

# FACILITY CONDITION ASSESSMENT & ENERGY AUDIT



**BUREAU  
VERITAS**

*prepared for*

## **Providence Health & Services**

4400 Northeast Halsey Street, Building 2, Suite 190  
Portland, Oregon 97213  
David Thomsen



Providence Heritage House at the Market  
1533 Western Avenue  
Seattle, Washington 98101

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### **BV PROJECT #:**

*137802.21R000-072.379*

### **DATE OF REPORT:**

*July 17, 2021*

### **ON SITE DATE:**

*May 26, 2021*

# TABLE OF CONTENTS

- 1. Executive Summary ..... 1**
  - Property Overview and Assessment Details ..... 1
  - Significant/Systemic Findings and Deficiencies ..... 2
  - Facility Condition Index (FCI) ..... 3
  - Immediate Needs..... 4
  - Key Findings ..... 5
  - Plan Types..... 6
- 2. Building and Site Information ..... 7**
- 3. Property Space Use and Observed Areas ..... 10**
- 4. ADA Accessibility ..... 11**
- 5. Purpose and Scope ..... 12**
- 6. Opinions of Probable Costs ..... 14**
  - Methodology ..... 14
  - Definitions ..... 14
- 7. Energy Audit ..... 16**
- 8. Energy Conservation Measures..... 17**
- 9. Utility Analysis ..... 19**
  - Electricity ..... 20
  - Natural Gas..... 20
  - Propane or Fuel Oil ..... 20
  - Water and Sewer..... 20
- 10. Operations & Maintenance Plan..... 21**
- 11. Certification..... 22**
- 12. Appendices ..... 23**



# 1. Executive Summary

## Property Overview and Assessment Details

General Information	
Property Type	Assisted living
Main Address	1533 Western Avenue, Seattle, Washington 98101
Site Developed	1989 Renovated 2009
Site Area	1 acre (estimated)
Parking Spaces	None
Building Area	49,464 SF
Number of Stories	3 above grades
Outside Occupants / Leased Spaces	Building is leased, not owned
Date(s) of Visit	May 26, 2021
Management Point of Contact	Providence Health, Jennifer Herrmann, Property Manager 206.382.4119 Jennifer.Herrmann@providence.org
On-site Point of Contact (POC)	same as above
Assessment and Report Prepared By	Linda Tan
Reviewed By	Al Diefert Technical Report Reviewer For Andy Hupp Program Manager Andy.hupp@bureauveritas.com 800.733.0660 x6632
AssetCalc Link	Full dataset for this assessment can be found at: <a href="https://www.assetcalc.net/">https://www.assetcalc.net/</a>



## Significant/Systemic Findings and Deficiencies

### Historical Summary

The building is not owned by Providence Health but has been leased since 1989. The tenant has been responsible for the interior finishes. The building was built in 1989. There has been an interior renovation in 2009 to the hallways and offices. There are three stories and 51 residential units in the assisted living facility.

### Architectural

The hallway behind the kitchen has a dip in the floor by the exit. The floor seems to have caved in and needs to be repaired. The roofing has been replaced since construction and the façade has been maintained regularly by the property owner. The common area interior finishes are replaced as needed over the years and the resident units are updated upon turn over.

### Mechanical, Electrical, Plumbing and Fire (MEPF)

The equipment in the kitchen seems to be nearing the end of its useful life and some of the equipment is out of order or not in use anymore. The rooftop package units are original to building construction and will require replacement in the near future. The package units are maintained regularly by a contractor. The water heaters in the boiler room have been replaced 3 years ago. Not all of the lighting has been converted to LED yet, although the bulbs are replaced with LED when they burn out.

### Site

There is no parking lot for the site and the property owner is responsible for all exterior and site finishes.

### Recommended Additional Studies

No additional studies recommended at this time.

## Facility Condition Index (FCI)

One of the major goals of the FCA is to calculate each building’s Facility Condition Index (FCI), which provides a theoretical objective indication of a building’s overall condition. By definition, the FCI is defined as the ratio of the cost of current needs divided by current replacement value (CRV) of the facility. The chart below presents the industry standard ranges and cut-off points.

FCI Ranges and Description	
<b>0 – 5%</b>	In new or well-maintained condition, with little or no visual evidence of wear or deficiencies.
<b>5 – 10%</b>	Subjected to wear but is still in a serviceable and functioning condition.
<b>10 – 30%</b>	Subjected to hard or long-term wear. Nearing the end of its useful or serviceable life.
<b>30% and above</b>	Has reached the end of its useful or serviceable life. Renewal is now necessary.

The deficiencies and lifecycle needs identified in this assessment provide the basis for a portfolio-wide capital improvement funding strategy. In addition to the current FCI, extended FCI’s have been developed to provide owners the intelligence needed to plan and budget for the “keep-up costs” for their facilities. As such the 3-year, 5-year, and 10-year FCI’s are calculated by dividing the anticipated needs of those respective time periods by current replacement value. As a final point, the FCI’s ultimately provide more value when used to relatively compare facilities across a portfolio instead of being over-analyzed and scrutinized as stand-alone values. The table below summarizes the individual findings for this FCA:

FCI Analysis   Providence Heritage House at the Market (1989)			
Replacement Value	Total SF	Cost/SF	
\$ 37,098,000	49,464	\$ 750	
<b>Current FCI</b>		\$ 8,000	<b>0.0 %</b>
3-Year		\$ 286,200	0.8 %
5-Year		\$ 1,009,900	2.7 %
10-Year		\$ 2,417,800	<b>6.5 %</b>

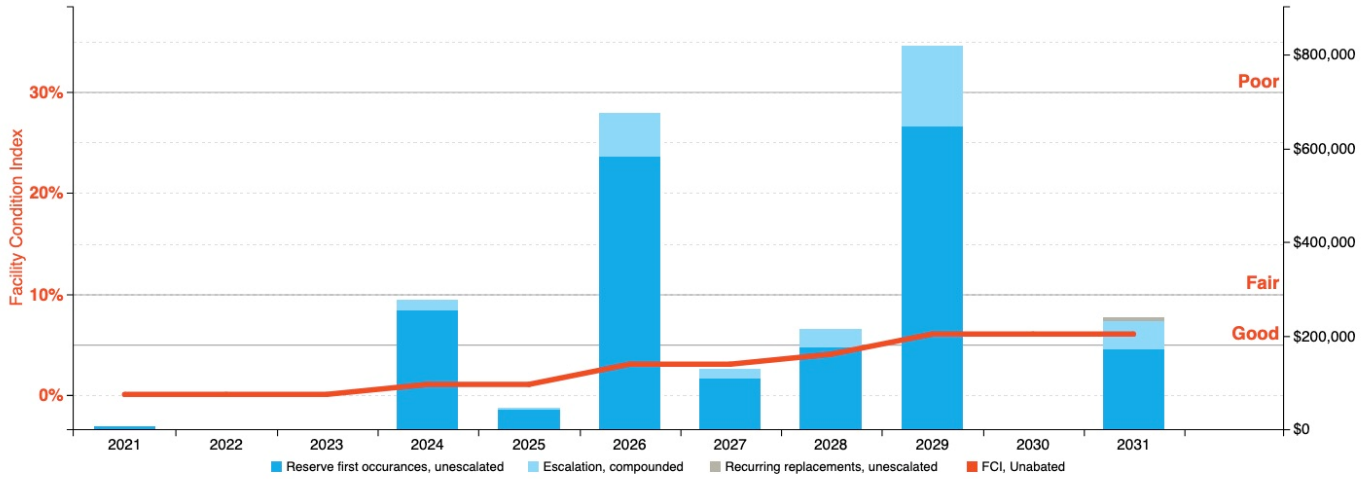


The vertical bars below represent the year-by-year needs identified for the site. The orange line in the graph below forecasts what would happen to the FCI (left Y axis) over time, assuming zero capital expenditures over the next ten years. The dollar amounts allocated for each year (blue bars) are associated with the values along the right Y axis.

## Needs by Year with Unaddressed FCI Over Time

### FCI Analysis: Providence Heritage House at the Market

Replacement Value: \$ 37,098,000; Inflation rate: 3.0%



## Immediate Needs

Facility/Building	Total Items	Total Cost
Providence Heritage House at the Market	2	\$8,000
<b>Total</b>	<b>2</b>	<b>\$8,000</b>

### Providence Heritage House at the Market

ID	Location	Location Description	UF Code	Description	Condition	Plan Type	Cost
3042873	Providence Heritage House at the Market	Kitchen	E1030	Foodservice Equipment, Steamer, Tabletop, Replace	Failed	Performance/Integrity	\$7,600
3042973	Providence Heritage House at the Market	Kitchen hallway	B1010	Structural Flooring, Concrete, Repair	Poor	Performance/Integrity	\$400
<b>Total (2 items)</b>							<b>\$8,000</b>



## Key Findings



### Structural Flooring in Poor condition.

Concrete  
Providence Heritage House at the Market  
Kitchen hallway

Uniformat Code: B1012  
Recommendation: **Repair in 2021**

Priority Score: **89.9**

Plan Type:  
Performance/Integrity

Cost Estimate: \$400

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The floor is sunken. - AssetCALC ID: 3042973



### Foodservice Equipment in Failed condition.

Steamer, Tabletop  
Providence Heritage House at the Market  
Kitchen

Uniformat Code: E1038  
Recommendation: **Replace in 2021**

Priority Score: **81.9**

Plan Type:  
Performance/Integrity

Cost Estimate: \$7,600

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Out of order - AssetCALC ID: 3042873

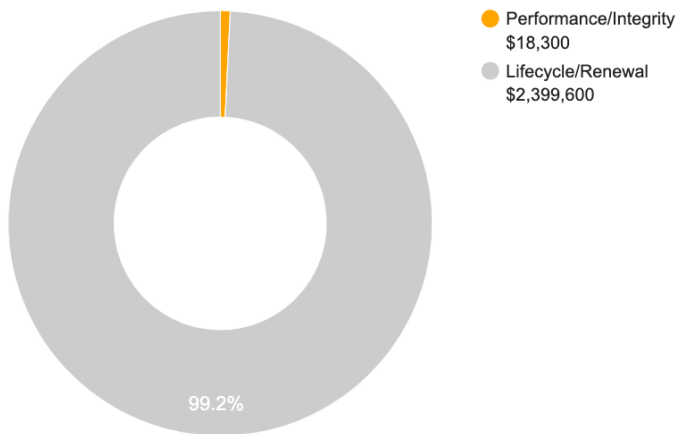
## Plan Types

Each line item in the cost database is assigned a Plan Type, which is the primary reason or rationale for the recommended replacement, repair, or other corrective action. This is the “why” part of the equation. A cost or line item may commonly have more than one applicable Plan Type; however, only one Plan Type will be assigned based on the “best” fit, typically the one with the greatest significance.

### Plan Type Descriptions

<b>Safety</b>	■ An observed or reported unsafe condition that if left unaddressed could result in injury; a system or component that presents potential liability risk.
<b>Performance/Integrity</b>	■ Component or system has failed, is almost failing, performs unreliably, does not perform as intended, and/or poses risk to overall system stability.
<b>Accessibility</b>	■ Does not meet ADA, UFAS, and/or other handicap accessibility requirements.
<b>Environmental</b>	■ Improvements to air or water quality, including removal of hazardous materials from the building or site.
<b>Retrofit/Adaptation</b>	■ Components, systems, or spaces recommended for upgrades in in order to meet current standards, facility usage, or client/occupant needs.
<b>Lifecycle/Renewal</b>	■ Any component or system that is not currently deficient or problematic but for which future replacement or repair is anticipated and budgeted.

### Plan Type Distribution (by Cost)



10-YEAR TOTAL: \$2,417,900





## 2. Building and Site Information



Systems Summary		
<i>System</i>	<i>Description</i>	<i>Condition</i>
<b>Structure</b>	Conventional wood frame structure over concrete slab foundation	Fair
<b>Façade</b>	Primary Wall Finish: EIFS Windows: Aluminum	Fair
<b>Roof</b>	Primary: Flat construction with modified bituminous finish	Fair
<b>Interiors</b>	Walls: Painted gypsum board Floors: Carpet, VCT, faux wood plank LVT, ceramic tile, quarry tile Ceilings: Painted gypsum board and ACT	Fair
<b>Elevators</b>	Passenger: 1 hydraulic car serving all 3 floors	Fair
<b>Plumbing</b>	Distribution: Copper supply and cast-iron waste & venting Hot Water: Gas domestic boilers with storage tanks Fixtures: Toilets, urinals, and sinks in all public restrooms	Fair
<b>HVAC</b>	Non-Central System: Packaged units	Fair
<b>Fire Suppression</b>	Wet-pipe sprinkler system and fire extinguishers, and kitchen hood system	Fair
<b>Electrical</b>	Source & Distribution: Main switchboard Interior Lighting: LED, linear fluorescent, CFL Emergency Power: None	Fair



Systems Summary		
<b>Fire Alarm</b>	Alarm panel with smoke detectors, heat detectors, alarms, strobes, pull stations, back-up emergency lights, and exit signs	Fair
<b>Equipment/Special</b>	Commercial kitchen equipment and commercial laundry equipment	Fair
<b>Site Pavement</b>	None	Fair
<b>Site Development</b>	Building-mounted signage	Fair
<b>Landscaping and Topography</b>	No landscaping features Irrigation not present Low to moderate site slopes throughout	Fair
<b>Utilities</b>	Municipal water and sewer Local utility-provided electric and natural gas	Fair
<b>Site Lighting</b>	Pole-mounted: LED, HPS, metal halide Building-mounted: LED, HPS, CFL, halogen, incandescent, fluorescent, metal halide Pedestrian walkway and landscape accent lighting	Fair
<b>Ancillary Structures</b>	None	Fair
<b>Accessibility</b>	Presently it does not appear an accessibility study is needed for this property.	
<b>Key Issues and Findings</b>	Possible settlement in isolated hallway on first floor behind kitchen. Food service equipment out of order	



<b>Systems Expenditure Forecast</b>						
<b>System</b>	<b>Immediate</b>	<b>Short Term (1-2 yr)</b>	<b>Near Term (3-5 yr)</b>	<b>Med Term (6-10 yr)</b>	<b>Long Term (11-20 yr)</b>	<b>TOTAL</b>
Structure	\$391	-	-	-	-	\$391
Facade	-	-	-	\$15,696	\$161,591	\$177,287
Roofing	-	-	\$232,871	\$7,682	-	\$240,553
Interiors	-	\$114	\$361,669	\$53,520	\$738,364	\$1,153,667
Conveying	-	-	-	\$102,536	-	\$102,536
Plumbing	-	-	-	\$263,340	\$139,314	\$402,654
HVAC	-	-	\$277,230	\$155,043	\$358,207	\$790,480
Fire Protection	-	-	-	\$103,223	\$5,420	\$108,643
Electrical	-	-	\$14,490	\$587,866	\$57,763	\$660,119
Fire Alarm & Electronic Systems	-	-	\$9,072	-	\$147,437	\$156,509
Equipment & Furnishings	\$7,609	-	\$106,355	\$119,039	\$279,946	\$512,949
<b>TOTALS</b>	<b>\$8,000</b>	<b>\$200</b>	<b>\$1,001,700</b>	<b>\$1,408,000</b>	<b>\$1,888,100</b>	<b>\$4,306,000</b>



### 3. Property Space Use and Observed Areas

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#### Areas Observed

The interior spaces were observed in order to gain a clear understanding of the property's overall condition. Other areas accessed included the site within the property boundaries, the exterior of the property, and the roofs.

#### Key Spaces Not Observed

All key areas of the property were accessible and observed.

## 4. ADA Accessibility

Generally, Title II of the Americans with Disabilities Act (ADA) prohibits discrimination by entities to access and use of “areas of public accommodations” and “public facilities” on the basis of disability. Regardless of their age, these areas and facilities must be maintained and operated to comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

A public entity (i.e. city governments) shall operate each service, program, or activity so that the service, program, or activity, when viewed in its entirety, is readily accessible to and usable by individuals with disabilities.

However, this does not:

1. Necessarily require a public entity to make each of its existing facilities accessible to and usable by individuals with disabilities;
2. Require a public entity to take any action that would threaten or destroy the historic significance of an historic property; or
3. Require a public entity to take any action that it can demonstrate would result in a fundamental alteration in the nature of a service, program, or activity or in undue financial and administrative burdens. In those circumstances where personnel of the public entity believe that the proposed action would fundamentally alter the service, program, or activity or would result in undue financial and administrative burdens, a public entity has the burden of proving that compliance with 35.150(a) of this part would result in such alteration or burdens. The decision that compliance would result in such alteration or burdens must be made by the head of a public entity or his or her designee after considering all resources available for use in the funding and operation of the service, program, or activity, and must be accompanied by a written statement of the reasons for reaching that conclusion. If an action would result in such an alteration or such burdens, a public entity shall take any other action that would not result in such an alteration or such burdens but would nevertheless ensure that individuals with disabilities receive the benefits or services provided by the public entity.

Removal of barriers to accessibility should be addressed from a liability standpoint in order to comply with federal law, but the barriers may or may not be building code violations. The Americans with Disabilities Act Accessibility Guidelines are part of the ADA federal civil rights law pertaining to the disabled and are not a construction code. State and local jurisdictions have adopted the ADA Guidelines or have adopted other standards for accessibility as part of their construction codes.

During the FCA, Bureau Veritas performed a limited high-level accessibility review of the facility non-specific to any local regulations or codes. The scope of the visual observation was limited to the same areas observed while performing the FCA and the categories set forth in the tables that are included in the appendix. It is understood by the Client that the limited observations described herein do not comprise a full ADA Compliance Survey, and that such a survey is beyond the scope of this particular assessment. A full measured ADA survey would be required to identify any and all specific potential accessibility issues. Additional clarifications of this limited survey:

- This survey was visual in nature and actual measurements were not taken to verify compliance
- Only a representative sample of areas was observed
- Two overview photos were taken for each subsection regardless of perceived compliance or non-compliance
- Itemized costs for individual non-compliant items are not included in the dataset
- For any “none” boxes checked or reference to “no issues” identified, that alone does not guarantee full compliance

The facility was originally constructed in 1989. The facility was substantially renovated in 2009.

No information about complaints or pending litigation associated with potential accessibility issues was provided during the interview process.

No detailed follow-up accessibility study is currently recommended since no major or moderate issues were identified at the subject site. Reference the appendix for specific data, photos, and tables or checklists associated with this limited accessibility survey.

## 5. Purpose and Scope

### Purpose

Bureau Veritas was retained by the client to render an opinion as to the Property’s current general physical condition on the day of the site visit.

Based on the observations, interviews and document review outlined below, this report identifies significant deferred maintenance issues, existing deficiencies, and material code violations of record, which affect the Property’s use. Opinions are rendered as to its structural integrity, building system condition and the Property’s overall condition. The report also notes building systems or components that have realized or exceeded their typical expected useful lives.

The physical condition of building systems and related components are typically defined as being in one of five condition ratings. For the purposes of this report, the following definitions are used:

Condition Ratings	
<b>Excellent</b>	New or very close to new; component or system typically has been installed within the past year, sound and performing its function. Eventual repair or replacement will be required when the component or system either reaches the end of its useful life or fails in service.
<b>Good</b>	Satisfactory as-is. Component or system is sound and performing its function, typically within the first third of its lifecycle. However, it may show minor signs of normal wear and tear. Repair or replacement will be required when the component or system either reaches the end of its useful life or fails in service.
<b>Fair</b>	Showing signs of wear and use but still satisfactory as-is, typically near the median of its estimated useful life. Component or system is performing adequately at this time but may exhibit some signs of wear, deferred maintenance, or evidence of previous repairs. Repair or replacement will be required due to the component or system’s condition and/or its estimated remaining useful life.
<b>Poor</b>	Component or system is significantly aged, flawed, functioning intermittently or unreliably; displays obvious signs of deferred maintenance; shows evidence of previous repair or workmanship not in compliance with commonly accepted standards; has become obsolete; or exhibits an inherent deficiency. The present condition could contribute to or cause the deterioration of contiguous elements or systems. Either full component replacement is needed or repairs are required to restore to good condition, prevent premature failure, and/or prolong useful life.
<b>Failed</b>	Component or system has ceased functioning or performing as intended. Replacement, repair, or other significant corrective action is recommended or required.
<b>Not Applicable</b>	Assigning a condition does not apply or make logical sense, most commonly due to the item in question not being present.



## Scope

The standard scope of the Facility Condition Assessment includes the following:

- Visit the Property to evaluate the general condition of the building and site improvements, review available construction documents in order to familiarize ourselves with, and be able to comment on, the in-place construction systems, life safety, mechanical, electrical, and plumbing systems, and the general built environment.
- Identify those components that are exhibiting deferred maintenance issues and provide cost estimates for Immediate Costs and Replacement Reserves based on observed conditions, maintenance history and industry standard useful life estimates. This will include the review of documented capital improvements completed within the last five-year period and work currently contracted for, if applicable.
- Provide a full description of the Property with descriptions of in-place systems and commentary on observed conditions.
- Provide a high-level categorical general statement regarding the subject Property's compliance to Title III of the Americans with Disabilities Act. This will not constitute a full ADA survey, but will help identify exposure to issues and the need for further review.
- Obtain background and historical information about the facility from a building engineer, property manager, maintenance staff, or other knowledgeable source. The preferred methodology is to have the client representative or building occupant complete a Pre-Survey Questionnaire (PSQ) in advance of the site visit. Common alternatives include a verbal interview just prior to or during the walk-through portion of the assessment.
- Review maintenance records and procedures with the in-place maintenance personnel.
- Observe a representative sample of the interior spaces/units, including vacant spaces/units, to gain a clear understanding of the property's overall condition. Other areas to be observed include the exterior of the property, the roofs, interior common areas, and the significant mechanical, electrical and elevator equipment rooms.
- Provide recommendations for additional studies, if required, with related budgetary information.
- Provide an Executive Summary at the beginning of this report, which highlights key findings and includes a Facility Condition Index as a basis for comparing the relative conditions of the buildings within the portfolio.

## 6. Opinions of Probable Costs

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Cost estimates are attached throughout this report, with the Replacement Reserves in the appendix.

These estimates are based on Invoice or Bid Document/s provided either by the Owner/facility and construction costs developed by construction resources such as *R.S. Means*, *CBRE Whitestone*, and *Marshall & Swift*, Bureau Veritas's experience with past costs for similar properties, city cost indexes, and assumptions regarding future economic conditions.

Opinions of probable costs should only be construed as preliminary, order of magnitude budgets. Actual costs most probably will vary from the consultant's opinions of probable costs depending on such matters as type and design of suggested remedy, quality of materials and installation, manufacturer and type of equipment or system selected, field conditions, whether a physical deficiency is repaired or replaced in whole, phasing or bundling of the work (if applicable), quality of contractor, quality of project management exercised, market conditions, use of subcontractors, and whether competitive pricing is solicited, etc. Certain opinions of probable costs cannot be developed within the scope of this guide without further study. Opinions of probable cost for further study should be included in the FCA.

### Methodology

Based upon site observations, research, and judgment, along with referencing Expected Useful Life (EUL) tables from various industry sources, Bureau Veritas opines as to when a system or component will most probably necessitate replacement. Accurate historical replacement records, if provided, are typically the best source of information. Exposure to the elements, initial quality and installation, extent of use, the quality and amount of preventive maintenance exercised, etc., are all factors that impact the effective age of a system or component. As a result, a system or component may have an effective age that is greater or less than its actual chronological age. The Remaining Useful Life (RUL) of a component or system equals the EUL less its *effective age*, whether explicitly or implicitly stated. Projections of Remaining Useful Life (RUL) are based primarily on age and condition with the presumption of continued use and maintenance of the Property similar to the observed and reported past use and maintenance practices, in conjunction with the professional judgment of Bureau Veritas's assessors. Significant changes in occupants and/or usage may affect the service life of some systems or components.

Where quantities could not be or were not derived from an actual construction document take-off or facility walk-through, and/or where systemic costs are more applicable or provide more intrinsic value, budgetary square foot and gross square foot costs are used. Estimated costs are based on professional judgment and the probable or actual extent of the observed defect, inclusive of the cost to design, procure, construct and manage the corrections.

### Definitions

#### Immediate Needs

Immediate Needs are line items that require immediate action as a result of: (1) material existing or potential unsafe conditions, (2) failed or imminent failure of mission critical building systems or components, or (3) conditions that, if not addressed, have the potential to result in, or contribute to, critical element or system failure within one year or will most probably result in a significant escalation of its remedial cost.

For database and reporting purposes the line items with RUL=0, and commonly associated with *Safety* or *Performance/Integrity* Plan Types, are considered Immediate Needs.



## Replacement Reserves

Cost line items traditionally called Replacement Reserves (equivalently referred to as Lifecycle/Renewals) are for recurring probable renewals or expenditures, which are not classified as operation or maintenance expenses. The replacement reserves should be budgeted for in advance on an annual basis. Replacement Reserves are reasonably predictable both in terms of frequency and cost. However, Replacement Reserves may also include components or systems that have an indeterminable life but, nonetheless, have a potential for failure within an estimated time period.

Replacement Reserves generally exclude systems or components that are estimated to expire after the reserve term and are not considered material to the structural and mechanical integrity of the subject property. Furthermore, systems and components that are not deemed to have a material effect on the use of the Property are also excluded. Costs that are caused by acts of God, accidents, or other occurrences that are typically covered by insurance, rather than reserved for, are also excluded.

Replacement costs are solicited from ownership/property management, Bureau Veritas's discussions with service companies, manufacturers' representatives, and previous experience in preparing such schedules for other similar facilities. Costs for work performed by the ownership's or property management's maintenance staff are also considered.

Bureau Veritas's reserve methodology involves identification and quantification of those systems or components requiring capital reserve funds within the assessment period. The assessment period is defined as the effective age plus the reserve term. Additional information concerning system's or component's respective replacement costs (in today's dollars), typical expected useful lives, and remaining useful lives were estimated so that a funding schedule could be prepared. The Replacement Reserves Schedule presupposes that all required remedial work has been performed or that monies for remediation have been budgeted for items defined as Immediate Needs.

For the purposes of 'bucketizing' the System Expenditure Forecasts in this report, the Replacement Reserves have been subdivided and grouped as follows: Short Term (years 1-3), Near Term (years 4-5), Medium Term (years 6-10), and Long Term (years 11-20).

## Key Findings

In an effort to highlight the most significant cost items and not be overwhelmed by the Replacement Reserves report in its totality, a subsection of Key Findings is included within the Executive Summary section of this report. Key Findings typically include repairs or replacements of deficient items within the first five-year window, as well as the most significant high-dollar line items that fall anywhere within the ten-year term. Note that while there is some subjectivity associated with identifying the Key Findings, the Immediate Needs are always included as a subset.

## Exceedingly Aged

A fairly common scenario encountered during the assessment process, and a frequent source of debate, occurs when classifying and describing "very old" systems or components that are still functioning adequately and do not appear nor were reported to be in any way deficient. To help provide some additional intelligence on these items, such components will be tagged in the database as Exceedingly Aged. This designation will be reserved for mechanical or electrical systems or components that have aged well beyond their industry standard lifecycles, typically at least 15 years beyond and/or twice their Estimated Useful Life (EUL). In tandem with this designation, these items will be assigned a Remaining Useful Life (RUL) not less than two years but not greater than 1/3 of their standard EUL. As such the recommended replacement time for these components will reside outside the typical Short Term window but will not be pushed 'irresponsibly' (too far) into the future.

## 7. Energy Audit

The purpose of this Energy Audit is to provide Providence Heritage House at the Market with a baseline of energy usage, the relative energy efficiency of the facility, and specific recommendations for Energy Conservation Measures. Information obtained from these analyses may be used to support a future application to an Energy Conservation Program, Federal and Utility grants towards energy conservation, as well as support performance contracting, justify a municipal bond-funded improvement program, or as a basis for replacement of equipment or systems

The energy audit consisted of an onsite visual assessment to determine current conditions, itemize the energy consuming equipment (i.e. Boilers, Make-Up Air Units, DWH equipment); review lighting systems both exterior and interior; and review efficiency of all such equipment. The study also included interviews and consultation with operational and maintenance personnel. The following is a summary of the tasks and reporting that make up the Energy Audit portion of the report.

The following is a summary of the tasks and reporting that make up the Energy Audit portion of the report.

### ***Energy and Water Using Equipment***

- Bureau Veritas has surveyed the common areas, offices, maintenance facilities and mechanical rooms to document utility-related equipment, including heating systems, cooling systems, air handling systems and lighting systems.

### ***Building Envelope***

- Bureau Veritas has reviewed the characteristics and conditions of the building envelope, checking insulation values and conditions. This review also includes an inspection of the condition of walls, windows, doors, roof areas, insulation and special use areas. Where we anticipated significant losses, we utilized infrared thermographs to analyze heat loss across the envelope.

### ***Recommendations for Energy Savings Opportunities***

- Based on the information gathered during the on-site assessment, the utility rates, as well as recent consumption data and engineering analysis, Bureau Veritas has identified opportunities to save energy and provide probable construction costs, projected energy/utility savings and provide a simple payback analysis.

### ***Analysis of Energy Consumption***

- Based on the information gathered during the on-site assessment and a, Bureau Veritas has conducted an analysis of the energy usage of all equipment, and identified which equipment is using the most energy and what equipment upgrades may be necessary. As a result, equipment upgrades, or replacements are identified that may provide a reasonable return on the investment and improve maintenance reliability.

### ***Energy Audit Process***

- Interviewing staff and review plans and past upgrades
- Performing an energy audit for each use type
- Performing a preliminary evaluation of the utility system
- Analyzing findings, utilizing ECM cost-benefit worksheets
- Making preliminary recommendations for system energy improvements and measures
- Estimating initial cost and changes in operating and maintenance costs based on implementation of energy efficiency measures
- Ranking recommended cost measures, based on the criticality of the project and the largest payback

## 8. Energy Conservation Measures

Bureau Veritas has conducted an Energy Audit on Providence Heritage House at the Market. The study included a review of the building’s construction features, historical energy and water consumption and costs, review of the building envelope, HVAC equipment, heat distribution systems, lighting, and the building’s operational and maintenance practices.

Bureau Veritas has evaluated five Energy Conservation Measures (ECMs) for this property. The savings for each measure are calculated using standard engineering methods followed in the industry, and detailed calculations for ECM are provided in Appendix H for reference. A 10% discount in energy savings was applied to account for the interactive effects amongst the ECMs. In addition to the consideration of the interactive effects, Bureau Veritas has applied a 15% contingency to the implementation costs to account for potential cost overruns during the implementation of the ECMs.

Recommended Energy Conservation Measures: Financial Impact	
Total Projected Initial ECM Investment	\$180,565 <i>(In Current Dollars)</i>
Estimated Annual Cost Savings Related to ECMs	\$30,909 <i>(In Current Dollars)</i>
Net Effective ECM Payback	5.84 years

Bureau Veritas screens ECMs using two financial methodologies. ECMs which are considered financially viable must meet both criteria.

1. Simple Payback Period –The number of years required for the cumulative value of energy or water cost savings less future non-fuel or non-water costs to equal the investment costs of the building energy or water system, without consideration of discount rates. ECMs with a payback period greater than the Expected Useful Life (EUL) of the project are not typically recommended, as the cost of the project will not be recovered during the lifespan of the equipment. These ECMs are recommended for implementation during future system replacement. At that time, replacement may be evaluated based on the premium cost of installing energy efficient equipment.

$$Simple\ Payback = \frac{Initial\ Cost}{Annual\ Savings}$$

Bureau Veritas screens and categorizes all the ECM’s as per the 24 CFR 905 regulation requirements based on their payback, but only those ECM’s are recommended for implementation that have a Savings to Investment Ratio ≥1.0.

Financially methodology used to determine the Savings to Investment Ratio is as follows:

2. Savings-to-Investment Ratio (SIR) – The savings-to-investment ratio is the ratio of the present value savings to the present value costs of an energy or water conservation measure. The numerator of the ratio is the present value over the estimated useful life (EUL) of net savings in energy or water and non-fuel or non-water operation and maintenance costs attributable to the proposed energy or water conservation measure. The denominator of the ratio is the present value of the net increase in investment and replacement costs less salvage value attributable to the proposed energy or water conservation measure. It is recommended that energy efficiency recommendations should be based on a calculated SIR, with larger SIRs receiving a higher priority. A project is typically only recommended if SIR is greater than or equal to 1.0, unless other factors outweigh the financial benefit.

$$SIR = \frac{Present\ Value\ (Annual\ Savings,\ i\%,\ EUL)}{Initial\ Cost}$$



Bureau Veritas has identified five Energy Conservation Measures (ECM) for this property. The basis for an ECM recommendation is a payback of less than the remaining useful life of the system or component. Recommended energy efficiency improvements and the installed cost estimates for recommended energy efficiency measures are provided in the following table:

Energy Conservation Measures					
Priority	Brief Description	Initial Investment	Annual Savings	Payback Period (years)	Component EUL (years)
1	Reduce HVAC Hours of Operation	\$8,269	\$7,446	1.11	15
2	Replace Rooftop Package Unit	\$28,500	\$8,669	3.29	20
3	Replace Existing Linear Fluorescent Lamps	\$28,573	\$5,784	4.94	15
4	Replace High Intensity Discharge Lamps With LED	\$5,510	\$1,112	4.96	15
5	Replace Existing Air Conditioners with Energy Star Air Conditioners	\$86,160	\$11,333	7.60	15



## 9. Utility Analysis

Establishing the energy baseline begins with an analysis of the utility cost and consumption of the facility. Utilizing the historical energy data and local weather information, we evaluate the existing utility consumption and assign it to the various end-uses throughout the buildings. The Historical Data Analysis breaks down utilities by consumption, cost and annual profile.

This data is analyzed, using standard engineering assumptions and practices. The analysis serves the following functions:

- Allows our engineers to benchmark the energy and water consumption of the facilities against consumption of efficient buildings of similar construction, use and occupancy.
- Generates the historical and current unit costs for energy and water
- Provides an indication of how well changes in energy consumption correlate to changes in weather.
- Reveals potential opportunities for energy consumption and/or cost reduction. For example, the analysis may indicate that there is excessive, simultaneous heating and cooling, which may mean that there is an opportunity to improve the control of the heating and cooling systems.

By performing this analysis and leveraging our experience, our engineers prioritize buildings and pinpoint systems for additional investigation during the site visit, thereby maximizing the benefit of their time spent on-site and minimizing time and effort by the customer’s personnel.

**Note:** No utility data was received by Bureau Veritas from the client at the time of report compilation. As a result of this, Bureau Veritas has estimated the approximate electric rate, taking into consideration the published tariff rates, surcharges, and service charges per meter, along with estimated gas consumption for the property under consideration. Bureau Veritas will update the report on receipt of the actual data from the client.

Estimated Utility Rates		
Electricity	Natural Gas	Water & Sewer
\$0.10 /kWh	\$0.63/therm	\$ 13.37/kGAL

The data analyzed provides the following information: 1) breakdown of utilities by consumption, 2) cost and annual profile, 3) baseline consumption in terms of energy/utility at the facility, 4) the Energy Use Index, or BTU/SF, and cost/SF. For multiple water meters, the utility data is combined to illustrate annual consumption for each utility type.



## Electricity

Puget Sound Energy provides the electrical service to the facility.

**Note:** No utility data was received by Bureau Veritas from the client at the time of report compilation. As a result of this, Bureau Veritas has estimated the approximate electric rate, taking into consideration the published tariff rates, surcharges, and service charges per meter, along with estimated gas consumption for the property under consideration. Bureau Veritas will update the report on receipt of the actual data from the client.

## Natural Gas

Puget Sound Energy provides the natural gas service to the facility. The property is master metered with 2 meters. The meters are located outside.

**Note:** No utility data was received by Bureau Veritas from the client at the time of report compilation. As a result of this, Bureau Veritas has estimated the approximate natural gas rate, taking into consideration the published tariff rates, surcharges, and service charges per meter, along with estimated gas consumption for the property under consideration. Bureau Veritas will update the report on receipt of the actual data from the client.

## Propane or Fuel Oil

Not applicable. There is no propane or fuel oil provided to the facility.

## Water and Sewer

Municipality satisfies the water and sewer requirements of the facility.

**Note:** No water and sewer utility data was received by Bureau Veritas from the client at the time of report compilation. As a result of this, Bureau Veritas has estimated an approximate rate, taking into consideration the published tariff rates, surcharges, and service charges per meter, along with estimated consumption for the property under consideration. Bureau Veritas will update the report on receipt of the actual data from the client.

## 10. Operations & Maintenance Plan

The quality of the maintenance and the operation of the facility's energy systems have a direct effect on its overall energy efficiency. Energy-efficiency needs to be a consideration when implementing facility modifications, equipment replacements, and general corrective actions. The following is a list of activities that should be performed as part of the routine maintenance program for the property. These actions will ensure that the energy conservation measures identified in this report will remain effective. The following general recommendations should be continued or implemented.

### **Building Envelope**

1. Ensure that the building envelope has proper caulking and weather stripping.
2. Patch holes in the building envelope with foam insulation and fire rated caulk around combustion vents
3. Inspect building vents semiannually for bird infestation
4. Inspect windows monthly for damaged panes and failed thermal seals
5. Repair and adjust automatic door closing mechanisms as needed.

### **Heating and Cooling**

1. Pilots lights on furnaces and boilers be turned off in summer
2. Ensure the duct work in unconditioned space is un-compromised and well insulated
3. Duct cleaning is recommended every 10 years. This should include sealing of ducts using products similar to 'aero-seal'
4. Return vents should remain un-obstructed and be located centrally.
5. Temperature settings reduced in unoccupied areas and set points seasonally adjusted.
6. Evaporator coils and condenser coils should be regularly cleaned to improve heat transfer
7. Refrigerant pipes should be insulated with a minimum of ¾" thick Elastometric Rubber Pipe Insulation
8. Ensure refrigerant pressure is maintained in the condensers
9. Change air filters on return vents seasonally. Use only filters with 'Minimum Efficiency Rating Value'(MERV) of 8

### **Central Domestic Hot Water**

1. Never place gas fired water heaters adjacent to return vents so as to prevent flame roll outs
2. Ensure the circulation system is on timer to reduce the losses through re-circulation
3. Ensure all hot water pipes are insulated with fiberglass insulation at all times
4. Replacement water heater should have Energy Factor (EF)>0.9

### **Tenant Space- Domestic Hot Water**

1. Domestic hot water heater temperature set to the minimum temperature required (122F)
2. Ensure that 6' of cold and hot water pipes leading to and from the hot water heater be insulated at all times
3. Never place a gas fired water heaters adjacent to return vents so as to prevent flame roll outs
4. Ensure that the water heater flue is vented outside the building directly and the vent dampers are functional to prevent air infiltration
5. Replacement water heaters should have Energy Factor (EF)>0.7 (gas fired) and EF>0.9 (electric)

### **Lighting**

1. Utilize bi-level lighting controls in stairwells and hallways.
2. Use energy efficient replacement lamps (28W T-8 and CFLs)
3. Clean lighting fixture reflective surfaces and translucent covers.
4. Use occupancy sensors for offices and other rooms with infrequent occupancy

### **Existing Equipment and Replacements**

1. Ensure that refrigerator and freezer doors close and seal correctly
2. Ensure kitchen and bathroom exhaust outside the building and the internal damper operates properly
3. Ensure that bathroom vents exhaust out
4. Office/ computer equipment either in the "sleep" or "off" mode when not used

## 11. Certification

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Providence Health and Services (the Client) retained Bureau Veritas to perform this Facility Condition Assessment in connection with its continued operation of Providence Heritage House at the Market, 1533 Western Avenue, Seattle, Washington 98101, the "Property". It is our understanding that the primary interest of the Client is to locate and evaluate materials and building system defects that might significantly affect the value of the property and to determine if the present Property has conditions that will have a significant impact on its continued operations.

The conclusions and recommendations presented in this report are based on the brief review of the plans and records made available to our Project Manager during the site visit, interviews of available property management personnel and maintenance contractors familiar with the Property, appropriate inquiry of municipal authorities, our Project Manager's walk-through observations during the site visit, and our experience with similar properties.

No testing, exploratory probing, dismantling or operating of equipment or in-depth studies were performed unless specifically required under the *Purpose and Scope* section of this report. This assessment did not include engineering calculations to determine the adequacy of the Property's original design or existing systems. Although walk-through observations were performed, not all areas may have been observed (see Section 1 for specific details). There may be defects in the Property, which were in areas not observed or readily accessible, may not have been visible, or were not disclosed by management personnel when questioned. The report describes property conditions at the time that the observations and research were conducted.

This report has been prepared for and is exclusively for the use and benefit of the Client identified on the cover page of this report. The purpose for which this report shall be used shall be limited to the use as stated in the contract between the client and Bureau Veritas.

This report, or any of the information contained therein, is not for the use or benefit of, nor may it be relied upon by any other person or entity, for any purpose without the advance written consent of Bureau Veritas. Any reuse or distribution without such consent shall be at the client's or recipient's sole risk, without liability to Bureau Veritas.

**Prepared by:** Linda Tan,  
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## 12. Appendices

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- Appendix A: Photographic Record
- Appendix B: Site Plan
- Appendix C: Pre-Survey Questionnaire
- Appendix D: Accessibility Review & Photos
- Appendix E: Component Condition Report
- Appendix F: Replacement Reserves
- Appendix G: Equipment Inventory List
- Appendix H: Energy Conservation Measures Calculations
- Appendix I: Energy Audit Glossary of Terms

## **Appendix A:** Photographic Record

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1 FRONT ELEVATION



2 LEFT ELEVATION



3 REAR ELEVATION



4 RIGHT ELEVATION



5 FACADE OVERVIEW



6 PRIMARY ROOF OVERVIEW



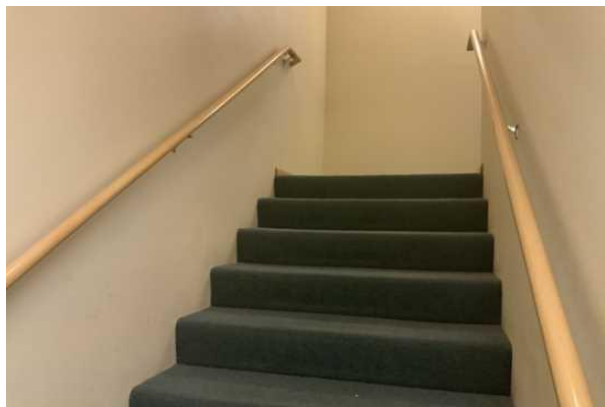
7	KITCHENETTE
---	-------------



8	INTERIOR HALLWAY
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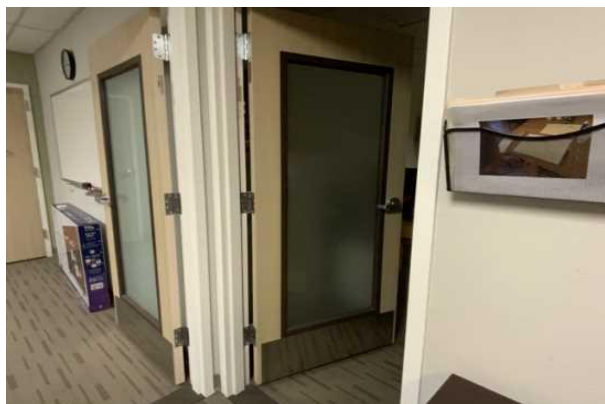
9	RESIDENTIAL UNIT
---	------------------



10	STAIRWELL
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11	PUBLIC RESTROOMS
----	------------------



12	OFFICE AREA
----	-------------



13	RESIDENTIAL UNIT
----	------------------



14	RESIDENTIAL RESTROOM
----	----------------------



15	DOMESTIC HOT WATER
----	--------------------



16	DOMESTIC PIPING
----	-----------------



17	ROOFTOP UNIT
----	--------------



18	ROOFTOP UNIT
----	--------------



19	EXHAUST FAN
----	-------------



20	EXHAUST FAN
----	-------------



21	FIRE EXTINGUISHER
----	-------------------



22	FIRE ALARM SYSTEM
----	-------------------



23	DISTRIBUTION PANEL
----	--------------------



24	COMMERCIAL DRYER
----	------------------



25	COMMERCIAL WASHER
----	-------------------



26	COMMERCIAL KITCHEN
----	--------------------



27	DAMAGED FLOORING
----	------------------



28	THRU WALL A/C UNIT
----	--------------------



29	ELEVATOR
----	----------



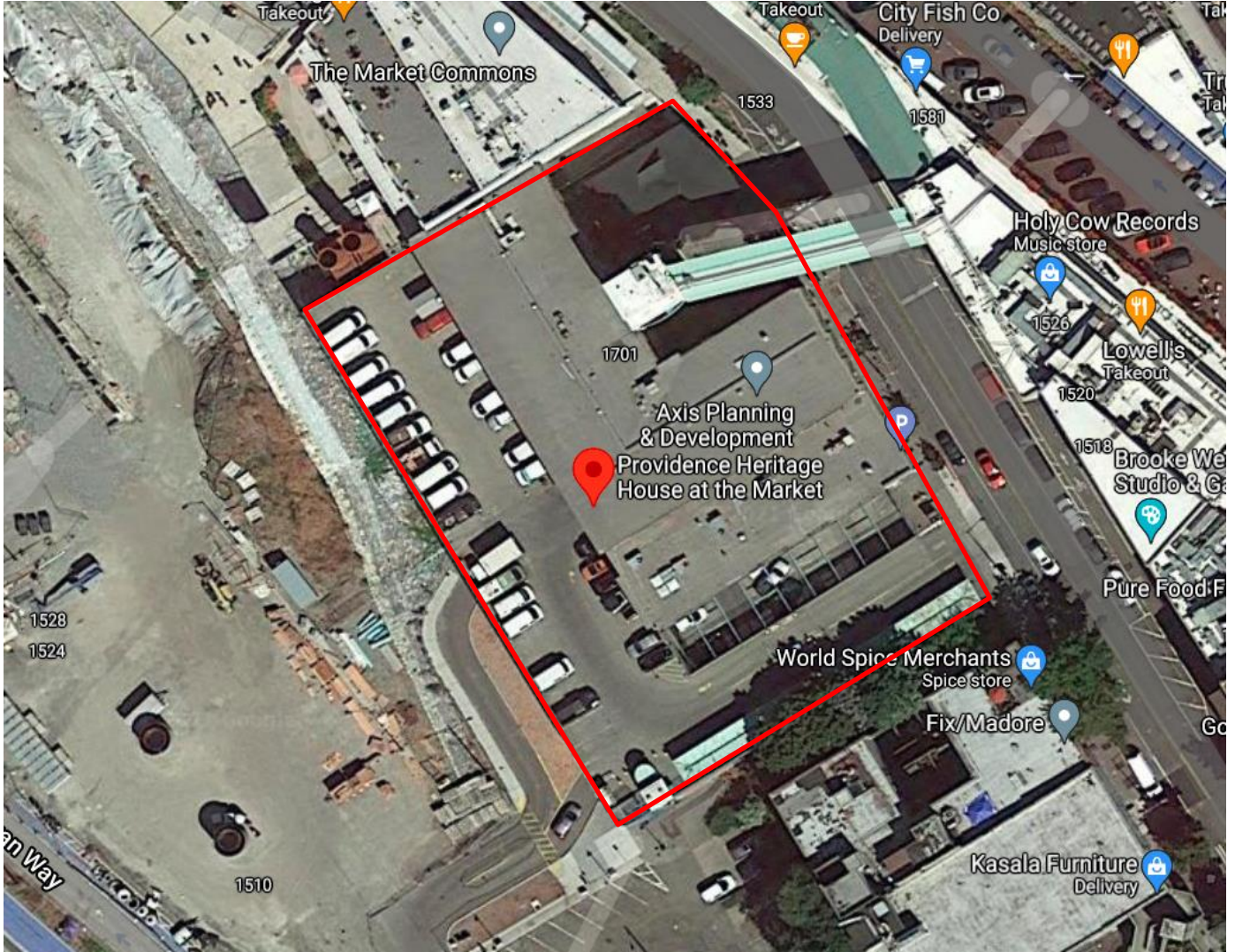
30	ELEVATOR EQUIPMENT
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## **Appendix B:** Site Plan

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Site Plan



 <p><b>BUREAU VERITAS</b></p>	<b>Project Number</b>	<b>Project Name</b>	 <p>N</p>
	137802.21R000-072.379	Providence Heritage House at the Market	
	<b>Source</b>	<b>On-Site Date</b>	
Google	May 26, 2021		

## **Appendix C:** Pre-Survey Questionnaire

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## **Appendix D:** Accessibility Review & Photos

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## Visual Survey - 2010 ADA Standards for Accessible Design

**Property Name:** Providence Heritage House at the Market

**BV Project Number:** 137802.21R - 072.379

Facility History & Interview					
Question		Yes	No	NA	Comments
1	ADA: Has an accessibility study been performed at the site? If so, when?			X	
2	ADA: If a study has occurred, have the associated recommendations been addressed? In full or in part?			X	
3	ADA: Have there been regular complaints about accessibility issues, or previous or pending litigation?			X	

Providence Heritage House at the Market: Accessibility Issues				
Category	Major Issues (ADA study recommended)	Moderate Issues (ADA study recommended)	Minor Issues	None*
<b>Parking</b>	NA			X
<b>Exterior Accessible Route</b>				X
<b>Building Entrances</b>				X
<b>Interior Accessible Route</b>				X
<b>Elevators</b>				X
<b>Public Restrooms</b>				X
<b>Kitchens/Kitchenettes</b>				X
<b>Playgrounds &amp; Swimming Pools</b>	NA			
<b>Other</b>	NA			

\*be cognizant that if the "None" box is checked that does not guarantee full compliance; this study is limited in nature

## Providence Heritage House at the Market: Photographic Overview



Accessible ramp or path



Curb cut or 2nd pathway



Accessible interior path (ramp/lift)



Door hardware, stair rails, or self-service area



Lobby looking at cabs (with doors open)



In-cab controls/emergency call panel

Providence Heritage House at the Market: Photographic Overview



Toilet stall overview



Sink, faucet handles and/or accessories



Kitchen cabinets/sink clearance



Oven with controls

## **Appendix E:** Component Condition Report

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## Component Condition Report | Providence Heritage House at the Market

UF L3 Code	Location	Condition	Asset/Component/Repair	Quantity	RUL	ID
<b>Structure</b>						
B1010	Kitchen hallway	Poor	Structural Flooring, Concrete, Repair	12 SF	0	3042973
<b>Facade</b>						
B2020	Building exterior	Fair	Window, Aluminum Double-Glazed, 16-25 SF	5	18	3042979
B2020	Building exterior	Fair	Window, Vinyl-Clad Double-Glazed, up to 15 SF	2	18	3042940
B2020	Building exterior	Fair	Window, Aluminum Double-Glazed, up to 15 SF	102	15	3042932
B2020	Building exterior	Fair	Window, Vinyl-Clad Double-Glazed, 16-25 SF	23	18	3042962
B2050	Building exterior	Fair	Exterior Door, Steel, Fire-Rated at 90 Minutes or Over	12	8	3042930
<b>Roofing</b>						
B3010		Fair	Roofing, Single-Ply Membrane, EPDM	16,800 SF	5	3145516
B3020	Roof	Fair	Roof Appurtenances, Gutters & Downspouts, Aluminum w/ Fittings	620 LF	8	3042931
<b>Interiors</b>						
C1030	Throughout building	Fair	Interior Door, Steel, Fire-Rated at 90 Minutes or Over	8	28	3042960
C1030	Throughout building	Fair	Interior Door, Steel, Standard	6	8	3042966
C1030	Throughout building	Fair	Interior Door, Wood, Solid-Core	32	35	3042890
C1030	Residential units	Fair	Interior Door, Wood, Solid-Core	128	20	3042945
C1030	Throughout building	Fair	Interior Door, Wood, Solid-Core	10	35	3042970
C1070	Office	Fair	Suspended Ceilings, Acoustical Tile (ACT)	3,000 SF	10	3042978
C1090	Public restroom 1st floor	Fair	Toilet Partitions, Plastic/Laminate	3	8	3042911
C1090	Staff restroom 1st floor	Fair	Toilet Partitions, Metal, Refinish	2	2	3042923
C2010	Kitchen	Fair	Wall Finishes, Laminated Paneling (FRP)	2,200 SF	20	3042977
C2010	Throughout building	Fair	Wall Finishes, any surface, Prep & Paint	108,820 SF	5	3042895
C2030	Throughout building	Fair	Flooring, Vinyl Tile (VCT)	2,500 SF	5	3042887
C2030	Throughout building	Fair	Flooring, Vinyl Tile (VCT)	1,200 SF	7	3042874
C2030	Office	Fair	Flooring, Carpet, Commercial Standard	1,000 SF	4	3042954
C2030	Kitchen	Fair	Flooring, Vinyl Sheeting	2,000 SF	5	3042902
C2030	Residential units	Fair	Flooring, Linoleum	4,725 SF	7	3042885
C2050	Throughout building	Fair	Ceiling Finishes, any flat surface, Prep & Paint	45,000 SF	5	3042889
<b>Conveying</b>						
D1010	Electrical 1st floor	Fair	Passenger Elevator, Hydraulic, 3 Floors, 1500 to 2500 LB, Renovate	1	6	3042908
D1010		Fair	Elevator Cab Finishes, Standard	1	6	3042893
<b>Plumbing</b>						
D2010	Residential units	Fair	Sink/Lavatory, Vanity Top, Stainless Steel	7	21	3042879
D2010	Nursing station	Fair	Sink/Lavatory, Vanity Top, Stainless Steel	1	15	3042918
D2010	Boiler room floor 3	Fair	Water Heater, Gas, Commercial (200 MBH)	1	17	3042951
D2010	Kitchen	Fair	Sink/Lavatory, Commercial Kitchen, 1-Bowl	1	15	3042958
D2010	Restrooms	Fair	Toilet, Commercial Water Closet	66	8	3042894
D2010	Residential units	Fair	Shower, Fiberglass	59	10	3042924

## Component Condition Report | Providence Heritage House at the Market

UF L3 Code	Location	Condition	Asset/Component/Repair	Quantity	RUL	ID
D2010	Salon 2nd floor	Fair	Sink/Lavatory, Wall-Hung, Vitreous China	1	8	3042897
D2010	Kitchenette	Fair	Sink/Lavatory, Vanity Top, Stainless Steel	1	20	3042982
D2010	Kitchen	Fair	Sink/Lavatory, Wall-Hung, Vitreous China	1	15	3042939
D2010	Clinic	Fair	Sink/Lavatory, Vanity Top, Stainless Steel	4	15	3042937
D2010	Residential units	Fair	Tub, Fiberglass, w/ Shower Enclosure	2	8	3042880
D2010	Staff restroom 1st floor	Fair	Sink/Lavatory, Wall-Hung, Vitreous China	2	12	3042950
D2010	Laundry	Fair	Sink/Lavatory, Service Sink, Laundry	1	15	3042876
D2010	Public restroom 1st floor	Fair	Sink/Lavatory, Wall-Hung, Vitreous China	2	15	3042929
D2010	Clinic	Fair	Sink/Lavatory, Wall-Hung, Vitreous China	1	15	3042903
D2010	Staff restroom 1st floor	Fair	Sink/Lavatory, Wall-Hung, Vitreous China	1	15	3042983
D2010	Clinic	Fair	Sink/Lavatory, Vanity Top, Stainless Steel	1	15	3042959
D2010	Kitchen	Fair	Sink/Lavatory, Commercial Kitchen, 1-Bowl	1	15	3042882
D2010	Kitchen	Fair	Sink/Lavatory, Commercial Kitchen, 1-Bowl	1	20	3042957
D2010	Residential units	Fair	Sink/Lavatory, Wall-Hung, Vitreous China	1	15	3042909
D2010	Staff restroom 1st floor	Fair	Urinal, Standard	1	21	3042883
D2010	Kitchen custodial closet	Fair	Sink/Lavatory, Service Sink, Laundry	3	15	3042969
D2010	Boiler room floor 3	Fair	Water Heater, Gas, Commercial (200 MBH)	1	17	3042881
D2010	Kitchen custodial closet	Fair	Water Heater, Gas, Commercial (125 MBH)	1	17	3042947
D2010	Public restroom 1st floor	Fair	Urinal, Standard	1	20	3042942
D2010	Storage room	Fair	Sink/Lavatory, Vanity Top, Stainless Steel	1	15	3042944
D2010	Kitchen	Fair	Sink/Lavatory, Commercial Kitchen, 2-Bowl	1	20	3042916
<b>HVAC</b>						
D3020	Residential units	Fair	Baseboard Heater, Electric, 4 LF	25	7	3042921
D3030	Staff unit 218	Fair	Air Conditioner, Window/Thru-Wall, 1 TON	102	3	3042952
D3050	Roof	Fair	Packaged Unit, RTU, Pad or Roof-Mounted, 6 to 7.5 TON	1	7	3042936
D3050	Roof	Fair	Packaged Unit, RTU, Pad or Roof-Mounted	1	10	3042922
D3050	Roof	Fair	Packaged Unit, RTU, Pad or Roof-Mounted, 6 to 7.5 TON	1	8	3042974
D3050	Roof	Fair	Packaged Unit, RTU, Pad or Roof-Mounted, 6 to 7.5 TON	1	8	3042956
D3050	Roof	Fair	Packaged Unit, RTU, Pad or Roof-Mounted	1	3	3042905
D3050	Roof	Fair	Make-Up Air Unit, MUA or MAU, 2000 to 6000 CFM	1	8	3042949
D3050	Roof	Fair	Packaged Unit, RTU, Pad or Roof-Mounted, 3.5 TON	1	10	3042926
D3060	Roof	Fair	Exhaust Fan, Centrifugal, 28" Damper [EF1]	1	7	3042917
D3060	Roof	Fair	Exhaust Fan, Centrifugal, 16" Damper [EF-3]	1	7	3042912
D3060	Roof	Fair	Exhaust Fan, Centrifugal, 12" Damper [EF-2]	1	7	3042901
<b>Fire Protection</b>						
D4010	Throughout building	Fair	Fire Suppression System, Existing Sprinkler Heads, by SF	49,464 SF	7	3042934
D4030	Kitchen	Fair	Fire Extinguisher, Wet Chemical/CO2	1	9	3042884
D4030	Throughout building	Fair	Fire Extinguisher, Wet Chemical/CO2	9	7	3042914
<b>Electrical</b>						

## Component Condition Report | Providence Heritage House at the Market

UF L3 Code	Location	Condition	Asset/Component/Repair	Quantity	RUL	ID
D5020	Electrical 1st floor	Fair	Distribution Panel, 120/208 V	1	5	3042980
D5040	Throughout building	Fair	Emergency & Exit Lighting, Full Interior Upgrade, to LED, Upgrade	49,464 SF	7	3042913
D5040	Throughout building	Fair	Interior Lighting System, Full Upgrade, Medium Density & Standard Fixtures	49,464 SF	8	3042906
<b>Fire Alarm &amp; Electronic Systems</b>						
D7030		Fair	Security Panel, Alarm & Control, Main Panel	1	5	3042892
D7050	Fire Alarm control room	Fair	Fire Alarm System, Full System Upgrade, Basic/Zoned, Upgrade/Install	49,464 SF	17	3042981
<b>Equipment &amp; Furnishings</b>						
E1030	Kitchen	Fair	Foodservice Equipment, Walk-In, Evaporator for Refrigerator/Freezer	1	5	3042875
E1030	Kitchen	Fair	Foodservice Equipment, Food Warmer, Proofing Cabinet on Wheels	1	6	3042938
E1030	Kitchen	Fair	Foodservice Equipment, Dishwasher Commercial	1	5	3042900
E1030	Kitchenette	Fair	Foodservice Equipment, Refrigerator, 1-Door Reach-In	1	14	3042891
E1030	Kitchen	Fair	Foodservice Equipment, Walk-In, Evaporator for Refrigerator/Freezer	1	10	3042920
E1030	Kitchen	Fair	Foodservice Equipment, Range/Oven, 6-Burner w/ Griddle	1	12	3042928
E1030	Kitchen	Fair	Foodservice Equipment, Deep Fryer	1	8	3042941
E1030	Laundry	Good	Laundry Equipment, Dryer, Commercial	1	15	3042948
E1030	Kitchen	Fair	Foodservice Equipment, Prep Table Refrigerated, Salad/Sandwich	1	10	3042953
E1030	Kitchenette	Fair	Foodservice Equipment, Icemaker, Freestanding	1	10	3042877
E1030	Kitchenette	Fair	Foodservice Equipment, Coffee Machine	1	5	3042888
E1030	Kitchenette	Fair	Foodservice Equipment, Coffee Machine	1	7	3042964
E1030	Kitchen	Fair	Foodservice Equipment, Walk-In, Freezer	1	15	3042910
E1030	Kitchen	Fair	Foodservice Equipment, Convection Oven, Single	1	5	3042886
E1030	Kitchen	Failed	Foodservice Equipment, Steamer, Tabletop	1	0	3042873
E1030	Kitchenette	Fair	Foodservice Equipment, Coffee Machine	1	5	3042935
E1030	Kitchenette	Fair	Foodservice Equipment, Food Warmer, Proofing Cabinet on Wheels	1	5	3042896
E1030	Kitchen	Fair	Foodservice Equipment, Mixer, Tabletop	1	10	3042907
E1030	Kitchen	Fair	Foodservice Equipment, Walk-In, Condenser for Refrigerator/Freezer	2	8	3042872
E1030	Laundry	Good	Laundry Equipment, Washer, Commercial	1	10	3042915
E1030	Kitchen	Fair	Foodservice Equipment, Food Warmer, Proofing Cabinet on Wheels	1	8	3042972
E1030	Laundry	Good	Laundry Equipment, Washer, Commercial	1	10	3042925
E1030	Laundry	Good	Laundry Equipment, Dryer, Commercial	1	15	3042965
E1030	Kitchenette	Fair	Foodservice Equipment, Prep Table Refrigerated, Salad/Sandwich	1	6	3042963
E1030	Kitchen	Fair	Foodservice Equipment, Slicer	1	6	3042946
E1030	Kitchen	Fair	Foodservice Equipment, Walk-In, Refrigerator	1	5	3042976
E1030	Kitchen	Fair	Foodservice Equipment, Exhaust Hood, 3 to 6 LF	1	12	3042933
E1030	Kitchen	Fair	Foodservice Equipment, Exhaust Hood, 8 to 10 LF	1	11	3042943
E1060	Staff unit 218	Fair	Residential Appliances, Dishwasher	1	3	3042904
E1060	Kitchen	Fair	Residential Appliances, Refrigerator, 14 to 18 CF	1	4	3042975
E1060	Staff unit 218	Fair	Residential Appliances, Refrigerator, 14 to 18 CF	1	14	3042967
E1060	Residential units	Fair	Residential Appliances, Microwave	60	4	3042927

## Component Condition Report | Providence Heritage House at the Market

UF L3 Code	Location	Condition	Asset/Component/Repair	Quantity	RUL	ID
E1060	Clinic	Fair	Residential Appliances, Refrigerator Mini, 3 to 5 CF	1	5	3042878
E1060	Staff unit 218	Fair	Residential Appliances, Range, Electric	1	4	3042899
E1060	Staff unit 218	Fair	Residential Appliances, Range Hood, Vented or Ventless	1	5	3042968
E1060	Residential units	Fair	Residential Appliances, Refrigerator Mini, 3 to 5 CF	60	6	3042898
E1060	Clinic	Fair	Residential Appliances, Refrigerator Mini, 3 to 5 CF	2	5	3042919

## **Appendix F:** Replacement Reserves

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Replacement Reserves Report																																
Providence Heritage House at the Market																																
7/17/2021																																
Location	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	Total Escalated Estimate										
Providence Heritage House at the Market	\$8,000	\$0	\$115	\$278,063	\$47,371	\$676,274	\$130,572	\$216,086	\$820,600	\$425	\$240,308	\$6,771	\$25,727	\$359,326	\$67,083	\$692,019	\$26,514	\$281,440	\$49,317	\$2,897	\$377,021	\$4,305,930										
<b>Grand Total</b>	<b>\$8,000</b>	<b>\$0</b>	<b>\$115</b>	<b>\$278,063</b>	<b>\$47,371</b>	<b>\$676,274</b>	<b>\$130,572</b>	<b>\$216,086</b>	<b>\$820,600</b>	<b>\$425</b>	<b>\$240,308</b>	<b>\$6,771</b>	<b>\$25,727</b>	<b>\$359,326</b>	<b>\$67,083</b>	<b>\$692,019</b>	<b>\$26,514</b>	<b>\$281,440</b>	<b>\$49,317</b>	<b>\$2,897</b>	<b>\$377,021</b>	<b>\$4,305,930</b>										
Uniformat Code	ID	Cost Description	Lifespan (EUL)	EA	RUL	Quantity	Unit	Unit Cost *	Subtotal	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	Deficiency Repair Estimate	
B1010	3042973	Structural Flooring, Concrete, Repair	0	0	0	12	SF	\$32.61	\$391	\$391																					\$391	
B2020	3042932	Window, Aluminum Double-Glazed, up to 15 SF, Replace	30	15	15	102	EA	\$706.55	\$72,068															\$72,068							\$72,068	
B2020	3042979	Window, Aluminum Double-Glazed, 16-25 SF, Replace	30	12	18	5	EA	\$1,032.65	\$5,163																			\$5,163			\$5,163	
B2020	3042940	Window, Vinyl-Clad Double-Glazed, up to 15 SF, Replace	30	12	18	2	EA	\$652.20	\$1,304																			\$1,304			\$1,304	
B2020	3042962	Window, Vinyl-Clad Double-Glazed, 16-25 SF, Replace	30	12	18	23	EA	\$978.30	\$22,501																			\$22,501			\$22,501	
B2050	3042930	Exterior Door, Steel, Fire-Rated at 90 Minutes or Over, Replace	40	32	8	12	EA	\$1,032.65	\$12,392									\$12,392													\$12,392	
B3010	3145516	Roofing, Single-Ply Membrane, EPDM, Replace	20	15	5	16800	SF	\$11.96	\$200,878						\$200,878																\$200,878	
B3020	3042931	Roof Appurtenances, Gutters & Downspouts, Aluminum w/ Fittings, Replace	20	12	8	620	LF	\$9.78	\$6,065									\$6,065													\$6,065	
C1030	3042966	Interior Door, Steel, Standard, Replace	40	32	8	6	EA	\$652.20	\$3,913									\$3,913													\$3,913	
C1030	3042945	Interior Door, Wood, Solid-Core, Replace	40	20	20	128	EA	\$760.90	\$97,395																			\$97,395			\$97,395	
C1070	3042978	Suspended Ceilings, Acoustical Tile (ACT), Replace	25	15	10	3000	SF	\$3.80	\$11,414											\$11,414											\$11,414	
C1090	3042923	Toilet Partitions, Metal, Refinish	10	8	2	2	EA	\$54.35	\$109			\$109										\$109									\$109	
C1090	3042911	Toilet Partitions, Plastic/Laminate, Replace	20	12	8	3	EA	\$815.25	\$2,446									\$2,446													\$2,446	
C2010	3042977	Wall Finishes, Laminated Paneling (FRP), Replace	30	10	20	2200	SF	\$17.39	\$38,262																			\$38,262			\$38,262	
C2010	3042895	Wall Finishes, any surface, Prep & Paint	10	5	5	108820	SF	\$1.63	\$177,431						\$177,431									\$177,431							\$177,431	
C2030	3042887	Flooring, Vinyl Tile (VCT), Replace	15	10	5	2500	SF	\$5.44	\$13,588						\$13,588													\$13,588			\$13,588	
C2030	3042902	Flooring, Vinyl Sheeting, Replace	15	10	5	2000	SF	\$7.61	\$15,218						\$15,218													\$15,218			\$15,218	
C2030	3042874	Flooring, Vinyl Tile (VCT), Replace	15	8	7	1200	SF	\$5.44	\$6,522								\$6,522														\$6,522	
C2030	3042885	Flooring, Linoleum, Replace	15	8	7	4725	SF	\$3.80	\$17,976								\$17,976														\$17,976	
C2030	3042954	Flooring, Carpet, Commercial Standard, Replace	10	6	4	1000	SF	\$8.15	\$8,153					\$8,153									\$8,153								\$8,153	
C2050	3042889	Ceiling Finishes, any flat surface, Prep & Paint	10	5	5	45000	SF	\$2.17	\$97,830						\$97,830									\$97,830							\$97,830	
D1010	3042908	Passenger Elevator, Hydraulic, 3 Floors, 1500 to 2500 LB, Renovate	30	24	6	1	EA	\$76,090.00	\$76,090							\$76,090																\$76,090
D1010	3042893	Elevator Cab Finishes, Standard, Replace	15	9	6	1	EA	\$9,783.00	\$9,783							\$9,783																\$9,783
D2010	3042951	Water Heater, Gas, Commercial (200 MBH), Replace	20	3	17	1	EA	\$18,044.20	\$18,044																		\$18,044				\$18,044	
D2010	3042881	Water Heater, Gas, Commercial (200 MBH), Replace	20	3	17	1	EA	\$18,044.20	\$18,044																		\$18,044				\$18,044	
D2010	3042947	Water Heater, Gas, Commercial (125 MBH), Replace	20	3	17	1	EA	\$13,478.80	\$13,479																		\$13,479				\$13,479	
D2010	3042894	Toilet, Commercial Water Closet, Replace	30	22	8	66	EA	\$1,413.10	\$93,265									\$93,265													\$93,265	
D2010	3042897	Sink/Lavatory, Wall-Hung, Vitreous China, Replace	30	22	8	1	EA	\$1,630.50	\$1,631									\$1,631													\$1,631	
D2010	3042880	Tub, Fiberglass, w/ Shower Enclosure, Replace	20	12	8	2	EA	\$2,065.30	\$4,131									\$4,131													\$4,131	
D2010	3042924	Shower, Fiberglass, Replace	20	10	10	59	EA	\$1,739.20	\$102,613											\$102,613												\$102,613
D2010	3042950	Sink/Lavatory, Wall-Hung, Vitreous China, Replace	30	18	12	2	EA	\$1,630.50	\$3,261																						\$3,261	
D2010	3042918	Sink/Lavatory, Vanity Top, Stainless Steel, Replace	30	15	15	1	EA	\$1,304.40	\$1,304																\$1,304						\$1,304	
D2010	3042958	Sink/Lavatory, Commercial Kitchen, 1-Bowl, Replace	30	15	15	1	EA	\$1,739.20	\$1,739																\$1,739						\$1,739	
D2010	3042939	Sink/Lavatory, Wall-Hung, Vitreous China, Replace	30	15	15	1	EA	\$1,630.50	\$1,631																\$1,631						\$1,631	
D2010	3042937	Sink/Lavatory, Vanity Top, Stainless Steel, Replace	30	15	15	4	EA	\$1,304.40	\$5,218																\$5,218						\$5,218	
D2010	3042876	Sink/Lavatory, Service Sink, Laundry, Replace	30	15	15	1	EA	\$978.30	\$978																\$978						\$978	
D2010	3042929	Sink/Lavatory, Wall-Hung, Vitreous China, Replace	30	15	15	2	EA	\$1,630.50	\$3,261																\$3,261						\$3,261	
D2010	3042903	Sink/Lavatory, Wall-Hung, Vitreous China, Replace	30	15	15	1	EA	\$1,630.50	\$1,631																\$1,631						\$1,631	
D2010	3042983	Sink/Lavatory, Wall-Hung, Vitreous China, Replace	30	15	15	1	EA	\$1,630.50	\$1,631																\$1,631						\$1,631	
D2010	3042959	Sink/Lavatory, Vanity Top, Stainless Steel, Replace	30	15	15	1	EA	\$1,304.40	\$1,304																\$1,304						\$1,304	
D2010	3042882	Sink/Lavatory, Commercial Kitchen, 1-Bowl, Replace	30	15	15	1	EA	\$1,739.20	\$1,739																\$1,739						\$1,739	
D2010	3042909	Sink/Lavatory, Wall-Hung, Vitreous China, Replace	30	15	15	1	EA	\$1,630.50	\$1,631																\$1,631						\$1,631	
D2010	3042969	Sink/Lavatory, Service Sink, Laundry, Replace	30	15	15	3	EA	\$978.30	\$2,935																\$2,935						\$2,935	
D2010	3042944	Sink/Lavatory, Vanity Top, Stainless Steel, Replace	30	15	15	1	EA	\$1,304.40	\$1,304																\$1,304						\$1,304	
D2010	3042982	Sink/Lavatory, Vanity Top, Stainless Steel, Replace	30	10	20	1	EA	\$1,304.40	\$1,304																		\$1,304				\$1,304	
D2010	3042957	Sink/Lavatory, Commercial Kitchen, 1-Bowl, Replace	30	10	20	1	EA	\$1,739.20	\$1,739																		\$1,739				\$1,739	
D2010	3042942	Urinal, Standard, Replace	30	10	20	1	EA	\$1,195.70	\$1,196																		\$1,196				\$1,196	

Uniformat Code	ID	Cost Description	Lifespan (EUL)	EA	RUL	Quantity	Unit	Unit Cost *	Subtotal	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	Deficiency Repair Estimate	
D3050	3042949	Make-Up Air Unit, MUA or MAU, 2000 to 6000 CFM, Replace	20	12	8	1	EA	\$38,045.00	\$38,045									\$38,045													\$38,045	
D3050	3042922	Packaged Unit, RTU, Pad or Roof-Mounted, Replace	20	10	10	1	EA	\$11,957.00	\$11,957											\$11,957											\$11,957	
D3050	3042926	Packaged Unit, RTU, Pad or Roof-Mounted, 3.5 TON, Replace	20	10	10	1	EA	\$8,913.40	\$8,913											\$8,913											\$8,913	
D3060	3042917	Exhaust Fan, Centrifugal, 28" Damper, Replace	25	18	7	1	EA	\$4,348.00	\$4,348								\$4,348														\$4,348	
D3060	3042912	Exhaust Fan, Centrifugal, 16" Damper, Replace	25	18	7	1	EA	\$2,608.80	\$2,609								\$2,609														\$2,609	
D3060	3042901	Exhaust Fan, Centrifugal, 12" Damper, Replace	25	18	7	1	EA	\$1,521.80	\$1,522								\$1,522														\$1,522	
D4010	3042934	Fire Suppression System, Existing Sprinkler Heads, by SF, Replace	25	18	7	49464	SF	\$1.63	\$80,651								\$80,651														\$80,651	
D4030	3042914	Fire Extinguisher, Wet Chemical/CO2, Replace	10	3	7	9	EA	\$326.10	\$2,935								\$2,935										\$2,935				\$2,935	
D4030	3042884	Fire Extinguisher, Wet Chemical/CO2, Replace	10	1	9	1	EA	\$326.10	\$326										\$326										\$326		\$652	
D5020	3042980	Distribution Panel, 120/208 V, Replace	30	25	5	1	EA	\$12,500.50	\$12,501						\$12,501																\$12,501	
D5040	3042913	Emergency & Exit Lighting, Full Interior Upgrade, to LED, Upgrade	10	3	7	49464	SF	\$0.71	\$34,949								\$34,949										\$34,949				\$69,898	
D5040	3042906	Interior Lighting System, Full Upgrade, Medium Density & Standard Fixtures, Replace	20	12	8	49464	SF	\$8.70	\$430,139								\$430,139														\$430,139	
D7030	3042892	Security Panel, Alarm & Control, Main Panel, Replace	15	10	5	1	EA	\$7,826.40	\$7,826						\$7,826															\$7,826	\$15,653	
D7050	3042981	Fire Alarm System, Full System Upgrade, Basic/Zoned, Upgrade/Install	20	3	17	49464	SF	\$1.63	\$80,651																		\$80,651				\$80,651	
E1030	3042915	Laundry Equipment, Washer, Commercial, Replace	10	0	10	1	EA	\$7,609.00	\$7,609											\$7,609									\$7,609		\$7,609	\$15,218
E1030	3042925	Laundry Equipment, Washer, Commercial, Replace	10	0	10	1	EA	\$7,609.00	\$7,609											\$7,609									\$7,609		\$7,609	\$15,218
E1030	3042948	Laundry Equipment, Dryer, Commercial, Replace	15	0	15	1	EA	\$4,348.00	\$4,348															\$4,348							\$4,348	
E1030	3042965	Laundry Equipment, Dryer, Commercial, Replace	15	0	15	1	EA	\$4,348.00	\$4,348															\$4,348							\$4,348	
E1030	3042873	Foodservice Equipment, Steamer, Tabletop, Replace	10	10	0	1	EA	\$7,609.00	\$7,609	\$7,609										\$7,609								\$7,609		\$7,609	\$22,827	
E1030	3042875	Foodservice Equipment, Walk-In, Evaporator for Refrigerator/Freezer, Replace	15	10	5	1	EA	\$5,000.20	\$5,000						\$5,000													\$5,000		\$5,000	\$10,000	
E1030	3042900	Foodservice Equipment, Dishwasher Commercial, Replace	10	5	5	1	EA	\$23,370.50	\$23,371						\$23,371									\$23,371							\$23,371	\$46,741
E1030	3042888	Foodservice Equipment, Coffee Machine, Replace	10	5	5	1	EA	\$2,174.00	\$2,174						\$2,174									\$2,174							\$2,174	\$4,348
E1030	3042886	Foodservice Equipment, Convection Oven, Single, Replace	10	5	5	1	EA	\$6,087.20	\$6,087						\$6,087									\$6,087							\$6,087	\$12,174
E1030	3042935	Foodservice Equipment, Coffee Machine, Replace	10	5	5	1	EA	\$2,174.00	\$2,174						\$2,174									\$2,174							\$2,174	\$4,348
E1030	3042896	Foodservice Equipment, Food Warmer, Proofing Cabinet on Wheels, Replace	15	10	5	1	EA	\$1,847.90	\$1,848						\$1,848													\$1,848		\$1,848	\$3,696	
E1030	3042976	Foodservice Equipment, Walk-In, Refrigerator, Replace	20	15	5	1	EA	\$16,305.00	\$16,305						\$16,305																\$16,305	
E1030	3042938	Foodservice Equipment, Food Warmer, Proofing Cabinet on Wheels, Replace	15	9	6	1	EA	\$1,847.90	\$1,848						\$1,848																\$1,848	
E1030	3042963	Foodservice Equipment, Prep Table Refrigerated, Salad/Sandwich, Replace	15	9	6	1	EA	\$5,108.90	\$5,109						\$5,109																\$5,109	
E1030	3042946	Foodservice Equipment, Slicer, Replace	10	4	6	1	EA	\$3,478.40	\$3,478						\$3,478										\$3,478						\$3,478	\$6,957
E1030	3042964	Foodservice Equipment, Coffee Machine, Replace	10	3	7	1	EA	\$2,174.00	\$2,174							\$2,174											\$2,174				\$2,174	\$4,348
E1030	3042941	Foodservice Equipment, Deep Fryer, Replace	15	7	8	1	EA	\$7,609.00	\$7,609											\$7,609											\$7,609	
E1030	3042872	Foodservice Equipment, Walk-In, Condenser for Refrigerator/Freezer, Replace	15	7	8	2	EA	\$6,848.10	\$13,696															\$13,696							\$13,696	
E1030	3042972	Foodservice Equipment, Food Warmer, Proofing Cabinet on Wheels, Replace	15	7	8	1	EA	\$1,847.90	\$1,848															\$1,848							\$1,848	
E1030	3042920	Foodservice Equipment, Walk-In, Evaporator for Refrigerator/Freezer, Replace	15	5	10	1	EA	\$5,000.20	\$5,000											\$5,000											\$5,000	
E1030	3042953	Foodservice Equipment, Prep Table Refrigerated, Salad/Sandwich, Replace	15	5	10	1	EA	\$5,108.90	\$5,109											\$5,109											\$5,109	
E1030	3042877	Foodservice Equipment, Ice maker, Freestanding, Replace	15	5	10	1	EA	\$7,282.90	\$7,283																						\$7,283	
E1030	3042907	Foodservice Equipment, Mixer, Tabletop, Replace	20	10	10	1	EA	\$3,695.80	\$3,696															\$3,696							\$3,696	
E1030	3042943	Foodservice Equipment, Exhaust Hood, 8 to 10 LF, Replace	15	4	11	1	EA	\$4,891.50	\$4,892												\$4,892										\$4,892	
E1030	3042928	Foodservice Equipment, Range/Oven, 6-Burner w/ Griddle, Replace	15	3	12	1	EA	\$11,087.40	\$11,087													\$11,087									\$11,087	
E1030	3042933	Foodservice Equipment, Exhaust Hood, 3 to 6 LF, Replace	15	3	12	1	EA	\$3,587.10	\$3,587													\$3,587									\$3,587	
E1030	3042891	Foodservice Equipment, Refrigerator, 1-Door Reach-In, Replace	15	1	14	1	EA	\$2,934.90	\$2,935															\$2,935							\$2,935	
E1030	3042910	Foodservice Equipment, Walk-In, Freezer, Replace	20	5	15	1	EA	\$27,175.00	\$27,175																\$27,175						\$27,175	
E1060	3042904	Residential Appliances, Dishwasher, Replace	10	7	3	1	EA	\$760.90	\$761				\$761								\$761										\$761	\$1,522
E1060	3042975	Residential Appliances, Refrigerator, 14 to 18 CF, Replace	15	11	4	1	EA	\$652.20	\$652					\$652														\$652			\$652	\$1,304
E1060	3042927	Residential Appliances, Microwave, Replace	10	6	4	60	EA	\$543.50	\$32,610				\$32,610											\$32,610							\$32,610	\$65,220
E1060	3042899	Residential Appliances, Range, Electric, Replace	15	11	4	1	EA	\$673.94	\$674				\$674															\$674			\$674	\$1,348
E1060	3042878	Residential Appliances, Refrigerator Mini, 3 to 5 CF, Replace	10	5	5	1	EA	\$434.80	\$435						\$435										\$435						\$435	\$870
E1060	3042968	Residential Appliances, Range Hood, Vented or Ventless, Replace	15	10	5	1	EA	\$260.88	\$261						\$261													\$261			\$261	\$522
E1060	3042919	Residential Appliances, Refrigerator Mini, 3 to 5 CF, Replace	10	5	5	2	EA	\$217.40	\$435						\$435										\$435						\$435	\$870
E1060	3042898	Residential Appliances, Refrigerator Mini, 3 to 5 CF, Replace	10	4	6	60	EA	\$217.40	\$13,044						\$13,044												\$13,044				\$13,044	\$26,088
E1060																																

## **Appendix G:** Equipment Inventory List

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D10 Conveying														
Index	ID	UFCode	Component Description	Attributes	Capacity	Action	Building	Location Detail	Manufacturer	Model	Serial	Dataplate Yr	Barcode	Qty
1	3042908	D1010	Passenger Elevator	Hydraulic, 3 Floors, 1500 to 2500 LB		Renovate	Providence Heritage House at the Market	Electrical 1st floor				1989		\$70,000 2027
D20 Plumbing														
Index	ID	UFCode	Component Description	Attributes	Capacity	Action	Building	Location Detail	Manufacturer	Model	Serial	Dataplate Yr	Barcode	Qty
1	3042947	D2010	Water Heater	Gas, Commercial (125 MBH)	75 GAL	Replace	Providence Heritage House at the Market	Kitchen custodial closet	Rheem	G76-200-1	A131803939	2018		\$12,400 2038
2	3042951	D2010	Water Heater	Gas, Commercial (200 MBH)	100 GAL	Replace	Providence Heritage House at the Market	Boiler room floor 3						\$16,600 2038
3	3042881	D2010	Water Heater	Gas, Commercial (200 MBH)	100 GAL	Replace	Providence Heritage House at the Market	Boiler room floor 3						\$16,600 2038
D30 HVAC														
Index	ID	UFCode	Component Description	Attributes	Capacity	Action	Building	Location Detail	Manufacturer	Model	Serial	Dataplate Yr	Barcode	Qty
1	3042921	D3020	Baseboard Heater	Electric, 4 LF	1 KW	Replace	Providence Heritage House at the Market	Residential units						25 \$5,250 2028
2	3042952	D3030	Air Conditioner	Window/Thru-Wall, 1 TON		Replace	Providence Heritage House at the Market	Staff unit 218						102 \$224,400 2024
3	3042949	D3050	Make-Up Air Unit	MUA or MAU, 2000 to 6000 CFM		Replace	Providence Heritage House at the Market	Roof						\$35,000 2029
4	3042922	D3050	Packaged Unit	RTU, Pad or Roof-Mounted	4 TON	Replace	Providence Heritage House at the Market	Roof	Carrier	Illegible	Illegible			\$11,000 2031
5	3042905	D3050	Packaged Unit	RTU, Pad or Roof-Mounted	4 TON	Replace	Providence Heritage House at the Market	Roof	Carrier	48JD005501QE	1596G20756	1996		\$9,000 2024
6	3042926	D3050	Packaged Unit	RTU, Pad or Roof-Mounted, 3.5 TON	3.5 TON	Replace	Providence Heritage House at the Market	Roof	Carrier		Inaccessible			\$8,200 2031
7	3042936	D3050	Packaged Unit	RTU, Pad or Roof-Mounted, 6 to 7.5 TON	6 TON	Replace	Providence Heritage House at the Market	Roof	Carrier		Inaccessible			\$15,000 2028
8	3042974	D3050	Packaged Unit	RTU, Pad or Roof-Mounted, 6 to 7.5 TON	4 TON	Replace	Providence Heritage House at the Market	Roof	Carrier		Inaccessible			\$15,000 2029
9	3042956	D3050	Packaged Unit	RTU, Pad or Roof-Mounted, 6 to 7.5 TON	7.5	Replace	Providence Heritage House at the Market	Roof						\$15,000 2029
10	3042917	D3060	Exhaust Fan [EF-1]	Centrifugal, 28" Damper	5001 - 8500 CFM	Replace	Providence Heritage House at the Market	Roof						\$4,000 2028
11	3042901	D3060	Exhaust Fan [EF-2]	Centrifugal, 12" Damper	1500 CFM	Replace	Providence Heritage House at the Market	Roof						\$1,400 2028
12	3042912	D3060	Exhaust Fan [EF-3]	Centrifugal, 16" Damper	1001 - 2000 CFM	Replace	Providence Heritage House at the Market	Roof						\$2,400 2028
D40 Fire Protection														
Index	ID	UFCode	Component Description	Attributes	Capacity	Action	Building	Location Detail	Manufacturer	Model	Serial	Dataplate Yr	Barcode	Qty
1	3042884	D4030	Fire Extinguisher	Wet Chemical/CO2		Replace	Providence Heritage House at the Market	Kitchen						\$300 2030
2	3042914	D4030	Fire Extinguisher	Wet Chemical/CO2		Replace	Providence Heritage House at the Market	Throughout building						9 \$2,700 2028
D50 Electrical														
Index	ID	UFCode	Component Description	Attributes	Capacity	Action	Building	Location Detail	Manufacturer	Model	Serial	Dataplate Yr	Barcode	Qty
1	3042980	D5020	Distribution Panel	120/208 V	1200 AMP	Replace	Providence Heritage House at the Market	Electrical 1st floor				1989		\$11,500 2026
D70 Electronic Safety & Security														
Index	ID	UFCode	Component Description	Attributes	Capacity	Action	Building	Location Detail	Manufacturer	Model	Serial	Dataplate Yr	Barcode	Qty
1	3042892	D7030	Security Panel	Alarm & Control, Main Panel		Replace	Providence Heritage House at the Market							\$7,200 2026
E10 Equipment														
Index	ID	UFCode	Component Description	Attributes	Capacity	Action	Building	Location Detail	Manufacturer	Model	Serial	Dataplate Yr	Barcode	Qty
1	3042948	E1030	Laundry Equipment	Dryer, Commercial	30 - 50 LB	Replace	Providence Heritage House at the Market	Laundry						\$4,000 2036
2	3042965	E1030	Laundry Equipment	Dryer, Commercial	30 - 50 LB	Replace	Providence Heritage House at the Market	Laundry						\$4,000 2036
3	3042915	E1030	Laundry Equipment	Washer, Commercial	30 - 50 LB	Replace	Providence Heritage House at the Market	Laundry						\$7,000 2031
4	3042925	E1030	Laundry Equipment	Washer, Commercial	30 - 50 LB	Replace	Providence Heritage House at the Market	Laundry						\$7,000 2031
5	3042888	E1030	Foodservice Equipment	Coffee Machine		Replace	Providence Heritage House at the Market	Kitchenette	New Global Vending		051711597464			\$2,000 2026
6	3042964	E1030	Foodservice Equipment	Coffee Machine		Replace	Providence Heritage House at the Market	Kitchenette	Wunder Bar	No tag/plate found	No tag/plate found			\$2,000 2028
7	3042935	E1030	Foodservice Equipment	Coffee Machine		Replace	Providence Heritage House at the Market	Kitchenette	Cornelius	No tag/plate found	No tag/plate found			\$2,000 2026
8	3042886	E1030	Foodservice Equipment	Convection Oven, Single		Replace	Providence Heritage House at the Market	Kitchen	Turbochef	No tag/plate found	No tag/plate found			\$5,600 2026
9	3042941	E1030	Foodservice Equipment	Deep Fryer		Replace	Providence Heritage House at the Market	Kitchen	Avantco	No tag/plate found	No tag/plate found			\$7,000 2029
10	3042900	E1030	Foodservice Equipment	Dishwasher Commercial		Replace	Providence Heritage House at the Market	Kitchen	Hobart	AM15	23-1094-083			\$21,500 2026
11	3042933	E1030	Foodservice Equipment	Exhaust Hood, 3 to 6 LF		Replace	Providence Heritage House at the Market	Kitchen	Vent tec	No tag/plate found	No tag/plate found			\$3,300 2033
12	3042943	E1030	Foodservice Equipment	Exhaust Hood, 8 to 10 LF		Replace	Providence Heritage House at the Market	Kitchen	Summit	No tag/plate found	No tag/plate found			\$4,500 2032
13	3042938	E1030	Foodservice Equipment	Food Warmer, Proofing Cabinet on Wheels		Replace	Providence Heritage House at the Market	Kitchen	Vollrath	No tag/plate found	No tag/plate found			\$1,700 2027
14	3042896	E1030	Foodservice Equipment	Food Warmer, Proofing Cabinet on Wheels		Replace	Providence Heritage House at the Market	Kitchenette	Nemco					\$1,700 2026
15	3042972	E1030	Foodservice Equipment	Food Warmer, Proofing Cabinet on Wheels		Replace	Providence Heritage House at the Market	Kitchen	Precision	Illegible	Illegible			\$1,700 2029
16	3042877	E1030	Foodservice Equipment	Icemaker, Freestanding		Replace	Providence Heritage House at the Market	Kitchenette	Ice-O-Matic	ICE400HA6	17051280011308			\$6,700 2031
17	3042907	E1030	Foodservice Equipment	Mixer, Tabletop		Replace	Providence Heritage House at the Market	Kitchen	Hobart	No tag/plate found	No tag/plate found			\$3,400 2031
18	3042953	E1030	Foodservice Equipment	Prep Table Refrigerated, Salad/Sandwich		Replace	Providence Heritage House at the Market	Kitchen	No tag/plate found	No tag/plate found	No tag/plate found			\$4,700 2031
19	3042963	E1030	Foodservice Equipment	Prep Table Refrigerated, Salad/Sandwich		Replace	Providence Heritage House at the Market	Kitchenette						\$4,700 2027
20	3042928	E1030	Foodservice Equipment	Range/Oven, 6-Burner w/ Griddle		Replace	Providence Heritage House at the Market	Kitchen	Wolf	No tag/plate found	No tag/plate found			\$10,200 2033
21	3042891	E1030	Foodservice Equipment	Refrigerator, 1-Door Reach-In		Replace	Providence Heritage House at the Market	Kitchenette	Beverage-Air Corporation	MT12-1	D74210100078	2021		\$2,700 2035
22	3042946	E1030	Foodservice Equipment	Slicer		Replace	Providence Heritage House at the Market	Kitchen	Hobart	No tag/plate found	No tag/plate found			\$3,200 2027
23	3042873	E1030	Foodservice Equipment	Steamer, Tabletop		Replace	Providence Heritage House at the Market	Kitchen	Southbend		94L91128-2	1994		\$7,000 2021
24	3042872	E1030	Foodservice Equipment	Walk-In, Condenser for Refrigerator/Freezer		Replace	Providence Heritage House at the Market	Kitchen						2 \$12,600 2029
25	3042875	E1030	Foodservice Equipment	Walk-In, Evaporator for Refrigerator/Freezer		Replace	Providence Heritage House at the Market	Kitchen	Trenton	No tag/plate found	No tag/plate found			\$4,600 2026
26	3042920	E1030	Foodservice Equipment	Walk-In, Evaporator for Refrigerator/Freezer		Replace	Providence Heritage House at the Market	Kitchen						\$4,600 2031
27	3042910	E1030	Foodservice Equipment	Walk-In, Freezer		Replace	Providence Heritage House at the Market	Kitchen						\$25,000 2036
28	3042976	E1030	Foodservice Equipment	Walk-In, Refrigerator		Replace	Providence Heritage House at the Market	Kitchen						\$15,000 2026

## **Appendix H:** Energy Conservation Measures Calculations

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UIC		<b>Reduce HVAC Hours of Operation</b>	
EAC3		Location: Resident Rooms	
No of Programmable Thermostats To Be Installed :		51	Qty.
Select Type of Programmable Thermostat Recommended: <small>(Selection Based on Type of Property)</small>		Conventional Heat pump Programmable Thermostat (Electric Fuel) <small>(Select)</small>	
Heating Load Calculation		Cooling Load Calculation	
Select Type of Heating Fuel	Electric <small>(Select)</small>	Select Type of Cooling Fuel	Electric <small>(Default)</small>
Estimated Current Annual Energy Consumption For Winter Heating	330,480 kWh	Estimated Current Annual Energy Consumption For Summer Cooling	189,000 kWh
	Weekdays      Weekends		Weekdays      Weekends
Day Time Set Back Hours	9.00      4.00	Day Time Set Back Hours	9.00      4.00
Night Time Set Back Hours	8.00      8.00	Night Time Set Back Hours	8.00      8.00
Hours Without Set Back	7.00      12.00	Hours Without Set Back	7.00      12.00
Typical Indoor Temp	72.00 °F	Typical Indoor Temp	74.00 °F
Temp Set Point With Set Back During Day Time	65.00 °F	Temp Set Point With Set Back During Day Time	78.00 °F
Temp Set Point With Set Back During Night Time	65.00 °F	Temp Set Point With Set Back During Night Time	78.00 °F
Average Heating Set Point	67.46 °F	Average Cooling Set Point	76.60 °F
Savings Per Degree Set Back For Heating Season <small>(Industry Standard, 2004)</small>	3%	Savings Per Degree Set Back For Cooling Season <small>(Industry Standard, 2004)</small>	6%
Estimated Annual Heating Energy Consumption	1,127,598 kBtu	Estimated Annual Cooling Energy Consumption	644,868 kBtu
Estimated New Annual Heating Energy Consumption	973,963 kBtu	Estimated New Annual Cooling Energy Consumption	544,453 kbtu
Estimated Annual Heating Energy Savings	45,028 kWh	Estimated Annual Cooling Energy Savings	29,430 kWh
Cost Analysis			
Average Annual Cost of Heating Fuel:	\$0.10 \$/kWh	Estimated Installation Cost Per Thermostats: <small>(Includes Material, Labor &amp; Installation Costs)</small>	\$128 \$\$
Average Annual Cost of Electricity:	\$0.10 \$/kWh		\$8,269 \$\$
Estimated Annual Heating Cost Savings:	\$4,503 \$\$	Total Estimated Cost For All Programmable Thermostats	\$7,446
Estimated Annual Cooling Cost Savings:	\$2,943 \$\$	Total Estimated Cost Savings From All Programmable Thermostats	\$7,446
		Estimated Simple Pay Back Period	1.11 Yrs
<i>Type of Recommendation</i>		Capital Cost ECM Recommendation	

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**ECM DESCRIPTION:**

Turning off energy-consuming systems when they are not needed is the most basic energy conservation technique. When a building is occupied intermittently, energy savings can be realized by minimizing the time the heating or cooling system is operated when the building is closed. Building control algorithms should be implemented to delay startup until the last moment and to shut down as early as possible. Because of the thermal inertia of both the building structure and its heating and cooling equipment, preheat or precool time is almost always required to raise or lower the space temperature to the desired level before the occupants return. This start-up time depends on the outdoor environment, the thermal response of the building, and the thermal performance of the space conditioning equipment. Similarly, the thermal inertia of the building maintains the indoor temperature at a comfortable level for a short period of time after the equipment is shut off. It allows the system to be turned off before the end of an occupied period. An optimum start/stop control accounts for these factors.

**SUMMARY**

Initial Investment:	\$8,269	Simple Payback Period:	1.11 Yrs
Annual Energy Cost Saving:	\$7,446		

UIC		Replace Rooftop Package Unit			
EAH12-B	Location: Rooftop				
Estimated Annual Cooling Hours:	1,080	Hrs	Estimated Annual Heating Hours:	3,240	Hrs
Units to Replace	Air Conditioning	Heating System	Existing Type of Heating Fuel:		
	Yes	Yes	Natural Gas		
<b>Existing Package System</b>					
	Cooling	Heating	Total Combined Units		
Number of Package Units to be Replaced:	6	6	6		
Capacity of the air conditioner:	4	Tons	EER of the Existing Air Conditioner:	4.25	
Capacity of Existing Heating System:	74	MBH	Input Existing AFUE for the Furnace:	78%	
Estimated Annual Cooling Consumption: <small>(For All Units)</small>	73,186	kWh	Estimated Annual Heating Consumption : <small>(For All Units)</small>	18,443 Therms	
<b>Proposed Package System</b>					
Capacity of the Proposed Air Conditioner:	4	Tons	EER of the Proposed Air Conditioner:	11.00 EER	
Capacity of Proposed Heating System:	Gas Fired -60MBH	MBH	AFUE of Proposed Heating System:	80%	
Estimated Annual Energy Consumption With New Package Units					
Annual Electric Fuel Consumption:	28,276	kWh	Annual Heating Fuel Consumption:	14,580 Therms	
<b>Energy and Cost Analysis</b>					
Average Electric Rate:	\$0.10	\$/kWh	Average Heating Rate:	\$0.97 \$/Therm	
Estimated Annual Electric Savings : <small>From All New Package Systems</small>	44,910	kWh	Estimated Annual Heating Savings : <small>From All New Package Systems</small>	386,308 kBtus	
Annual Electric Cost Savings: <small>From All New Package Systems</small>	\$4,491		Annual Electric Cost Savings: <small>From All New Package Systems</small>	\$3,765	
Proposed Type of System to be installed:	Package Heating and Cooling System				
Estimated Material and Labor Cost Including Overheads and Profits For All Units:					\$28,500.00
Estimated Total Energy Cost Savings From New HVAC System:					\$8,256
Estimated O&M Savings:					\$413
Estimated Simple Pay Back Period:	3.28759889	Yrs	Capital Cost ECM Recommendation		

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UIC	Replace Existing Linear Fluorescent Lamps							
EAL2-SB	Location: Throughout							
<b>Existing Lighting System</b>								
Current Type of Lamp: (Select)	Throughout Interiors						Stairwell- BiLevel Lighting	
	F42T8							
Current Annual Avg Hrs of Operation:	2,900 hrs	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs	
Existing Number of Fixtures:	310	0	0	0	0	0	0	
<b>Proposed Lighting System</b>								
Proposed Lamp Replacement: (Select)	F21LED	-	-	-	-	-	-	
Proposed Annual Avg. Hours of Operation	2,900 hrs	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs	
Proposed Number of Fixtures:	310	0	0	0	0	0	0	
Proposed Lighting Control: (Select)	Light Switch	Light Switch	Light Switch	Light Switch	Light Switch	Light Switch	Light Switch	
No. of Lighting Controls:	310 Qty	0 Qty	0 Qty	0 Qty	0 Qty	0 Qty	0 Qty	
<b>Energy Saving Calculation</b>								
Estimated Annual Energy Savings	45,849 kWh	0 kWh	0 kWh	0 kWh	0 kWh	0 kWh	0 kWh	
Are The Ballast's Being Replaced: (Select)	Yes	No	No	No	No	No	No	
Estimated Material Cost:	\$12,865 \$	\$0 \$	\$0 \$	\$0 \$	\$0 \$	\$0 \$	\$0 \$	
Estimated Labor Cost:	\$12,400 \$	\$0 \$	\$0 \$	\$0 \$	\$0 \$	\$0 \$	\$0 \$	
Total Installation Cost:	\$25,265 \$	\$0 \$	\$0 \$	\$0 \$	\$0 \$	\$0 \$	\$0 \$	
Estimated Total Material Cost:	\$12,865 \$\$	Estimated Total Labor Cost:		\$15,708	Total kWh Saving		45,849 kWh	
Electric Rate:	\$0.10 \$\$	Total Initial Investment For Retrofit		\$28,573	Estimated Annual O&M Cost Savings		\$1,199	
Simple Pay back Period	4.94 Yrs	Type of Recommendation		Capital Cost ECM Recommendation		Estimated Annual Cost Savings		\$5,784

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**ECM DESCRIPTION:**

Fluorescent lighting is recommended for areas where color sensitivity is an important criterion (e.g., offices or small parts assembly rooms). Fluorescent tubes are currently available that produce a higher light output (more lumens per watt) than standard fluorescent tubes. There are efficient 40-watt lamps that produce 8% to 10% more light than standard lamps. The 34-watt fluorescent tubes use 15% less power than standard lamps, while producing about 8% less light. Since the human eye responds to light exponentially, rather than linearly, the difference is often unnoticeable. "T8" fluorescent lamps use only 32 watts, but existing fixtures must be replaced. Therefore, EMG recommends retrofitting all the existing fixtures with new 17.5W LED Tube lamps. The LED tubes provide a 180 degree light dispersal, and can be retrofitted in the existing light fixture. The LED tubes are rated at 50,000 hrs as compared to 20,000 to 30,000 hrs ratings for conventional fluorescent lamps. It is important to replace all lamps when re-lamping a fluorescent fixture, never mix energy-efficient and standard lamps with the same ballast. Ensure that the fluorescent ballast is compatible with the energy-efficient lamps. It must be noted that when switching from T-12 magnetic ballast to T8 lamps, the ballasts should be replaced with instant start electrical ballast. Also it should be noted that when installing an occupancy sensor/motion sensor, rapid start electronic ballast should be used.

**SUMMARY:**

Initial Investment: \$12,865      Simple Payback: 4.94 Years  
 Annual Cost Savings: \$5,784

UIC	Replace High Intensity Discharge Lamps With LED									
EAL9-S	Location: Building Exterior									
	Building Exterior					Insert Location here				
Existing Lamp & Fixture Type	Wall Packs-100W	-	-	-	-	-	-	-	-	-
Fixture Mounting Height	15 - 20 ft									
Proposed Replacement Type:	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED
Number of Lamps to Be Replaced :	16									
Current Annual Avg Hrs of Operation:	2,920 hrs									
Proposed Annual Avg. Hours of Operation	2,920 hrs									
Proposed Replacement:	37Watt	-	-	-	-	-	-	-	-	-
Proposed Lighting Control: (Select)	Photosensor	Light Switch	Light Switch	Light Switch	Light Switch	Light Switch	Light Switch	Light Switch	Light Switch	Light Switch
No. of Lighting Controls:	16 Qty		0 Qty	0 Qty	0 Qty	0 Qty	0 Qty	0 Qty	0 Qty	0 Qty
Estimated Annual Energy Savings	2,943 kWh	0 kWh	0 kWh	0 kWh	0 kWh	0 kWh	0 kWh	0 kWh	0 kWh	0 kWh
Total labor Cost <i>(Includes Bucket Truck Fees if Applicable)</i>	\$4,198 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$
Estimated Material Cost:	\$1,312 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$	\$0 \$\$
<b>Cost For Retrofit</b>	<b>\$5,510 \$\$</b>	<b>\$0 \$\$</b>	<b>\$0 \$\$</b>	<b>\$0 \$\$</b>	<b>\$0 \$\$</b>	<b>\$0 \$\$</b>	<b>\$0 \$\$</b>	<b>\$0 \$\$</b>	<b>\$0 \$\$</b>	<b>\$0 \$\$</b>
Total Initial Investment For Retrofit	\$5,510 \$	Total kWh Saving	2,943	Electric Rate:	\$0.10 \$	Energy Cost Savings:	\$294 \$			
Total O&M Savings:	\$817 \$	Total Cost Savings:	\$1,112	Simple Pay back Period	4.96 Yrs					
	Type of Recommendation		Capital Cost ECM Recommendation							

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**ECM Description:**  
 Exterior and site lighting at the site is currently provided by High Intensity Discharge (HID) lighting. Significant savings can be achieved in terms of energy usage as well as in life-cycle performance terms with more energy efficient lighting technologies like Light Emitting Diodes (LED) and induction lighting. Induction and LED lighting with dimmable controls and no re-strike delay capabilities can be easily tied into a building management controls and/or photo-sensor controls to reduce light output and energy consumption. Apply that over ten years plus reduced replacement costs compared to HID lamps and it makes sense to go with LED/induction lighting.  
 The LED lights are rated 100,000hrs after which the illumination levels drop below 70%. LED's are gaining more popularity and acceptance over the time and are considered ideal replacement for parking and street lightings along with site illumination lights. The new LED lights consume less than a third of the power as consumed by the HID and last up to five times longer, in addition to this the LED's can be easily dimmed as per the requirement.

**SUMMARY;**  
 Initial Investment: \$5,510      Annual Cost Savings: \$1,112      Simple Payback Period: 4.96 Yrs

UIC	Replace Existing Air Conditioners with Energy Star Air Conditioners			
EAH3	Location: Resident Rooms			
		Electric Rate:	\$0.10	\$/kWh
<b>PTAC</b>				
Number of Existing Air Conditioners	51 Qty		0 Qty	
Insert Cooling Capacity of Existing Air-Conditioner	12,000 Btuh			
Please Input The Existing EER of The Air-Conditioner:	4.50 EER			
Estimated Annual Operating Hours:	1,080 Hrs			
Select Proposed Air Conditioner Type:	Ductless System-12000	-	-	-
Estimated New Annual Operating Hours:	1,080 Hrs			
Please Input The Btu/Hr of The New Air-Conditioner:	12,000 Btuh	-	-	-
EER of Proposed Air-Conditioning System:	17.94 EER	-	-	-
Total Energy Consumption For Existing Air conditioner:	146,880 kWh	0 kWh	0 kWh	0 kWh
Total Energy Consumption For Proposed Air conditioner:	36,848 kWh	0 kWh	0 kWh	0 kWh
Annual kWh savings for all Air conditioner:	110,032 kWh	0 kWh	0 kWh	0 kWh
Estimated Annual Energy Cost Savings:	\$11,003	\$0	\$0	\$0
Estimated Annual O&M Savings:	\$330	\$0	\$0	\$0
Total Annual Cost Savings:	\$11,333	\$0	\$0	\$0
Estimated Installed Cost For All Air conditioner:	\$86,160	\$0	\$0	\$0
Total Initial Investment:	\$86,160	Total Annual Electric Savings:	110,032 kWh	
Total Annual Cost Savings:	\$11,333	Simple Payback:	7.60 Yrs	
Type of Recommendation	Capital Cost ECM Recommendation			

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**ECM DESCRIPTION:**

Advances in compressor and condenser technology have allowed for the development of more efficient air conditioning systems. As a result cooling can be provided at the same rate, with a lower energy input. Energy efficiency ratio (EER) is the ratio of cooling output to power input. Seasonal energy efficiency ratio (SEER) is an adjusted figure based on the length of the cooling season. A higher EER or SEER indicates a more efficient unit which can provide the same cooling capacity while consuming less energy. The minimum standard for air conditioner performance in most areas is currently 13 SEER as required by the 2006 EMG recommends replacing all the identified air conditioners with the new proposed high efficiency air conditioners as mentioned above.

**Summary:**

Initial Investment: \$86,160      Simple Payback: 7.60 Yrs  
 Energy Cost Savings: \$11,333

## **Appendix I:** Energy Audit Glossary of Terms

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### **Glossary of Terms and Acronyms**

**ECM** – Energy Conservation Measures are projects recommended to reduce energy consumption. These can be No/Low cost items implemented as part of routine maintenance or Capital Cost items to be implemented as a capital improvement project.

**Initial Investment** – The estimated cost of implementing an ECM project. Estimates typically are based on R.S. Means Construction cost data and Industry Standards.

**Annual Energy Savings** – The reduction in energy consumption attributable to the implementation of a particular ECM. These savings values do not include the interactive effects of other ECMs.

**Cost Savings** – The expected reduction in utility or energy costs achieved through the corresponding reduction in energy consumption by implementation of an ECM.

**Simple Payback Period** – The number of years required for the cumulative value of energy or water cost savings less future non-fuel or non-water costs to equal the investment costs of the building energy or water system, without consideration of discount rates.

**EUL** – Expected Useful Life is the estimated lifespan of a typical piece of equipment based on industry accepted standards.

**RUL** – Remaining Useful Life is the EUL minus the effective age of the equipment and reflects the estimated number of operating years remaining for the item.

**SIR** - The savings-to-investment ratio is the ratio of the present value savings to the present value costs of an energy or water conservation measure. The numerator of the ratio is the present value of net savings in energy or water and non-fuel or non-water operation and maintenance costs attributable to the proposed energy or water conservation measure. The denominator of the ratio is the present value of the net increase in investment and replacement costs less salvage value attributable to the proposed energy or water conservation measure. It is recommended that energy-efficiency recommendations be based on a calculated SIR, with larger SIRs receiving a higher priority. A project typically is recommended only if the SIR is greater than or equal to 1.0, unless other factors outweigh the financial benefit.

**Life Cycle Cost** - The sum of the present values of (a) Investment costs, less salvage values at the end of the study period; (b) Non-fuel operation and maintenance costs; (c) Replacement costs less salvage costs of replaced building systems; and (d) Energy and/or water costs.

**Life Cycle Savings** – The sum of the estimated annual cost savings over the EUL of the recommended ECM, expressed in present value dollars.

**Building Site Energy Use Intensity** - The sum of the total site energy use in thousands of Btu per unit of gross building area. Site energy accounts for all energy consumed at the building location only not the energy consumed during generation and transmission of the energy to the site.

**Building Source Energy Use Intensity** – The sum of the total source energy use in thousands of Btu per unit of gross building area. Source energy is the energy consumed during generation and transmission in supplying the energy to your site.

**Building Cost Intensity** - This metric is the sum of all energy use costs in dollars per unit of gross building area.

**Greenhouse Gas Emissions** - Although there are numerous gases that are classified as contributors to the total for Greenhouse Emissions, the scope of this energy audit focuses on carbon dioxide (CO<sub>2</sub>). Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement).