relief. The air handlers have cooling via condensing units outside. The occupant rooms are supplied with cooling through wall PTAK units (cooling only). There is currently

no fresh air being supplied to the occupant's rooms. They do have operable windows, which can provide fresh air when the temperatures outside are not at their Wisconsin extremes. This is a code compliancy issue that should be further investigated.

Throughout the year, the staff has been told they like the floor to be heated and/or the air from the air conditioning is too cold. As a result, the in-floor heating is turned on while the air conditioning is also operating in occupant rooms, kitchen, and dining hall. This inefficiency is caused when the two systems fight against each other.

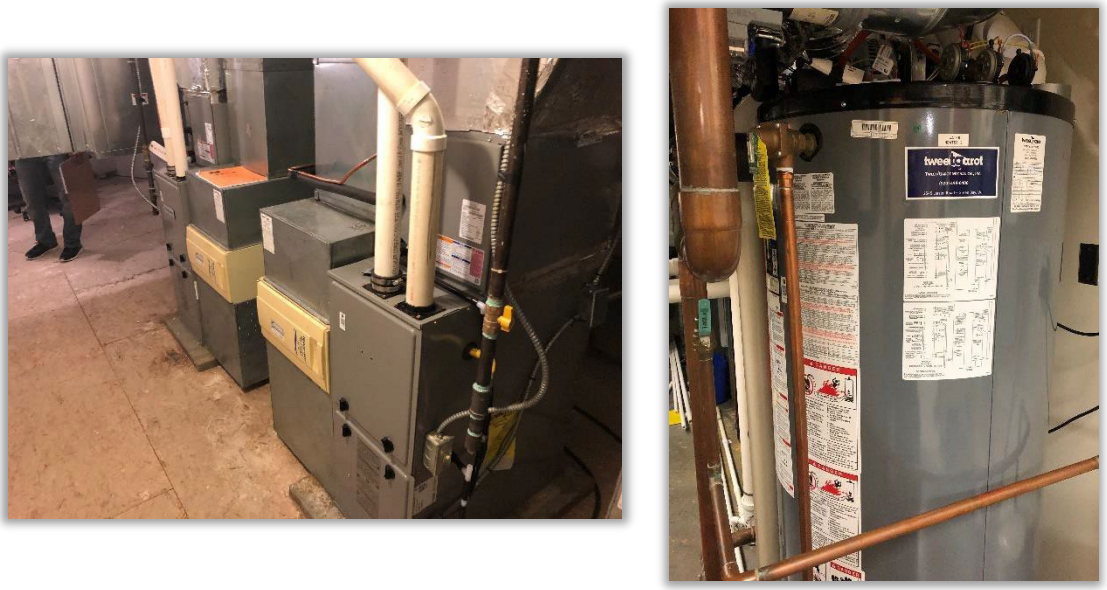


Figure 24: Caring Place Furnaces (left) and Water Heater

Kitchen Cooling and Heating: Currently, the dishwasher is served by an electric booster heater and there are two exhaust fans in the kitchen: one fan for the dishwasher and one for the kitchen hood. The exhaust fans are controlled via a VFD based on temperature in the exhaust air. The units are supposedly turned on each day when they come in and turned off each day when they leave. There is an override switch that is installed to turn up the speed when a food with a heavy odor is being cooked. Currently, there is no tie between the exhaust air and outdoor air creating unbalanced system. There should be as much outside air coming in as there is exhaust air going out. Otherwise, the exhaust fan is working extra hard to pull air in through cracks under doors or though the walls. The exhaust fans are currently running very slowly most of the day. So slowly, that H&H believes our metering equipment may have inaccurate run hours due to it not picking up on the vibration of the motors.

Walk-in Cooler and Freezer: There is one walk in cooler and one walk in freezer in the kitchen. The walk- in cooler has an evaporator with two 1/15 hp shaded pole motors with no controls. The walk-in freezer has an evaporator with two 1/15 hp shaded pole motors. No controls were present besides a timeclock labeled defrost which ran three times per day. It is assumed that these motors run continuously.

Figure 25: Caring Place Walk-in Cooler Shaded Pole Fan (left) and Walk-in Freezer Door (right)

Recommendations:

Ventilation Code Issue: Fresh air needs to be provided to the occupant rooms in the old section. There are many ways to accomplish this, however, H&H thinks a dedicated outdoor air system this is the best solution. Remove the bathroom exhaust fans in each room and duct them to a centralized rooftop ERV. The exhaust air can preheat the outside air. The ERV should be installed with a hot water coil fed from the boiler system in order to maintain 60 degree discharge air. Ventilation air vents would need to be installed in each room, ideally away from the occupants living area in order to reduce potential comfort complaints. A new heating and cooling variable air volume system would be the "Cadillac" solution but could easily be five times the cost.

Water Heater Insulation: The water pipes should be insulated to prevent heat loss, especially within the
first 30' of piping.

Water Temperature Set Point: If the building is registered as "healthcare" the water temperature would need to be set to 140 degrees to minimize the growth of legionella or other microorganisms. If this is pursued, mixing valves would need to be added to the fixtures in order to prevent scalding water temperatures. A burn can happen after being in contact with 140 degree water for 6 seconds. It is especially important to monitor this temperature closely as some occupants may not have the sensory ability to determine or react if the water is too warm. However, 120 degrees is good for every savings, it just might not be the right temperature selection for the facility.

Kitchen Hood Airflow: Make sure the hood airflow is not falling below the designed hood air velocity. If the velocity is falling below this speed, then grease could build up on the exhaust vents wall and create a fire hazard.

Kitchen Hood Controls: Recommend installing a particulate laser on the hood controls to also ramp up the speed based upon particulate in the air.

Modulating Condensing Units: Install a modulating condensing unit or staged condensing unit to reduce the cold rush felt by the air conditioning when cooling is required. This will eliminate the need for the in- floor heat to be run while the cooling is on.

ECM Motors: Replace the shaded pole motors with ECM motors in the walk in cooler and freezer with controls. The controls will slow down the fans based upon the demand and automatically run defrost cycles. Although the motors are only 1/15 hp nameplate, the new motors will provide a 60% kW reduction. This would save around 1,700 kWh per year.

Building Envelope

Existing Conditions / Observations:

Condition of Building Envelope: The existing structure appears to be in good condition. No major leaks or lack of insulation was found or detected. The windows are all doubled paned and appear to be fairly new standard windows with white paint. The seals on the windows appear to be in good shape with minimal drafts. Doors all appeared to be in decent shape with relatively new and good sealing weather stripping. The brush type weather stripping had a plastic air seal layer, which is the correct material to utilize to stop air passage. Attic insulation was blown-in and appeared to be relatively new. It was estimated to about twelve inches throughout which is sufficient for thermal performance. The ceilings above the drop ceiling are all drywalled, taped and mudded. This is good to reduce air leakage. It was noted that icicles were observed last winter above the front entrance. There was no indication of lack of insulation or anything that would cause this type of event. The entrance in front of the door is a perforated metal soffit. One potential cause of this issue could be warm air coming out of the doors if they were propped open or held open long enough to cause warm air to enter that attic above the front entrance. If this happened enough, it could cause the roof to have snow melt which could refreeze.

Recommendations:

Front Entrance Foam Board: Lay foam board down on metal soffit in front of front entrance, leaving enough space for minimal ventilation. This should reduce the warm air from the open doors enough where the snow will not melt.

Attic Insulation: Redistribute the blown in insulation in the attic. There appeared to be some high and low spots that could be leveled out for optimal thermal performance.

Figure 26: Caring Place Blown-In Insulation

Windows and Doors: When window and doors are replaced in the future, it is recommended to go with a higher quality double or triple pane commercial window. The existing windows and doors do not warrant replacement but a higher quality window with a better thermal break will improve occupant comfort, last longer, and provide better energy savings.

Controls

Existing Conditions / Observations:

Older Wing of Building: Currently in each occupant's room, there is a thermostat serving the in-floor heat and a separate control unit for the cooling PTAK. This creates large concerns when the heat is set to 72 degrees while the cooling is set to 70 degrees. Both systems would run continuously because the respective setpoints are never reached causing a waste of energy and an overuse of the systems.

During the site visits, it was noticed the kitchen had both heating and cooling operating at the same time. The cooling was set to 62 degrees while the heat was set at 72 degrees. It is not always typical for kitchens to have cooling as the air is not maintained in the space and swept outside through the kitchen hood.

As mentioned earlier in the mechanical section, the cooling and heating are often run at the same time in the dining hall because of complaints of cold air falling down on occupants when cooling is required.

Newer Wing of Building: The new section has a single thermostat per furnace for the heating and cooling. Each thermostat controls multiple rooms. The entire zone is heated or cooled based upon the thermostats reading in that one room which can cause complaints in other rooms.

Recommendation:

WIFI Thermostats: Install thermostats that can be intertied to a remote supervisory device that would allow the maintenance staff to remotely check on the settings of the thermostats, adjust the thermostats, and add temperature extremes. Remote monitoring would cut down on calls for unimportant issues, and maintenance could properly identify if the issue is user generated or an HVAC operational issue.

BAS Controls System: A building automation system could be extended from the new building being installed between Caring Place and Assisted living. This would allow maintenance to have a graphical display of all the mechanical systems within the building, as well as receive alerts when issues arise. This system would improve upon the abilities of the WIFI thermostats and be able to set further parameters to maintain comfort and energy savings. Concerning temperature set points, ASHRAE dictates that 68 – 80 degree Fahrenheit is acceptable depending on the season. It is common for individuals to turn their thermostat way up or down in an attempt to "speed up" the requested heating or cooling. Since mechanical systems do not operate this way, this can affect energy and comfort negatively. Installing some sort of temperature parameters is a good practice while still allowing the occupant to control their own temperature. The systems could also be set so that heating and cooling could not be operated simultaneously. Most buildings or campuses are going to a centralized BAS system in order to better provide maintenance supervision to the issues that might occur. This allow maintenance to have a better response time as well as check issues early before they turn into a larger issue down the road.

Solar System

Existing Conditions / Observations:

Solar System: The solar system was observed to be in good condition on the roof. However, it was noted that two trees are growing near a large set of panels and will cast large shadows over the panels over the next 20 to 25 years depending on how fast they grow. Currently, the trees are minimally affecting solar production as they are about approximately only 15 - 20 feet tall.

Figure 27: Caring Place Solar with Trees

Recommendation:

Removing the Trees: Unfortunately, allowing the trees to grow to full maturity in their current positions will negatively affect solar panel production. If the trees each grow to be 25 feet, it can be estimated that the trees shade can cause an annual reduction of 2,200 kWh of solar production. This would increase the utility bills by roughly $176 annually. As the trees grow taller, the effect on energy loss will grow. When the trees grow to be 35 feet, it can be estimated they would reduce annual production by 9,600 kWh and cost $768 per year. While the trees are not affecting the solar production right now, removing them and replanting them in another location would positively benefit the solar system production over the next 20 to 30 years. Depending on how fast or slow these trees grow, the production effect can be markedly higher or lower than estimated for this report.

Table 14: Caring Place Cost, Savings, and Financial Parameters of Energy Conservation Measures

Measure	Savings				Paybacks		
	Cost	Savings	Savings	Savings	Payback	NPV	IRR
	($)	elec kwh	LP Gal	$	Yrs	$	%
Indoor Lighting	$3,270	11,577	0	$967	3.4	$7,377	30%
Outdoor Lighting	$250	175	0	$15	17.1	-$79	0%
Re-Adjust Blown-In	$200	273	62	$91	2.2	$1,026	47%
Pipe Insulation	$350	0	124	$135	2.6	$1,130	40%
Mod. Condensing Unit[2]	$47,500	1,485	0	$124	25.4	-$20,494	-1%
ERVs[1,2]		3,768	1,034	$1,444			
WIFI Thermostats[2]		910	208	$303			
BAS Controls[2,3]	$72,000	1,820	415	$605	-	-	-

Removing Trees	$800	5,900	0	$493	1.6	$5,088	62%
Total	**$124,370**	**25,908**	**1,842**	**$3,683**	**33.8**	**-**	**-**

[1]Based off savings from code ventilation rates not existing ventilation rates.
[2]Cost is estimated from a lump sum price for both Assisted Living and Caring Place price.
[3]BAS Controls has a marginal energy savings, however it has a larger O&M savings that wasn't evaluated in this report.

Interior Lighting

Existing Conditions / Observations:

Interior Lighting: The interior lights of many simple screw in bulbs and some LED 2x4 flat panels installed in the security office.

Recommendation:

Interior Lighting: Replace light bulbs with LEDs when they burn out. No immediate action necessary.

Exterior Lighting

Existing Conditions / Observations:

Exterior Lighting: The exterior lights consist of simple screw in bulbs for front porch lighting and motion and daylight sensing flood lights. Most of the bulbs appear to be incandescent.

Recommendation:

Exterior Lighting: Replace light bulbs with LEDs when they burn out. No immediate action necessary.

Mechanical

Existing Conditions / Observations:

Residential Furnaces: There are two residential furnaces providing heat with two condensing units providing cooling for the whole facility. There is also one heat recovery unit providing fresh air to furnace #1. One condensing unit is 1.5 tons and utilizes R-22 while the other is a 3 ton unit utilizes R-410A. Furnace 2 and Condensing unit 1 appear to be newer and in good working condition. The HRU was non-operational during our site visit.

Figure 28: Women's Transitional Living Water Heaters

Water Heaters: There are two newer propane water heaters providing hot water to the facility. No water temperature information was is available off the water heater. It is assumed to be set to 120-140 degrees.

Recommendations:

Water Heater Insulation: The water pipes should be insulated to prevent heat loss, especially within the first 30' of piping.

Water Heater Setpoint: Verify that the water temperature is set to 120 degrees.

Furnace: Furnace #1 should be considered for replacement in the near future due to age. A 90% minimum or 95% efficient unit should be considered.

Condensing Unit: Condensing unit #2 should be considered for replacement in the near future due to age and the usage of R-22. An energy star appliance should be utilized or around 12-14 EER.

Fresh Air: If the windows are not being utilized the HRU should be used to provide treated fresh air to the building. This is most cost effective during the summer and winter months.

Building Envelope

Existing Conditions / Observations:

Building Envelope: The existing structure appears to be in good condition. Minor cracks or leaks are present on the exterior. The windows appear to be a wood double pane window typical of a residential grade. Seals on the windows appeared to be in good shape with minimal drafts. The doors all appeared to be usable condition. The seals present were of commercial quality. The basement vestibule was cold. The walls separating the vestibule from the space appeared to be uninsulated. The basement back door was propped open during our visit with the interior door closed.

Recommendation:

Crack Sealing: Seal cracks in the exterior of the building with caulk or foam. Replace the exhaust fan backdraft vents that have fallen off. Correct the seal on the bottom of the back door. This should help with the draftiness of the back-vestibule entrance. Keep the exterior doors closed and not propped open.

Controls

Existing Conditions / Observations:

Thermostat Control: The building has one non-setback thermostat and one newer setback thermostat control each of the furnaces. The system was on in cooling mode during our visit however the windows were also open.

Figure 29: Women's Transitional Living Facility's Windows are Open

Recommendation:

Setback Temperature: Install a setback thermostat for the unit without the setback capacities. Utilize the setback feature at night as possible. Turn off the units when the windows are open.

Solar System

Existing Conditions / Observations:

Solar System: The solar system was observed to have three damaged panels that are affecting the production of the panels. Even though only three panels damaged, half of the panels have a significant loss in production because they are tied into the same string inverter.

Recommendation:

Replace Damaged Panels: These damaged panels were conservatively estimated to result in a loss of roughly 5,800 kWh. This equates to roughly $586 in annual losses in production. By placing these panels through the solar panel warranty, the solar production can be increased over the life of the solar project.

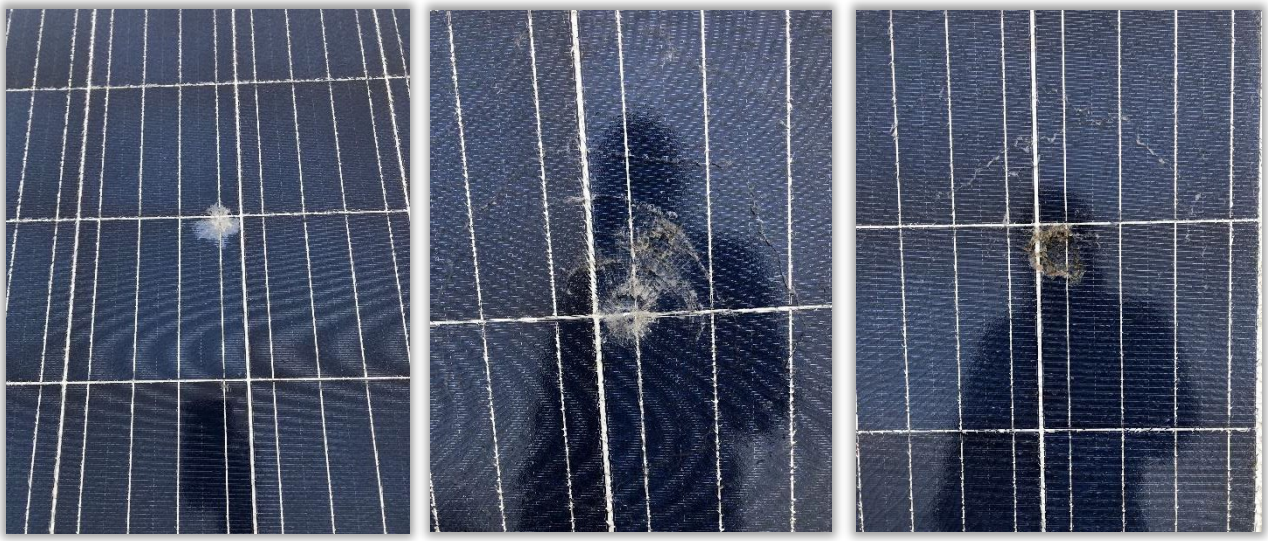


Figure 30: Women's Transitional Living Damaged Solar

Table 15: Women's Transitional Living Cost, Savings, and Financial Parameters of Energy Conservation Measures

Measure	Savings				Paybacks		
	Cost	Savings	Savings	Savings	Payback	NPV	IRR
	($)	elec kwh	LP Gal	$	Yrs	$	%
Pipe Insulation	$150	0	55	$69	2.2	$602	47 %
Crack Sealing	$300	215	28	$56	5.4	$322	18 %
Repair Solar Panels	$0	5,800	0	$586	0.0	$7,849	-
Total	**$450**	**6,015**	**83**	**$711**	**0.6**		

Men's Transitional Living Audit Results

Interior Lighting

Existing Conditions / Observations:

Interior Lighting: The interior lights of many simple screw in bulbs and some LED 2x4 flat panels installed in the security office.

Recommendation:

Interior Lighting: Replace light bulbs with LEDs when they burn out. No immediate action necessary.

Exterior Lighting

Existing Conditions / Observations:

Exterior Lighting: The exterior lights consist of simple screw in bulbs for front porch lighting and motion and daylight sensing flood lights. Many of the flood lights appear already be LED.

Recommendation:

Exterior Lighting: Replace light bulbs with LEDs when they burn out. No immediate action necessary.

Mechanical

Existing Conditions / Observations:

Residential Furnace: There is a single 90,000 Btuh residential furnace providing heat with a 2.5 ton condensing unit providing cooling for the whole facility. The furnace is 90% efficient. The condensing unit utilizes R-22. Both the furnace and condensing unit appear to be newer and in good working condition. No fresh air is being provided by the unit.

Water Heater: The existing water heater is a 50 gallon electric water heater installed in July of 2018. It has two elements with a total watt of 4,500. No water temperature information was is available off the water heater. It is assumed to be set to 120-140 degrees.

Figure 31: Men's Transitional Living Water Heater

Recommendations:

Water Heater: No immediate action necessary as the unit is new. A propane water heater should be considered once the unit is up for replacement. Depending on usage of the building, there may not be a payback associated with this.

Water Heater insulation: The water pipes should be insulated to prevent h loss, especially within the first 30' of piping.

Water Heater Setpoint: Verify that the water temperature is set to 120 degrees.

Condensing Unit: A general note that R-22 has been discontinued and will be more expensive to recharge in the future. It may be beneficial to work on reclaiming R-22 from units being replaced in order to avoid the future cost of R-22. No immediate action necessary.

Fresh Air: Considering adding an ERV if fresh air is going to be provided to the HVAC equipment directly.

Building Envelope

Existing Conditions / Observations:

Chimney: The existing chimney is old and leaky. There is a lot of creosote built up that is a major fire hazard. The fireplace is not a sealed unit and loses a lot of heat during the winter.

Figure 32: Men's Transitional Living Chimney

Windows: There are two windows on the outside of the fireplace that are old single pane windows. These windows are very thermally inefficient. They appear to be the only single pane windows left on the main and upper floors.

Insulation: The existing structure appears to be in good condition. No major leaks or lack of insulation was found or detected.

Recommendation:

Fireplace and Chimney Insert: Install a new fireplace insert and chimney insert. The chimney insert will make sure that the creosote does not start on fire and the new fireplace insert will provide good thermal protection during the winter. The unit should come with an automatic damper and fan. From an energy perspective a propane model would be better, however wood burning sealed (stove) inserts are available.

Windows and Doors: When window and doors are replaced in the future, it is recommended to go with a higher quality double or triple pane residential or light commercial window. The existing windows and doors do not warrant replacement, but a higher quality window with a better thermal break will improve occupant comfort, last longer, and provide better energy savings. Plastic parts and pieces may break on the windows prior to the windows thermally failing, causing a premature replacement.

Controls

Existing Conditions / Observations:

Single Zone System: A single setback thermostat controls the house as the furnace acts as a single zone system. The system was set to "off" during our visit which is a great indication that it is being monitored. Windows were observed during the site visit to have been left open.

Recommendation:

Setback Temperatures: If possible, utilize the setback features on the thermostat to achieve savings on night when no one is present.

Solar System

Existing Conditions / Observations:

Solar PV System: Upon inspection, the solar panels are in good condition and are operating well.

Recommendation:

Solar PV System: No immediate action necessary as the units appear to be operating well.

Figure 33: Men's Transitional Living Solar PV system

Table 16: Cost, Savings, and Financial Parameters of Energy Conservation Measures

Measure	Savings				Paybacks		
	Cost	Savings	Savings	Savings	Payback	NPV	IRR
	($)	elec kwh	LP Gal	$	Yrs	$	%
Pipe Insulation	$150	0	58	$66	2.3	$576	45 %
Window Replacement	$700	28	22	$28	25.3	-$367	-5%
Fireplace Insert	$4,500	148	117	$148	30.5	-$2,686	-7%
Total	**$5,350**	**176**	**197**	**$241**	**22.2**		

Summary of Potawatomi Audit Results

Table 17: Summary of Cost, Savings, and Financial Parameters

Location	Measure	Savings				Paybacks		
		Cost	Savings	Savings	Savings	Payback	NPV	IRR
		($)	elec kwh	LP Gal	$	Yrs	$	%
Assisted Living	Indoor Lighting	$3,420	11,419	0	$1,226	2.8	$10,042	37%
	Outdoor Lighting	$2,798	3,201	0	$344	8.1	$1,063	10%
	Vestibule Setpoints	$0	23	34	$40	-	-	-
	Weatherstrip Front Doors	$75	22	31	$37	2.0	$326	50%
	ERVs[1,2]	$47,500	624	1,503	$1,715	25.4	-$24,956	-5%
	WIFI Thermostats[2]		597	83	$155			
	BAS Controls[2,3]	$48,000	1,194	166	$310	-	-	-
	Total	**$101,793**	**17,080**	**1,818**	**$3,827**	**26.6**	**-**	**-**
Caring Place	Indoor Lighting	$3,270	11,577	0	$967	3.4	$7,377	30%
	Outdoor Lighting	$250	175	0	$15	17.1	-$79	0%
	Re-Adjust Blown-In	$200	273	62	$91	2.2	$1,026	47%
	Pipe Insulation	$350	0	124	$135	2.6	$1,130	40%
	Mod. Condensing Unit[2]	$47,500	1,485	0	$124	25.4	-$20,494	-1%
	ERVs[1,2]		3,768	1,034	$1,444			
	WIFI Thermostats[2]		910	208	$303			
	BAS Controls[3]	$72,000	1,820	415	$605	-	-	-
	Removing Trees	$800	5,900	0	$493	1.6	$5,088	62%
	Total	**$124,370**	**25,908**	**1,842**	**$3,683**	**33.8**	**-**	**-**
Women's Trans. Living	Pipe Insulation	$150	0	55	$69	2.2	$602	47%
	Crack Sealing	$300	215	28	$56	5.4	$322	18%
	Repair Solar Panels	$0	5,800	0	$586	0.0	$7,849	-
	Total	**$450**	**6,015**	**83**	**$711**	**0.6**	**-**	**-**
Men's Trans. Living	Pipe Insulation	$150	0	58	$66	2.3	$576	45%
	Window Replacement	$700	28	22	$28	25.3	-$367	-5%
	Fireplace Insert	$4,500	148	117	$148	30.5	-$2,686	-7%

	Total	**$5,350**	**176**	**197**	**$241**	**22.2**	**-**	**-**
Cumulative Total		**$231,963**	**49,179**	**3,941**	**$8,462**	**27.4**	**-**	**-**

[1]Based off savings from code ventilation rates not existing ventilation rates.
[2]Cost is estimated from a lump sum price for both Assisted Living and Caring Place price.
[3]BAS Controls has a marginal energy savings, however it has a larger O&M savings that wasn't evaluated in this report.

Appendices

Tweet Garot HVAC Quote

See attached Tweet Garot HVAC Quote for budgetary pricing.

tweet garot mechanical

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11-14-2019

Forest County Potawatomi: Health & Wellness
Center 8201 Mish Ko Swen Dr
Crandon WI, 54520

RE: HVAC upgrades on existing buildings

To whom it may concern,

Our option #1- **budgetary** lump sum to complete this project is
$95,000 (Ninety-five thousand)

Our Option 1 proposal includes:

- Replacement of 4-ton and 5-ton A/C systems with upgraded, 2 stage condensing units and matching air handlers. (For Elderly care facility)
  - Trane Commercial equipment
- New ERV's installed on both buildings, ducted into bathrooms and control wiring.
  - 1 roof mounted Renewaire ERV (For Elderly care facility)
  - 6 individual room mounted Renewaire ERVs (For assisted living building)
- Replacement of all thermostats with WiFi enabled thermostats for easier access for Maintenance department. For both Buildings.
- Basic control wiring.

- *This is a lump sum, budgetary, labor and material price for this project. As the project scope narrows, we can individualize each buildings cost.*

- *Thank you for the opportunity.*

Our Option #2 budgetary lump sum proposal for **Building Automation** is
+ $120,000 (One-hundred and twenty thousand dollars) in addition to Option 1

- In addition to the option 1 proposal to integrate the existing buildings with the future addition.
- Includes all control wiring and controls.
- Integration to incorporate all existing equipment and control all aspects of HVAC and ventilation.

- Complete Building Automation and new equipment total:

$215,000 (Two-hundred and fifteen-thousand dollars)

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This proposal reflects material pricing as of this date and is valid for 30 days.

Our standard payment terms are net 30 days. Interest will be charged on past due accounts at 1.5% per month.

Acceptance of any proposal will be based upon receipt of a signed copy of this proposal or a written purchase order. All purchases are subject to Tweet/Garot Contract Terms and Conditions (see attached). Work will not commence prior to receipt of written authorization as stated above.

Projects may be progress billed. Any applicable tax included in this proposal. If this project is tax-exempt, an exemption certificate must be submitted with your purchase order.

Thank you for the opportunity to submit this proposal.
Please call **(920) 676-6889** or e-mail **brian.barth@tweetgarot.com** with any questions.

Sincerely,

TWEET/GAROT MECHANICAL, INC. –

Brian R Barth
Project and Procurement Coordinator

ACCEPTANCE OF PROPOSAL:

By: _____ Date: _____ P.O. No. _____

Quote #

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CONTRACT TERMS AND CONDITIONS

1. **Asbestos and Hazardous Materials**. Unless specified in the scope of services, the disturbance, removal or abatement of asbestos or other hazardous materials is not provided for by the terms and conditions of this Contract and in the event that asbestos or other hazardous material is encountered and/or needs to be disturbed in order to complete this project, it will be treated as "extra Work" under Paragraph 11 of this Contract. Tweet/Garot Mechanical, Inc. may require Owner to be responsible for the removal or abatement of asbestos or any other hazardous materials found on the job site before proceeding.

2. **Arbitration/Dispute Resolution**. If a dispute arises out of or relates to this Contract, or the breach thereof, and if said dispute cannot be settled through informal negotiations, either party may escalate the issue to appropriate senior executive management of the parties, with final resolution targeted within fourteen (14) days of such escalation to senior executive management. In all cases, the parties agree to use good faith efforts to achieve resolution in a timely manner. If a resolution cannot be reached during the foregoing dispute resolution process, either party may commence litigation seeking the appropriate remedies and relief. Tweet/Garot and Owner agree that the federal and state courts located in Brown County, Wisconsin shall have exclusive jurisdiction over any and all disputes arising under or out of this Contract, or any document or instrument executed pursuant hereto or in connection herewith; and each further expressly submits to and agrees not to contest any such court's exclusive jurisdiction over such matters.

3. **Limitation on Damages.** TWEET/GAROT MECHANICAL, INC. WILL HAVE NO LIABILITY TO OWNER OR ANY OTHER PERSON FOR LOSS OF PROFITS OR INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER ARISING OUT OF BREACH OF WARRANTY OR BREACH OF ANY OTHER PROVISION IN THIS CONTRACT, NEGLIGENCE OR OTHER SORT, OR OTHERWISE, EVEN IF TWEET/GAROT MECHANICAL, INC. HAS BEEN ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF POTENTIAL LOSS OR DAMAGE. IN ADDITION, ANY DAMAGES FOR WHICH TWEET/GAROT MECHANICAL, INC. MAY BE

LIABLE TO OWNER SHALL NOT, IN ANY EVENT, EXCEED THE TOTAL PRICE OF THE SERVICES PROVIDED BY TWEET/GAROT MECHANICAL, INC.

4. **Reservation of Rights of Dispute.** In the event that Tweet/Garot Mechanical, Inc. is required, or deems it appropriate, to proceed with and complete any Work which is the subject of a dispute between the Owner and Tweet/Garot Mechanical, Inc. as to whether such Work should be classified as a "change" or as an "extra", Tweet/Garot Mechanical, Inc. may, if it deems it appropriate, but is not required to, proceed with such Work, and therefore or contemporaneously, begin arbitration in accordance with the Construction Industry Rules of the American Arbitration Association, to determine whether such Work is in fact a "change" or an "extra" without waiving any said rights, as well as determining the effect of the extra Work.

5. **Attorney Fees**. In the event legal action or arbitration is instituted for the enforcement of any term or condition of this Contract, the prevailing party shall be entitled to an award of reasonable attorney's fees in said action or arbitration, in addition to the costs and reasonable expenses incurred in the prosecution or defense of said action or arbitration.

6. **Removal of Debris**. Upon completion of Work, Tweet/Garot Mechanical, Inc. agrees to remove all of its own debris and surplus materials from Owner's property and leave the property in a neat and clean condition. Tweet/Garot Mechanical, Inc. will not be responsible for any charges for any pro-rated proportion of general clean-up of the premises, nor will it be responsible for the disposal of central scrap piles.

7. **Failure to Make Payments**. If the Owner fails to make the scheduled progress payments as defined in "Schedule of Payments," Tweet/Garot Mechanical, Inc. has the absolute right to cease the performance of any further Work until such time as payment is made. If said payment is more than ten (10) working days late, Tweet/Garot Mechanical, Inc. may treat said lateness as a material breach of this Contract and justifiably refuse to complete the balance of this Contract. Tweet/Garot Mechanical, Inc. may then institute arbitration proceedings as described herein for any and all damages incurred including but not limited to lost profits.

8. **Items Not the Responsibility of Tweet/Garot Mechanical, Inc.** Unless specifically included in the Scope of Services, Tweet/Garot Mechanical, Inc. shall not be held responsible for any violations of applicable building regulations or ordinances, whether cited by the appropriate authority or not. Tweet/Garot Mechanical, Inc. is not responsible for any abnormal or unusual pre-existing conditions.

9. **Excusable Delays**. If Tweet/Garot Mechanical, Inc. is delayed in the performance of the Work by conditions that could not be reasonably foreseen by Tweet/Garot Mechanical, Inc. or are out of the reasonable control of Tweet/Garot Mechanical, Inc., which include, but are not limited to actions taken by Owner, acts of God; fire; explosions or other casualty losses; terrorist acts; strikes, boycotts or other labor disputes; lockouts; hazardous material disturbance, abatement or removal; or acts of governmental bodies, then Owner shall grant Tweet/Garot Mechanical, Inc., a reasonable extension of time. If additional Work or costs are required of, or incurred by Tweet/Garot Mechanical, Inc. as a result of the delay, then Tweet/Garot Mechanical, Inc. shall be entitled to compensation as called for in Paragraph 11.

10. **Safety and OSHA Requirements**. Tweet/Garot Mechanical, Inc. agrees to comply with all local, state and national laws, including without limitation, the provisions of

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the Accident and Safety Health Act of 1970 and the Construction Safety Act of 1969. Tweet/Garot Mechanical, Inc. is not responsible for any liability caused by the Owner's noncompliance or any noncompliance of Owner's employees, agents, representatives or contractors. Owner shall be responsible to provide to Tweet/Garot Mechanical, Inc. personnel all pertinent Material Safety Data Sheets (MSDS) or OSHA's Hazard Communication Regulations.

11. **Extra Work**. Tweet/Garot Mechanical, Inc. shall provide the labor and materials specified in the Scope of Services. Additional Work not specified in the Contract will be provided only upon written authorization of Owner. However, in the event that the parties cannot agree on the sum necessary to compensate Tweet/Garot Mechanical, Inc. for the extra Work, then Tweet/Garot Mechanical, Inc. shall be paid its actual costs for the additional labor and materials as well as its normal overhead and profit. In the event that an emergency exists, then Tweet/Garot Mechanical, Inc. may proceed upon the verbal authorization of Owner or Owner's job superintendent and request written confirmation of the verbal authorization within 72 hours, which confirmation shall not be unreasonably refused.

12. **Protection of Work.** To the extent noted herein, Tweet/Garot Mechanical, Inc. will protect its own Work until completion and acceptance of the Work. To allow Tweet/Garot Mechanical, Inc. to protect the Work, Owner shall provide Tweet/Garot Mechanical, Inc. adequate storage space and security on the construction site. Once Tweet/Garot Mechanical, Inc.'s Work is completed, then the Owner shall be responsible for the protection of the Work, as well as the entire project.

    If Tweet/Garot Mechanical, Inc.'s Work is damaged or destroyed as a result of actions beyond the reasonable control of Tweet/Garot Mechanical, Inc. or through the negligence of persons other than Tweet/Garot Mechanical, Inc., then Tweet/Garot Mechanical, Inc. shall repair and replace said damage or destroyed Work but will do so only upon being compensated for same. Compensation shall be treated as extra Work and the compensation shall be determined as provided in Paragraph 11.

13. **Concealed Conditions**. In the event that Tweet/Garot Mechanical, Inc. encounters rock, groundwater, underground construction utilities or other conditions unknown to Tweet/Garot Mechanical, Inc. and not reasonably foreseeable by Tweet/Garot Mechanical, Inc., then Tweet/Garot Mechanical, Inc. shall immediately stop Work and call Owner's attention to such concealed conditions in writing. The Contract terms will be equitably adjusted in writing.

14. **Insurance**. Tweet/Garot Mechanical, Inc. will carry worker's compensation insurance to protect Tweet/Garot Mechanical, Inc.'s employees during the progress of the Work. The Owner shall obtain and pay for insurance for injury to its own employees and persons not under the control of Tweet/Garot Mechanical, Inc.

15. **Indemnification**. The Owner shall indemnify and hold harmless Tweet/Garot Mechanical, Inc. from and against any and all claims arising from Owner's use of the job site, or from the conduct of the Owner's business or from any activity, work or things done, permitted or suffered by Owner or others in or about the job site or elsewhere, and shall further indemnify and hold harmless Tweet/Garot Mechanical, Inc. from and against any and all claims arising from any breach or

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default in the performance of any obligations on the Owner's part to be performed under the terms of the Contract, or arising from any negligence of the Owner or any of the Owner's agents or employees, and from and against all costs, attorneys' fees, expenses and liabilities incurred in the defense of any such claims or any action or proceeding brought therein; and in case any action or proceeding be brought against Tweet/Garot Mechanical, Inc. by reason of any such claim. The Owner, upon notice from Tweet/Garot Mechanical, Inc., shall defend same at the Owner's expense by counsel satisfactory to Tweet/Garot Mechanical, Inc.

16. **Severability.** The terms and conditions of this Contract are severable. The unenforceability, illegality of invalidity or any provision in this Contract will not affect the enforceability, legality or validity of any other provision of this Contract. Each other provision will remain enforceable.

17. **Entire Agreement.** These terms and conditions and the terms set forth in Tweet/Garot, Mechanical, Inc.'s Proposal to Owner are the entire agreement of the parties, supersede any prior agreements relating to the subject matter, and may not be amended or supplemented other than by a written agreement signed by each of the parties. CONFLICTING, DIFFERENT OR ADDITIONAL TERMS OR CONDITIONS IN ANY PURCHASE ORDER OR OTHER DOCUMENT PROPOSED OR RENDERED BY OWNER WILL NOT APPLY AND TWEET/GAROT MECHANICAL, INC. SPECIFICALLY OBJECTS TO SUCH CONFLICTING, DIFFERENT OR ADDITIONAL TERMS.

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Light Logger Data

Table A1: Light Logger in Assisted Living Outside Rm. 126

Light Logger 10-1-19 to 10-15-19			
Assisted Living Outside Rm. 126	**Total Time**	**Time On**	**Time Off**
Days	13.95	13.95	0.00
Hours	334.92	334.91	0.01
Percentage		**100%**	**0%**

Table A2: Light Logger in Assisted Living Outside Rm. 126

Occupancy Logger 10-1-19 to 10-15-19			
Assisted Living Outside Rm. 126	**Total Time**	**Occupied**	**Unoccupied**
Days	13.95	0.34	13.61
Hours	334.92	8.18	326.73
Percentage		**2%**	**98%**

Table A3: Light Logger in Assisted Living Outside Rm. 126

Light Logger 10-1-19 to 10-15-19			
Assisted Living Outside Rm. 115	**Total Time**	**Time On**	**Time Off**
Days	13.96	13.96	0.00
Hours	334.96	334.95	0.01
Percentage		**100%**	**0%**

Table A4: Light Logger in Assisted Living Outside Rm. 126

Light Logger 10-1-19 to 10-15-19			
Caring Place Outside Rm. NA20	**Total Time**	**Time On**	**Time Off**
Days	13.82	13.82	0.00
Hours	331.65	331.61	0.03
Percentage		**100%**	**0%**

Table A5: Light Logger in Assisted Living Outside Rm. 126

Light Logger 10-1-19 to 10-15-19			
Caring Place Outside Rm. NA42	**Total Time**	**Time On**	**Time Off**
Days	13.81	13.75	0.06
Hours	331.49	329.98	1.51
Percentage		**100%**	**0%**

Motor Logger Data

Table A6: Motor Logger in Caring Place measuring the Stovetop Hood Motor

Motor Logger 10-1-19 to 10-15-19			
Caring Place Stovetop Hood	**Total Time**	**Time On**	**Time Off**
Days	14.44	1.10	13.34
Hours	346.51	26.44	320.07
Percentage		**8%**	**92%**

Table A7: Motor Logger in Caring Place measuring the Dishwasher Hood Motor

Motor Logger 10-1-19 to 10-15-19			
Caring Place Dishwasher Hood	**Total Time**	**Time On**	**Time Off**
Days	14.00	3.94	10.06
Hours	336.02	94.46	241.56
Percentage		**28%**	**72%**

Equipment Lists per Building

Table A8: Assisted Living Equipment List

Equipment	Brand	Model	Serial	Location	Serving
Furnace 1	TempStar	N9MSE0401410A2	A174651290	Equipment Room	Apartment #1
Furnace 2	TempStar	N9MSE0401410A2	A181044003	Equipment Room	Apartment #2
Furnace 3	TempStar	N9MSE0401410A2	A181146622	Equipment Room	Apartment #3
Furnace 4	TempStar	N9MSE0401410A2	A181146666	Equipment Room	Apartment #4
Furnace 5	TempStar	N9MSE0401410A2	A181044005	Equipment Room	Apartment #5
Furnace 6	TempStar	N9MSE0401410A2	A181043998	Equipment Room	Apartment #6
Furnace 7	TempStar	N9MSE0401410A2	A181044009	Equipment Room	Apartment #7
Furnace 8	TempStar	N9MSE0401410A2	A181044011	Equipment Room	Apartment #8
Furnace 9	TempStar	N9MSE0401410A2	A181146645	Equipment Room	Hall
Furnace 10	TempStar	N9MSE0401410A2	A181044002	Equipment Room	Common
Furnace 11	TempStar	N9MSE0401410A2	A181044012	Equipment Room	Hall
Condensing Unit 1	TempStar	N4A330AKG101	E182034178	Roof	Furnace 1
Condensing Unit 2	TempStar	N4A324AKG101	E182521159	Roof	Furnace 2
Condensing Unit 3	TempStar	N4A330AKG101	E182034166	Roof	Furnace 3
Condensing Unit 4	TempStar	N4A324AKG101	E181210885	Roof	Furnace 4
Condensing Unit 5	TempStar	N4A324AKG101	E181210805	Roof	Furnace 5
Condensing Unit 6	TempStar	N4A324AKG101	E181221856	Roof	Furnace 6
Condensing Unit 7	TempStar	N4A324AKG101	E181221883	Roof	Furnace 7
Condensing Unit 8	TempStar	N4A324AKG101	E181221858	Roof	Furnace 8
Condensing Unit 9	TempStar	N4A324AKG101	E182333067	Roof	Furnace 9
Condensing Unit 10	TempStar	N4A324AKG101	E181210891	Roof	Furnace 11
Cab Heater 1	Marley Electric	94506201FFA	9712102	8.75x31x1	Main Entrance
Cab Heater 2	Marley Electric	94506201FFA	9712101	8.75x31x1	Main Entrance
Cab Heater 3	Marly Electric	FrC4024B	na	na	Side Entrance

Cab Heater 4	Marly Electric	FRC4024B	na	na	Side Entrance
Cab Heater 5	Marly Electric	FRC4024B	na	na	Side Entrance
Water Heater 1	AO Smith			Mech. Room	
FA Fan 1 Intake	Carnes	V1BK15PA1NL 20S-G1	240765004	Mech Room	Green House
FA Fan 2 Exh.	Carnes	V1BK15PA1NL 20S-G1	240765 004	Mech Room	Green House
FA Fan 3 Intake	Carnes	V1BK15PA1NL 20S-G1	240765 004	Mech Room	Green House
FA Fan 4 Exh.	Carnes	V1BK15PA1NL 20S-G1	240765 004	Mech Room	Green House

Table A9: Caring Place Equipment List

Equipment	Brand	Model	Serial	Location	Serving
Boiler 1	Weil McLain	EVG220	CP7384823	Mechanical 134	Old Building
Boiler 2	Weil McLain	EVG220	CP7384364	Mechanical 134	Old Building
Water Heater 1	Rheem	GHE100ES-200 LP	RRLPA501304017	Mech room #117	New Building
Water Heater 2	Rheem	GHE100ES-200LP	RRLPA501304015	Mech room #117	New Building
PTAC 1		38HWC4-09-181NP-1A	1613H03051	Room #1	Room #1
PTAK 2		38HWC4-09-181NP-1A	1613H05047	Room #2	Room #2
PTAC 3		38HWC4-09-181NP-1A	1613H05049	Room #3	Room #3
PTAC 4		38HWC4-09-181NP-1A	1613H03045	Room #4	Room #4
PTAK 5		38HWC4-09-181NP-1A	1613H03046	Room #5	Room #5
PTAK 6		38HWC4-09-181NP-1A	161H03048	Room #6	Room #6
PTAK 7		LT1214CNR	403TAZF00245	Room 7	Room 7
PTAK 8		LT1213CNR	304TAYV00554	Room	Room
PTAK 9		LT1214CNR	402TAVY00303	Room	Room
PTAK 10		LT1214CNR	403TAWM00305	Room	Room
PTAC 11		LT1214CNR	403TAWM00233	Room	Room

PTAC 12		LT1214CNR	403TAPE00240	Room	Room
AHU 1	JCI/Lux Aire	MV20DN21CC	W1N4343120	Mech Room 134	Kitchen & Dining
AHU 2	JCI/Lux Aire	MV20DN21CB	W1L2252274	Mech Room 134	Offices & Nurses station
Exhaust Fan 1	Accurex	XRED - 099 - A - X	13663357	Roof	Kitchen Dishwasher
Exhaust Fan 2	Green Heck	CUBE - 160 - 10 - G	99C22382	Roof	Range Hood
ERV 1	Life Breath	1200FD	MBAI 1015130442252	Mech Room #117	New Building
ERV 2	Renew Aire	EV300	F165675R	Mech Room 134	AHU 1&2
Pump 1	Grundfos	UP 43-75 F	0949	Mech Room 134	
Pump 2	Grundfos	UP 43-75 F	9842	Mech Room 134	
Pump 3	Grundfos	UP 26-99 F	9852	Mech Room 134	
Pump 4	Grundfos	UP 15-42 F	9848	Mech Room 134	
Pump 5	Grundfos	UP 26-64 F	NA	Mech Room 134	
Pump 6	Grundfos	UP 26-64 F	9849	Mech Room 134	
Pump 7	B&G	NBF-22	103252	Mech Room 134	
Condenser 1	Armstrong Air	4SCU14LE147P-4	1613C19123	Back of New Building	Furnace 1
Condenser 2	Armstrong Air	4SCU14LE147P-4	1613C19123	Back of New Building	Furnace 2
Condenser 3	Armstrong Air	4SCU14LE147P-4	1613C19123	Back of New Building	Furnace 3
Condenser 4	Armstrong Air	4SCU14LE147P-4	1613C19123	Back of New Building	Furnace 4
Condenser 5	Lux Aire	TCJF60S41S4A	W1E3738660	Side of Old Building	AHU 1
Condenser 6	Lux Aire	TCJF48S41S3A	W1F1151972	Side of Old Building	AHU 2
Furnace 1	Armstrong	A95UH2V110C16S	5913G43036	Mech room #117	
Furnace 2	Armstrong	A95UH2V110C16S	5913G45036	Mech room #117	
Furnace 3	Armstrong	A95UH2V110C16S	5913G38211	Mech room #117	
Furnace 4	Armstrong	A95UH2V110C16S	5912K09798	Mech room #117	

Table A10: Women's Transitional Living Equipment List

Equipment	Brand	Model	Serial	Location	Serving
Furnace 1	Lennox	G61MPV-60C-110-01	5904E10706	Basement	1st & 2nd Floor
Furnace 2	Aire - Flo	AF90MPE050U3B	4604G03200	Basement	Lobby/Reception
Condensing Unit 1	Lennox	HSXA19-036-230-04	5805E17715	Outside	Furnace 1
Condensing Unit 2	Lennox	HS29-018-5P	5805C42116	Outside	Furnace 2
HRU 1	Lennox	85000P	MBAD 0225050313	Basement Maint Office	Furnace 1
Water Heater 1	A.O. Smith	FPSH 75 271	ME040012813	Basement	Building
Water Heater 2	A.O. Smith	FPSH 75 271	ME040012808	Basement	Building

Table A11: Men's Transitional Living Equipment List

Equipment	Brand	Model	Serial	Location	Serving
Furnace 1	Lennox	G61MPV-60C-091-08	5907H01856	Basement	Building
Condensing Unit 1	Carrier	38TUA030300	3094E11031	Outside	Furnace 1
Water Heater 1	Richmond	PROE50 M2 RH95	Q301834585	Basement	Building

Raw Logger Data

Table A12: Assisted Living Hallway near Rm. 126 (Light Logger)

#	Date Time, GMT-05:00	Light (LGR S/N: 10315602, SEN S/N: 10315602)	Occupancy (LGR S/N: 10315602, SEN S/N: 10315602)
1	10/1/2019 11:43	1	0
2	10/1/2019 11:43	1	1
3	10/1/2019 11:43	0	
4	10/1/2019 11:43	1	
5	10/1/2019 11:44	1	0
6	10/1/2019 11:53	1	1
7	10/1/2019 11:54	1	0
8	10/1/2019 14:06	1	1
9	10/1/2019 14:07	1	0
10	10/1/2019 14:20	1	1
11	10/1/2019 14:21	1	0
12	10/1/2019 14:40	1	1
13	10/1/2019 14:42	1	0
14	10/1/2019 14:47	1	1
15	10/1/2019 14:49	1	0
16	10/1/2019 14:49	1	1
17	10/1/2019 14:50	1	0
18	10/1/2019 15:15	1	1
19	10/1/2019 15:16	1	0
20	10/1/2019 15:36	1	1
21	10/1/2019 15:37	1	0
22	10/1/2019 16:06	1	1
23	10/1/2019 16:08	1	0
24	10/1/2019 16:34	1	1
25	10/1/2019 16:35	1	0
26	10/1/2019 18:34	1	1
27	10/1/2019 18:35	1	0
28	10/1/2019 22:07	1	1
29	10/1/2019 22:08	1	0
30	10/1/2019 22:13	1	1
31	10/1/2019 22:16	1	0
32	10/1/2019 22:35	1	1
33	10/1/2019 22:39	1	0
34	10/2/2019 5:54	1	1
35	10/2/2019 5:55	1	0

36	10/2/2019 6:06	1	1
37	10/2/2019 6:07	1	0
38	10/2/2019 6:35	1	1
39	10/2/2019 6:37	1	0
40	10/2/2019 6:37	1	1
41	10/2/2019 6:39	1	0
42	10/2/2019 7:09	1	1
43	10/2/2019 7:10	1	0
44	10/2/2019 7:13	1	1
45	10/2/2019 7:14	1	0
46	10/2/2019 7:26	1	1
47	10/2/2019 7:27	1	0
48	10/2/2019 7:31	1	1
49	10/2/2019 7:32	1	0
50	10/2/2019 8:07	1	1
51	10/2/2019 8:09	1	0
52	10/2/2019 8:14	1	1
53	10/2/2019 8:15	1	0
54	10/2/2019 10:13	1	1
55	10/2/2019 10:14	1	0
56	10/2/2019 10:24	1	1
57	10/2/2019 10:25	1	0
58	10/2/2019 10:26	1	1
59	10/2/2019 10:28	1	0
60	10/2/2019 10:37	1	1
61	10/2/2019 10:40	1	0
62	10/2/2019 10:57	1	1
63	10/2/2019 10:58	1	0
64	10/2/2019 11:00	1	1
65	10/2/2019 11:01	1	0
66	10/2/2019 11:01	1	1
67	10/2/2019 11:04	1	0
68	10/2/2019 11:35	1	1
69	10/2/2019 11:36	1	0
70	10/2/2019 11:36	1	1
71	10/2/2019 11:37	1	0
72	10/2/2019 11:41	1	1
73	10/2/2019 11:42	1	0
74	10/2/2019 11:44	1	1
75	10/2/2019 11:45	1	0
76	10/2/2019 11:47	1	1
77	10/2/2019 11:49	1	0
78	10/2/2019 11:50	1	1

79	10/2/2019 11:51	1	0
80	10/2/2019 11:57	1	1
81	10/2/2019 11:58	1	0
82	10/2/2019 13:00	1	1
83	10/2/2019 13:01	1	0
84	10/2/2019 13:02	1	1
85	10/2/2019 13:03	1	0
86	10/2/2019 13:58	1	1
87	10/2/2019 14:00	1	0
88	10/2/2019 14:13	1	1
89	10/2/2019 14:14	1	0
90	10/2/2019 14:40	1	1
91	10/2/2019 14:42	1	0
92	10/2/2019 14:44	1	1
93	10/2/2019 14:46	1	0
94	10/2/2019 14:48	1	1
95	10/2/2019 14:49	1	0
96	10/2/2019 14:53	1	1
97	10/2/2019 14:54	1	0
98	10/2/2019 15:29	1	1
99	10/2/2019 15:30	1	0
100	10/2/2019 15:42	1	1
101	10/2/2019 15:43	1	0
102	10/2/2019 15:47	1	1
103	10/2/2019 15:55	1	0
104	10/2/2019 16:28	1	1
105	10/2/2019 16:29	1	0
106	10/2/2019 17:37	1	1
107	10/2/2019 17:38	1	0
108	10/2/2019 17:39	1	1
109	10/2/2019 17:41	1	0
110	10/2/2019 17:41	1	1
111	10/2/2019 17:42	1	0
112	10/2/2019 17:42	1	1
113	10/2/2019 17:44	1	0
114	10/2/2019 18:01	1	1
115	10/2/2019 18:02	1	0
116	10/2/2019 19:48	1	1
117	10/2/2019 19:50	1	0
118	10/2/2019 19:57	1	1
119	10/2/2019 19:59	1	0
120	10/3/2019 5:54	1	1

121	10/3/2019 5:55	1	0
122	10/3/2019 6:33	1	1
123	10/3/2019 6:34	1	0
124	10/3/2019 6:35	1	1
125	10/3/2019 6:36	1	0
126	10/3/2019 6:43	1	1
127	10/3/2019 6:44	1	0
128	10/3/2019 6:47	1	1
129	10/3/2019 6:48	1	0
130	10/3/2019 6:48	1	1
131	10/3/2019 6:50	1	0
132	10/3/2019 6:52	1	1
133	10/3/2019 6:53	1	0
134	10/3/2019 7:07	1	1
135	10/3/2019 7:09	1	0
136	10/3/2019 7:14	1	1
137	10/3/2019 7:15	1	0
138	10/3/2019 9:38	1	1
139	10/3/2019 9:39	1	0
140	10/3/2019 9:55	1	1
141	10/3/2019 9:56	1	0
142	10/3/2019 9:58	1	1
143	10/3/2019 10:00	1	0
144	10/3/2019 10:02	1	1
145	10/3/2019 10:04	1	0
146	10/3/2019 10:24	1	1
147	10/3/2019 10:25	1	0
148	10/3/2019 11:08	1	1
149	10/3/2019 11:10	1	0
150	10/3/2019 12:24	1	1
151	10/3/2019 12:25	1	0
152	10/3/2019 12:41	1	1
153	10/3/2019 12:42	1	0
154	10/3/2019 13:07	1	1
155	10/3/2019 13:08	1	0
156	10/3/2019 13:34	1	1
157	10/3/2019 13:36	1	0
158	10/3/2019 13:53	1	1
159	10/3/2019 13:54	1	0
160	10/3/2019 13:55	1	1
161	10/3/2019 13:56	1	0
162	10/3/2019 14:36	1	1

163	10/3/2019 14:38	1	0
164	10/3/2019 14:43	1	1
165	10/3/2019 14:46	1	0
166	10/3/2019 15:34	1	1
167	10/3/2019 15:36	1	0
168	10/3/2019 16:00	1	1
169	10/3/2019 16:01	1	0
170	10/3/2019 17:24	1	1
171	10/3/2019 17:25	1	0
172	10/3/2019 18:11	1	1
173	10/3/2019 18:13	1	0
174	10/3/2019 18:51	1	1
175	10/3/2019 18:53	1	0
176	10/3/2019 20:12	1	1
177	10/3/2019 20:13	1	0
178	10/4/2019 5:16	1	1
179	10/4/2019 5:17	1	0
180	10/4/2019 6:57	1	1
181	10/4/2019 6:58	1	0
182	10/4/2019 7:06	1	1
183	10/4/2019 7:07	1	0
184	10/4/2019 10:01	1	1
185	10/4/2019 10:02	1	0
186	10/4/2019 10:03	1	1
187	10/4/2019 10:04	1	0
188	10/4/2019 10:26	1	1
189	10/4/2019 10:27	1	0
190	10/4/2019 11:53	1	1
191	10/4/2019 11:55	1	0
192	10/4/2019 12:42	1	1
193	10/4/2019 12:43	1	0
194	10/4/2019 15:42	1	1
195	10/4/2019 15:44	1	0
196	10/4/2019 16:07	1	1
197	10/4/2019 16:08	1	0
198	10/4/2019 17:24	1	1
199	10/4/2019 17:26	1	0
200	10/4/2019 17:28	1	1
201	10/4/2019 17:29	1	0
202	10/4/2019 17:31	1	1
203	10/4/2019 17:32	1	0
204	10/4/2019 19:10	1	1

205	10/4/2019 19:15	1	0
206	10/4/2019 19:15	1	1
207	10/4/2019 19:18	1	0
208	10/4/2019 19:20	1	1
209	10/4/2019 19:21	1	0
210	10/4/2019 19:30	1	1
211	10/4/2019 19:31	1	0
212	10/4/2019 19:52	1	1
213	10/4/2019 19:53	1	0
214	10/4/2019 21:11	1	1
215	10/4/2019 21:12	1	0
216	10/4/2019 21:30	1	1
217	10/4/2019 21:32	1	0
218	10/5/2019 8:18	1	1
219	10/5/2019 8:19	1	0
220	10/5/2019 11:23	1	1
221	10/5/2019 11:25	1	0
222	10/5/2019 11:32	1	1
223	10/5/2019 11:33	1	0
224	10/5/2019 11:37	1	1
225	10/5/2019 11:38	1	0
226	10/5/2019 11:58	1	1
227	10/5/2019 12:03	1	0
228	10/5/2019 13:15	1	1
229	10/5/2019 13:17	1	0
230	10/5/2019 13:17	1	1
231	10/5/2019 13:18	1	0
232	10/5/2019 13:18	1	1
233	10/5/2019 13:21	1	0
234	10/5/2019 13:22	1	1
235	10/5/2019 13:24	1	0
236	10/5/2019 13:29	1	1
237	10/5/2019 13:33	1	0
238	10/5/2019 13:41	1	1
239	10/5/2019 13:42	1	0
240	10/5/2019 19:32	1	1
241	10/5/2019 19:33	1	0
242	10/5/2019 19:38	1	1
243	10/5/2019 19:39	1	0
244	10/5/2019 19:55	1	1
245	10/5/2019 19:56	1	0
246	10/5/2019 19:56	1	1

247	10/5/2019 19:57	1	0
248	10/5/2019 20:27	1	1
249	10/5/2019 20:28	1	0
250	10/5/2019 22:01	1	1
251	10/5/2019 22:03	1	0
252	10/6/2019 0:32	1	1
253	10/6/2019 0:33	1	0
254	10/6/2019 7:56	1	1
255	10/6/2019 7:58	1	0
256	10/6/2019 7:59	1	1
257	10/6/2019 8:00	1	0
258	10/6/2019 9:11	1	1
259	10/6/2019 9:12	1	0
260	10/6/2019 10:44	1	1
261	10/6/2019 10:46	1	0
262	10/6/2019 10:52	1	1
263	10/6/2019 10:53	1	0
264	10/6/2019 13:15	1	1
265	10/6/2019 13:16	1	0
266	10/6/2019 14:19	1	1
267	10/6/2019 14:21	1	0
268	10/6/2019 16:54	1	1
269	10/6/2019 16:55	1	0
270	10/6/2019 16:55	1	1
271	10/6/2019 16:56	1	0
272	10/6/2019 17:28	1	1
273	10/6/2019 17:29	1	0
274	10/6/2019 17:41	1	1
275	10/6/2019 17:42	1	0
276	10/6/2019 17:42	1	1
277	10/6/2019 17:44	1	0
278	10/6/2019 18:02	1	1
279	10/6/2019 18:04	1	0
280	10/6/2019 18:26	1	1
281	10/6/2019 18:28	1	0
282	10/6/2019 18:29	1	1
283	10/6/2019 18:30	1	0
284	10/6/2019 18:39	1	1
285	10/6/2019 18:40	1	0
286	10/6/2019 19:25	1	1
287	10/6/2019 19:26	1	0
288	10/6/2019 19:30	1	1

289	10/6/2019 19:31	1	0
290	10/6/2019 19:38	1	1
291	10/6/2019 19:39	1	0
292	10/6/2019 19:39	1	1
293	10/6/2019 19:40	1	0
294	10/6/2019 21:03	1	1
295	10/6/2019 21:04	1	0
296	10/6/2019 21:15	1	1
297	10/6/2019 21:16	1	0
298	10/7/2019 0:32	1	1
299	10/7/2019 0:33	1	0
300	10/7/2019 5:54	1	1
301	10/7/2019 5:55	1	0
302	10/7/2019 6:46	1	1
303	10/7/2019 6:47	1	0
304	10/7/2019 6:56	1	1
305	10/7/2019 6:57	1	0
306	10/7/2019 7:07	1	1
307	10/7/2019 7:09	1	0
308	10/7/2019 7:09	1	1
309	10/7/2019 7:13	1	0
310	10/7/2019 7:13	1	1
311	10/7/2019 7:14	1	0
312	10/7/2019 9:14	1	1
313	10/7/2019 9:15	1	0
314	10/7/2019 9:47	1	1
315	10/7/2019 9:49	1	0
316	10/7/2019 10:17	1	1
317	10/7/2019 10:18	1	0
318	10/7/2019 11:10	1	1
319	10/7/2019 11:12	1	0
320	10/7/2019 11:15	1	1
321	10/7/2019 11:16	1	0
322	10/7/2019 11:41	1	1
323	10/7/2019 11:42	1	0
324	10/7/2019 12:32	1	1
325	10/7/2019 12:33	1	0
326	10/7/2019 13:05	1	1
327	10/7/2019 13:06	1	0
328	10/7/2019 15:27	1	1
329	10/7/2019 15:28	1	0
330	10/7/2019 21:08	1	1

331	10/7/2019 21:09	1	0
332	10/7/2019 21:51	1	1
333	10/7/2019 21:52	1	0
334	10/7/2019 22:01	1	1
335	10/7/2019 22:02	1	0
336	10/7/2019 22:56	1	1
337	10/7/2019 22:57	1	0
338	10/8/2019 5:49	1	1
339	10/8/2019 5:50	1	0
340	10/8/2019 6:12	1	1
341	10/8/2019 6:13	1	0
342	10/8/2019 6:20	1	1
343	10/8/2019 6:21	1	0
344	10/8/2019 6:39	1	1
345	10/8/2019 6:40	1	0
346	10/8/2019 7:03	1	1
347	10/8/2019 7:04	1	0
348	10/8/2019 7:11	1	1
349	10/8/2019 7:12	1	0
350	10/8/2019 7:17	1	1
351	10/8/2019 7:18	1	0
352	10/8/2019 7:35	1	1
353	10/8/2019 7:36	1	0
354	10/8/2019 7:36	1	1
355	10/8/2019 7:38	1	0
356	10/8/2019 8:03	1	1
357	10/8/2019 8:04	1	0
358	10/8/2019 8:20	1	1
359	10/8/2019 8:21	1	0
360	10/8/2019 8:32	1	1
361	10/8/2019 8:33	1	0
362	10/8/2019 9:35	1	1
363	10/8/2019 9:36	1	0
364	10/8/2019 9:45	1	1
365	10/8/2019 9:46	1	0
366	10/8/2019 11:04	1	1
367	10/8/2019 11:06	1	0
368	10/8/2019 11:06	1	1
369	10/8/2019 11:07	1	0
370	10/8/2019 11:10	1	1
371	10/8/2019 11:11	1	0
372	10/8/2019 11:11	1	1

373	10/8/2019 11:13	1	0
374	10/8/2019 11:14	1	1
375	10/8/2019 11:16	1	0
376	10/8/2019 11:16	1	1
377	10/8/2019 11:17	1	0
378	10/8/2019 12:02	1	1
379	10/8/2019 12:03	1	0
380	10/8/2019 12:08	1	1
381	10/8/2019 12:10	1	0
382	10/8/2019 13:11	1	1
383	10/8/2019 13:12	1	0
384	10/8/2019 13:22	1	1
385	10/8/2019 13:23	1	0
386	10/8/2019 13:29	1	1
387	10/8/2019 13:30	1	0
388	10/8/2019 13:32	1	1
389	10/8/2019 13:33	1	0
390	10/8/2019 14:41	1	1
391	10/8/2019 14:42	1	0
392	10/8/2019 15:55	1	1
393	10/8/2019 15:57	1	0
394	10/8/2019 16:49	1	1
395	10/8/2019 16:50	1	0
396	10/8/2019 17:07	1	1
397	10/8/2019 17:09	1	0
398	10/8/2019 18:50	1	1
399	10/8/2019 18:51	1	0
400	10/8/2019 19:03	1	1
401	10/8/2019 19:04	1	0
402	10/9/2019 4:53	1	1
403	10/9/2019 4:54	1	0
404	10/9/2019 5:13	1	1
405	10/9/2019 5:14	1	0
406	10/9/2019 6:40	1	1
407	10/9/2019 6:43	1	0
408	10/9/2019 6:49	1	1
409	10/9/2019 6:50	1	0
410	10/9/2019 6:54	1	1
411	10/9/2019 6:55	1	0
412	10/9/2019 7:05	1	1
413	10/9/2019 7:06	1	0
414	10/9/2019 7:09	1	1

415	10/9/2019 7:10	1	0
416	10/9/2019 7:10	1	1
417	10/9/2019 7:12	1	0
418	10/9/2019 7:33	1	1
419	10/9/2019 7:35	1	0
420	10/9/2019 9:33	1	1
421	10/9/2019 9:34	1	0
422	10/9/2019 9:36	1	1
423	10/9/2019 9:37	1	0
424	10/9/2019 9:40	1	1
425	10/9/2019 9:42	1	0
426	10/9/2019 9:42	1	1
427	10/9/2019 9:43	1	0
428	10/9/2019 10:35	1	1
429	10/9/2019 10:36	1	0
430	10/9/2019 10:42	1	1
431	10/9/2019 10:43	1	0
432	10/9/2019 11:13	1	1
433	10/9/2019 11:15	1	0
434	10/9/2019 11:17	1	1
435	10/9/2019 11:18	1	0
436	10/9/2019 11:30	1	1
437	10/9/2019 11:31	1	0
438	10/9/2019 11:44	1	1
439	10/9/2019 11:45	1	0
440	10/9/2019 11:49	1	1
441	10/9/2019 11:50	1	0
442	10/9/2019 12:41	1	1
443	10/9/2019 12:42	1	0
444	10/9/2019 13:48	1	1
445	10/9/2019 13:49	1	0
446	10/9/2019 14:39	1	1
447	10/9/2019 14:40	1	0
448	10/9/2019 14:42	1	1
449	10/9/2019 14:44	1	0
450	10/9/2019 15:43	1	1
451	10/9/2019 15:44	1	0
452	10/9/2019 15:49	1	1
453	10/9/2019 15:50	1	0
454	10/9/2019 16:11	1	1
455	10/9/2019 16:12	1	0
456	10/9/2019 16:19	1	1

457	10/9/2019 16:20	1	0
458	10/9/2019 16:44	1	1
459	10/9/2019 16:45	1	0
460	10/9/2019 16:59	1	1
461	10/9/2019 17:00	1	0
462	10/9/2019 17:22	1	1
463	10/9/2019 17:23	1	0
464	10/9/2019 17:55	1	1
465	10/9/2019 17:57	1	0
466	10/9/2019 17:57	1	1
467	10/9/2019 17:58	1	0
468	10/9/2019 19:21	1	1
469	10/9/2019 19:22	1	0
470	10/9/2019 19:22	1	1
471	10/9/2019 19:23	1	0
472	10/9/2019 23:35	1	1
473	10/9/2019 23:36	1	0
474	10/9/2019 23:43	1	1
475	10/9/2019 23:44	1	0
476	10/10/2019 1:30	1	1
477	10/10/2019 1:31	1	0
478	10/10/2019 5:22	1	1
479	10/10/2019 5:23	1	0
480	10/10/2019 5:26	1	1
481	10/10/2019 5:27	1	0
482	10/10/2019 6:08	1	1
483	10/10/2019 6:09	1	0
484	10/10/2019 6:20	1	1
485	10/10/2019 6:21	1	0
486	10/10/2019 6:22	1	1
487	10/10/2019 6:23	1	0
488	10/10/2019 6:38	1	1
489	10/10/2019 6:39	1	0
490	10/10/2019 6:54	1	1
491	10/10/2019 6:55	1	0
492	10/10/2019 6:57	1	1
493	10/10/2019 6:58	1	0
494	10/10/2019 7:07	1	1
495	10/10/2019 7:08	1	0
496	10/10/2019 7:11	1	1
497	10/10/2019 7:12	1	0
498	10/10/2019 7:17	1	1

499	10/10/2019 7:18	1	0
500	10/10/2019 7:22	1	1
501	10/10/2019 7:23	1	0
502	10/10/2019 7:27	1	1
503	10/10/2019 7:28	1	0
504	10/10/2019 8:48	1	1
505	10/10/2019 8:49	1	0
506	10/10/2019 9:00	1	1
507	10/10/2019 9:01	1	0
508	10/10/2019 9:02	1	1
509	10/10/2019 9:03	1	0
510	10/10/2019 9:25	1	1
511	10/10/2019 9:26	1	0
512	10/10/2019 10:03	1	1
513	10/10/2019 10:04	1	0
514	10/10/2019 10:43	1	1
515	10/10/2019 10:44	1	0
516	10/10/2019 10:45	1	1
517	10/10/2019 10:46	1	0
518	10/10/2019 10:55	1	1
519	10/10/2019 10:57	1	0
520	10/10/2019 11:30	1	1
521	10/10/2019 11:32	1	0
522	10/10/2019 11:41	1	1
523	10/10/2019 11:42	1	0
524	10/10/2019 12:15	1	1
525	10/10/2019 12:17	1	0
526	10/10/2019 12:53	1	1
527	10/10/2019 12:55	1	0
528	10/10/2019	1	1

	13:26		
529	10/10/2019 13:27	1	0
530	10/10/2019 13:37	1	1
531	10/10/2019 13:38	1	0
532	10/10/2019 13:51	1	1
533	10/10/2019 13:53	1	0
534	10/10/2019 15:41	1	1
535	10/10/2019 15:43	1	0
536	10/10/2019 15:47	1	1
537	10/10/2019 15:48	1	0
538	10/10/2019 16:54	1	1
539	10/10/2019 16:55	1	0
540	10/10/2019 17:36	1	1
541	10/10/2019 17:37	1	0
542	10/10/2019 17:56	1	1
543	10/10/2019 17:58	1	0
544	10/10/2019 17:58	1	1
545	10/10/2019 18:00	1	0
546	10/10/2019 18:50	1	1
547	10/10/2019 18:52	1	0
548	10/10/2019 21:34	1	1
549	10/10/2019 21:35	1	0
550	10/10/2019 21:37	1	1
551	10/10/2019 21:38	1	0
552	10/11/2019 0:15	1	1

553	10/11/2019 0:16	1	0
554	10/11/2019 5:57	1	1
555	10/11/2019 5:58	1	0
556	10/11/2019 7:15	1	1
557	10/11/2019 7:16	1	0
558	10/11/2019 10:54	1	1
559	10/11/2019 10:56	1	0
560	10/11/2019 12:38	1	1
561	10/11/2019 12:40	1	0
562	10/11/2019 13:58	1	1
563	10/11/2019 13:59	1	0
564	10/11/2019 15:03	1	1
565	10/11/2019 15:04	1	0
566	10/11/2019 18:18	1	1
567	10/11/2019 18:19	1	0
568	10/11/2019 19:33	1	1
569	10/11/2019 19:34	1	0
570	10/11/2019 20:12	1	1
571	10/11/2019 20:14	1	0
572	10/11/2019 23:39	1	1
573	10/11/2019 23:40	1	0
574	10/12/2019 5:26	1	1
575	10/12/2019 5:27	1	0
576	10/12/2019 9:41	1	1
577	10/12/2019 9:43	1	0
578	10/12/2019 10:06	1	1
579	10/12/2019 10:08	1	0
580	10/12/2019 11:25	1	1
581	10/12/2019	1	0

	11:27		
582	10/12/2019 11:28	1	1
583	10/12/2019 11:29	1	0
584	10/12/2019 11:29	1	1
585	10/12/2019 11:30	1	0
586	10/12/2019 11:33	1	1
587	10/12/2019 11:39	1	0
588	10/12/2019 11:50	1	1
589	10/12/2019 11:52	1	0
590	10/12/2019 11:57	1	1
591	10/12/2019 11:58	1	0
592	10/12/2019 12:36	1	1
593	10/12/2019 12:37	1	0
594	10/12/2019 13:07	1	1
595	10/12/2019 13:08	1	0
596	10/12/2019 14:03	1	1
597	10/12/2019 14:04	1	0
598	10/12/2019 14:04	1	1
599	10/12/2019 14:05	1	0
600	10/12/2019 15:48	1	1
601	10/12/2019 15:49	1	0
602	10/12/2019 15:49	1	1
603	10/12/2019 15:50	1	0
604	10/12/2019 16:18	1	1
605	10/12/2019	1	0

	16:19		
606	10/12/2019 22:24	1	1
607	10/12/2019 22:26	1	0
608	10/12/2019 23:33	1	1
609	10/12/2019 23:35	1	0
610	10/13/2019 1:44	1	1
611	10/13/2019 1:46	1	0
612	10/13/2019 2:21	1	1
613	10/13/2019 2:22	1	0
614	10/13/2019 7:37	1	1
615	10/13/2019 7:38	1	0
616	10/13/2019 7:39	1	1
617	10/13/2019 7:40	1	0
618	10/13/2019 8:40	1	1
619	10/13/2019 8:41	1	0
620	10/13/2019 8:42	1	1
621	10/13/2019 8:43	1	0
622	10/13/2019 10:52	1	1
623	10/13/2019 10:53	1	0
624	10/13/2019 10:55	1	1
625	10/13/2019 10:56	1	0
626	10/13/2019 11:16	1	1
627	10/13/2019 11:17	1	0
628	10/13/2019 14:08	1	1
629	10/13/2019 14:09	1	0
630	10/13/2019 18:08	1	1
631	10/13/2019 18:09	1	0
632	10/13/2019 18:36	1	1
633	10/13/2019 18:37	1	0
634	10/14/2019 5:29	1	1
635	10/14/2019 5:31	1	0

636	10/14/2019 7:02	1	1
637	10/14/2019 7:04	1	0
638	10/14/2019 7:05	1	1
639	10/14/2019 7:06	1	0
640	10/14/2019 10:38	1	1
641	10/14/2019 10:39	1	0
642	10/14/2019 15:35	1	1
643	10/14/2019 15:36	1	0
644	10/14/2019 16:44	1	1
645	10/14/2019 16:46	1	0
646	10/14/2019 16:53	1	1
647	10/14/2019 16:55	1	0
648	10/14/2019 17:10	1	1
649	10/14/2019 17:11	1	0
650	10/14/2019 17:15	1	1
651	10/14/2019 17:16	1	0
652	10/14/2019 17:24	1	1
653	10/14/2019 17:26	1	0
654	10/14/2019 17:30	1	1
655	10/14/2019 17:31	1	0
656	10/14/2019 18:11	1	1
657	10/14/2019 18:12	1	0
658	10/14/2019 18:55	1	1
659	10/14/2019 18:56	1	0
660	10/14/2019 19:00	1	1
661	10/14/2019	1	0

	19:01		
662	10/14/2019 19:01	1	1
663	10/14/2019 19:02	1	0
664	10/14/2019 19:06	1	1
665	10/14/2019 19:08	1	0
666	10/14/2019 19:34	1	1
667	10/14/2019 19:35	1	0
668	10/14/2019 19:37	1	1
669	10/14/2019 19:38	1	0
670	10/14/2019 20:23	1	1
671	10/14/2019 20:25	1	0
672	10/14/2019 20:36	1	1
673	10/14/2019 20:38	1	0
674	10/14/2019 20:52	1	1
675	10/14/2019 20:54	1	0
676	10/14/2019 22:06	1	1
677	10/14/2019 22:07	1	0
678	10/14/2019 22:26	1	1
679	10/14/2019 22:28	1	0
680	10/15/2019 2:19	1	1
681	10/15/2019 2:20	1	0
682	10/15/2019 5:06	1	1
683	10/15/2019 5:07	1	0
684	10/15/2019 7:08	1	1
685	10/15/2019 7:10	1	0
686	10/15/2019 7:11	1	1
687	10/15/2019 7:14	1	0
688	10/15/2019 7:17	1	1

689	10/15/2019 7:18	1	0
690	10/15/2019 7:18	1	1
691	10/15/2019 7:19	1	0
692	10/15/2019 7:21	1	1
693	10/15/2019 7:22	1	0
694	10/15/2019 7:26	1	1
695	10/15/2019 7:27	1	0
696	10/15/2019 7:37	1	1
697	10/15/2019 7:38	1	0
698	10/15/2019 7:51	1	1
699	10/15/2019 7:52	1	0
700	10/15/2019 9:54	1	1
701	10/15/2019 9:56	1	0
702	10/15/2019 9:56	1	1
703	10/15/2019 9:58	1	0
704	10/15/2019 10:04	1	1
705	10/15/2019 10:05	1	0
706	10/15/2019 10:06	1	1
707	10/15/2019 10:07	1	0
708	10/15/2019 10:07	1	1
709	10/15/2019 10:08	1	0
710	10/15/2019 10:18	1	1
711	10/15/2019 10:19	1	0
712	10/15/2019 10:37	1	1

Table A13: Assisted Living Hallway near Rm. 115 (Light Logger)

#	Date Time, GMT-05:00	Light (LGR S/N: 10313816, SEN S/N: 10313816)
1	10/1/2019 11:44	1
2	10/1/2019 11:44	1
3	10/1/2019 15:43	0
4	10/1/2019 15:43	1
5	10/15/2019 10:41	0
6	10/15/2019 10:41	1
7	10/15/2019 10:41	0

Table A14: Caring Place Hallway near Rm. NA20 (Light Logger)

#	Date Time, GMT-05:00	Light (LGR S/N: 10130019, SEN S/N: 10130019)
1	10/1/2019 15:36	1
2	10/1/2019 15:36	1
3	10/1/2019 15:36	0
4	10/1/2019 15:36	1
5	10/2/2019 7:41	0
6	10/2/2019 7:41	1
7	10/2/2019 22:52	0
8	10/2/2019 22:52	1
9	10/15/2019 11:11	0
10	10/15/2019 11:12	1
11	10/15/2019 11:12	0
12	10/15/2019 11:12	1
13	10/15/2019 11:12	0
14	10/15/2019 11:12	1
15	10/15/2019 11:12	0
16	10/15/2019 11:13	1
17	10/15/2019 11:13	0
18	10/15/2019 11:13	1
19	10/15/2019 11:13	0
20	10/15/2019 11:13	1

21	10/15/2019 11:13	0
22	10/15/2019 11:13	1
23	10/15/2019 11:13	0
24	10/15/2019 11:13	1
25	10/15/2019 11:13	0
26	10/15/2019 11:14	1
27	10/15/2019 11:14	0
28	10/15/2019 11:15	1
29	10/15/2019 11:15	0

Table A15: Caring Place Hallway near Rm. NA42 (Light Logger)

#	Date Time, GMT-05:00	Light (LGR S/N: 10313818, SEN S/N: 10313818)
1	10/1/2019 15:38	1
2	10/1/2019 15:38	**1**
3	10/5/2019 0:01	0
4	10/5/2019 0:02	1
5	10/5/2019 4:01	0
6	10/5/2019 4:10	1
7	10/6/2019 1:03	0
8	10/6/2019 1:10	1
9	10/6/2019 5:24	0
10	10/6/2019 5:27	1
11	10/8/2019 4:44	0
12	10/8/2019 4:50	1
13	10/9/2019 3:48	0
14	10/9/2019 3:56	1
15	10/11/2019 0:15	0
16	10/11/2019 0:20	1
17	10/11/2019 3:40	0
18	10/11/2019 3:45	1
19	10/12/2019 0:31	0
20	10/12/2019 0:36	1
21	10/12/2019 1:48	0
22	10/12/2019 2:04	1
23	10/12/2019 2:51	0
24	10/12/2019 2:51	1
25	10/12/2019 4:09	0
26	10/12/2019 4:18	1

27	10/12/2019 5:43	0
28	10/12/2019 5:50	1
29	10/13/2019 3:56	0
30	10/13/2019 4:08	1
31	10/15/2019 11:07	0
32	10/15/2019 11:07	1
33	10/15/2019 11:07	0
34	10/15/2019 11:07	1
35	10/15/2019 11:07	0

Table A16: Caring Place Stovetop Hood (Motor Log)

#	Date Time, GMT-05:00	Motor (LGR S/N: 10238603, SEN S/N: 10238603)
1	10/1/2019 10:57	0
2	10/1/2019 10:58	1
3	10/1/2019 10:59	0
4	10/1/2019 10:59	1
5	10/1/2019 10:59	0
6	10/1/2019 11:02	1
7	10/1/2019 11:02	0
8	10/1/2019 11:08	1
9	10/1/2019 11:08	0
10	10/1/2019 11:12	1
11	10/1/2019 11:12	0
12	10/1/2019 11:19	1
13	10/1/2019 11:19	0
14	10/1/2019 11:30	1
15	10/1/2019 11:30	0
16	10/1/2019 11:33	1
17	10/1/2019 11:33	0
18	10/1/2019 11:34	1
19	10/1/2019 11:34	0
20	10/1/2019 15:19	1
21	10/1/2019 15:19	0
22	10/1/2019 15:20	1
23	10/1/2019 15:20	0
24	10/1/2019 15:20	1
25	10/1/2019 15:20	0
26	10/1/2019 15:25	1
27	10/1/2019 15:25	0
28	10/1/2019 15:28	1
29	10/1/2019 15:28	0
30	10/1/2019 15:31	1
31	10/1/2019 15:32	0
32	10/2/2019 6:56	1
33	10/2/2019 14:54	0
34	10/2/2019 15:34	1
35	10/2/2019 15:42	0
36	10/3/2019 8:53	1
37	10/3/2019 8:54	0
38	10/3/2019 8:56	1

39	10/3/2019 8:58	0
40	10/3/2019 9:15	1
41	10/3/2019 16:35	0
42	10/4/2019 11:46	1
43	10/4/2019 11:52	0
44	10/5/2019 7:15	1
45	10/5/2019 7:17	0
46	10/5/2019 8:02	1
47	10/5/2019 8:09	0
48	10/5/2019 8:09	1
49	10/5/2019 8:09	0
50	10/6/2019 11:49	1
51	10/6/2019 11:50	0
52	10/6/2019 13:01	1
53	10/6/2019 13:07	0
54	10/6/2019 15:25	1
55	10/6/2019 15:30	0
56	10/6/2019 15:56	1
57	10/6/2019 15:56	0
58	10/6/2019 15:56	1
59	10/6/2019 15:58	0
60	10/7/2019 6:53	1
61	10/7/2019 6:55	0
62	10/7/2019 7:02	1
63	10/7/2019 7:02	0
64	10/7/2019 7:03	1
65	10/7/2019 7:09	0
66	10/7/2019 8:17	1
67	10/7/2019 8:18	0
68	10/7/2019 13:52	1
69	10/7/2019 13:53	0
70	10/7/2019 13:54	1
71	10/7/2019 14:02	0
72	10/7/2019 14:08	1
73	10/7/2019 14:13	0
74	10/7/2019 15:38	1
75	10/7/2019 15:39	0
76	10/8/2019 10:28	1
77	10/8/2019 10:29	0
78	10/8/2019 10:52	1
79	10/8/2019 10:58	0
80	10/8/2019 12:00	1

81	10/8/2019 12:02	0
82	10/8/2019 12:11	1
83	10/8/2019 12:11	0
84	10/8/2019 13:08	1
85	10/8/2019 13:09	0
86	10/8/2019 13:34	1
87	10/8/2019 13:35	0
88	10/8/2019 14:58	1
89	10/8/2019 15:16	0
90	10/8/2019 15:16	1
91	10/8/2019 15:17	0
92	10/8/2019 15:17	1
93	10/8/2019 15:37	0
94	10/8/2019 15:46	1
95	10/8/2019 15:47	0
96	10/9/2019 6:59	1
97	10/9/2019 7:13	0
98	10/9/2019 8:46	1
99	10/9/2019 8:47	0
100	10/9/2019 9:05	1
101	10/9/2019 9:06	0
102	10/9/2019 9:22	1
103	10/9/2019 9:24	0
104	10/9/2019 9:49	1
105	10/9/2019 10:15	0
106	10/9/2019 12:51	1
107	10/9/2019 12:52	0
108	10/9/2019 12:54	1
109	10/9/2019 13:01	0
110	10/9/2019 13:07	1
111	10/9/2019 13:11	0
112	10/9/2019 15:16	1
113	10/9/2019 15:38	0
114	10/10/2019 7:07	1
115	10/10/2019 7:13	0
116	10/10/2019 7:24	1
117	10/10/2019 7:31	0
118	10/10/2019 7:46	1
119	10/10/2019 7:52	0
120	10/10/2019 7:55	1
121	10/10/2019 7:59	0
122	10/10/2019 8:05	1

123	10/10/2019 8:11	0
124	10/10/2019 8:13	1
125	10/10/2019 8:23	0
126	10/10/2019 8:47	1
127	10/10/2019 8:48	0
128	10/10/2019 8:58	1
129	10/10/2019 9:01	0
130	10/10/2019 9:06	1
131	10/10/2019 9:14	0
132	10/10/2019 9:19	1
133	10/10/2019 15:49	0
134	10/11/2019 7:06	1
135	10/11/2019 7:12	0
136	10/11/2019 15:29	1
137	10/11/2019 15:29	0
138	10/13/2019 7:13	1
139	10/13/2019 7:14	0
140	10/13/2019 10:58	1
141	10/13/2019 10:59	0
142	10/13/2019 10:59	1
143	10/13/2019 11:00	0
144	10/13/2019 13:30	1
145	10/13/2019 13:34	0
146	10/14/2019 7:04	1
147	10/14/2019 7:10	0
148	10/14/2019 7:38	1
149	10/14/2019 7:38	0
150	10/14/2019 7:38	1
151	10/14/2019 7:38	0
152	10/14/2019 11:32	1
153	10/14/2019 11:39	0
154	10/14/2019 11:50	1
155	10/14/2019	0

	11:52	
156	10/14/2019 15:59	1
157	10/14/2019 15:59	0
158	10/15/2019 7:41	1
159	10/15/2019 7:44	0
160	10/15/2019 9:29	1
161	10/15/2019 9:30	0
162	10/15/2019 21:29	1
163	10/15/2019 21:29	0

Table A17: Caring Place Dishwasher Hood (Motor Log)

#	Date Time, GMT-05:00	Motor (LGR S/N: 10238604, SEN S/N: 10238604)
1	10/1/2019 10:56	0
2	10/1/2019 10:59	1
3	10/1/2019 10:59	0
4	10/1/2019 10:59	1
5	10/1/2019 10:59	0
6	10/1/2019 11:01	1
7	10/1/2019 11:01	0
8	10/1/2019 11:01	1
9	10/1/2019 11:02	0
10	10/1/2019 11:02	1
11	10/1/2019 11:02	0
12	10/1/2019 11:02	1
13	10/1/2019 11:02	0
14	10/1/2019 11:03	1
15	10/1/2019 11:03	0
16	10/1/2019 11:12	1
17	10/1/2019 11:12	0
18	10/1/2019 11:12	1
19	10/1/2019 11:12	0
20	10/1/2019 11:13	1
21	10/1/2019 11:13	0
22	10/1/2019 11:13	1
23	10/1/2019 11:13	0
24	10/1/2019 11:13	1
25	10/1/2019 11:14	0

26	10/1/2019 11:19	1
27	10/1/2019 11:19	0
28	10/1/2019 11:19	1
29	10/1/2019 11:20	0
30	10/1/2019 11:23	1
31	10/1/2019 11:23	0
32	10/1/2019 11:24	1
33	10/1/2019 11:24	0
34	10/1/2019 11:25	1
35	10/1/2019 11:25	0
36	10/1/2019 11:26	1
37	10/1/2019 11:26	0
38	10/1/2019 11:27	1
39	10/1/2019 11:27	0
40	10/1/2019 11:27	1
41	10/1/2019 11:27	0
42	10/1/2019 11:27	1
43	10/1/2019 11:27	0

44	10/1/2019 11:27	1
45	10/1/2019 11:27	0
46	10/1/2019 11:29	1
47	10/1/2019 11:29	0
48	10/1/2019 11:30	1
49	10/1/2019 11:30	0
50	10/1/2019 15:19	1
51	10/1/2019 15:19	0
52	10/1/2019 15:19	1
53	10/1/2019 15:19	0
54	10/1/2019 15:20	1
55	10/1/2019 15:20	0
56	10/1/2019 15:20	1
57	10/1/2019 15:20	0
58	10/1/2019 15:28	1
59	10/1/2019 15:28	0
60	10/1/2019 15:31	1
61	10/1/2019 15:31	0
62	10/1/2019 15:31	1
63	10/1/2019 16:45	0
64	10/2/2019 6:56	1
65	10/2/2019 16:45	0
66	10/3/2019 6:39	1
67	10/3/2019 16:50	0
68	10/7/2019 6:37	1
69	10/7/2019 16:20	0
70	10/8/2019 6:35	1
71	10/8/2019 16:41	0
72	10/9/2019 6:47	1
73	10/9/2019 16:52	0
74	10/11/2019 7:05	1
75	10/11/2019 16:57	0
76	10/12/2019 7:01	1
77	10/12/2019 17:02	0
78	10/13/2019 6:59	1
79	10/13/2019 16:28	0
80	10/14/2019 7:07	1
81	10/14/2019 16:48	0
82	10/15/2019 6:47	1
83	10/15/2019 11:00	0