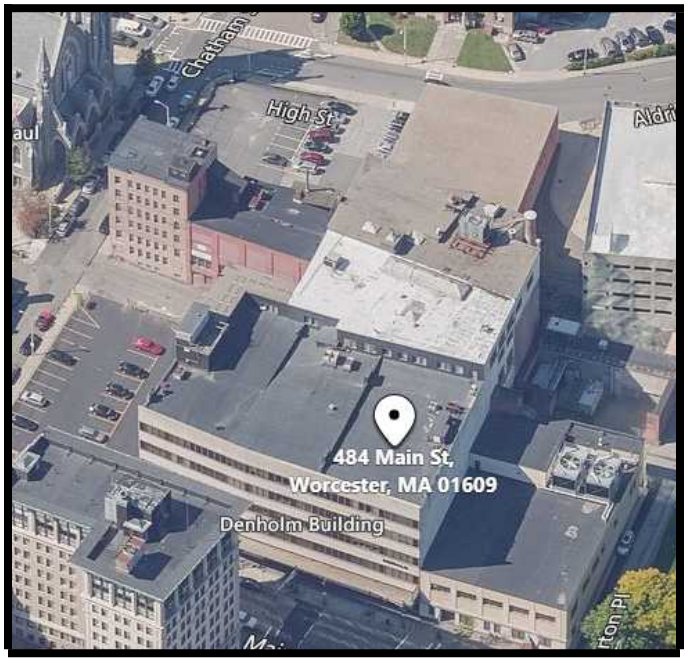
CONDOMINIUM RESERVE STUDY



Prepared for:

Denholm Condominium Trust
484 Main Street, Suite 300
Worcester, MA

Denholm Building

484 Main Street
Worcester, Massachusetts

EBI Project No. 1319000663

January 21, 2020

EBI Consulting
environmental | engineering | due diligence

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January 21, 2020

Mr. James Hayes
Denholm Condominium Trust
484 Main Street, Suite 300
Worcester, MA

Subject: **Condominium Reserve Study & MEP/LS Report**
Denholm Building
484 Main Street, Worcester, Massachusetts
***EBI* Project #1319000663**

Dear Mr. Hayes:

Attached please find our *Condominium Reserve Study*, (the *Study*) for the above-mentioned asset (the Subject Property). During the property survey and research, our property surveyors met with agents representing the Subject Property, or agents of the *Denholm Condominium Trust (DCT)*, and reviewed the property and its history. The *Study* was completed according to the terms and conditions authorized by you. The gathering of data and information for this *Study* has been completed in general conformance with ASTM E 2018 – 15 and generally accepted reserve study standards.

The exclusive purpose of this *Study* is to assist the *DCT* management by helping them identify key factors, develop assumptions, gather and assemble information, and develop a financial model for 10-year planning. The *Study* is based on an on-site analysis of Denholm Building assets. *EBI*'s analysis includes observing the general physical condition and maintenance status of the property, suggesting repair or maintenance items considered customary for the property to continue in its current operation compared to properties of similar age and condition, and assisting the *DCT* in its responsibility for the preparation and fair representation of this *Study*.

This *Study* was performed utilizing methods and procedures consistent with established commercial practices and in conformance with generally accepted reserve study standards. A reserve study involves performing procedures to identify, quantify and evaluate condition of components based on visual observation for the purpose of making a financial projection. The procedures selected are based on the reserve professional's judgement. *EBI* believes that the procedures we have performed are sufficient and appropriate to support the *Study* as presented. We are not responsible for any events subsequent to the date of this *Study*.

The limited procedures *EBI* performed do not constitute an examination that would result in an independent reserve study, and, accordingly, *EBI* does not express an opinion or provide any assurance on the information presented. *EBI* has completed the accompanying *Study,* comprised of the financial exhibits referred to above in accordance with generally accepted reserve study principles. The suggestions represent *EBI's* opinion based on written, graphic or verbal information, the property condition and data available to us at the time of the survey. Information regarding operations, conditions or data provided by the *DCT*, occupants, developer or their representative has been assumed to be correct and complete.

EBI is an independent contractor, not an employee of either party to this transaction, and its compensation was not based on the findings or recommendations made in the *Study* or on the closing of any business transaction.

Thank you for the opportunity to prepare this *Study,* and assist you with this project. Please call us if you have any questions or if we may be of further assistance.

Respectfully Submitted,

Thomas Richter, P.E.
Author/Senior Engineer

Luis Munoz 407.399.4747
Reviewer / Senior Program Manager
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EXECUTIVE SUMMARY

The Subject Property, known as Denholm Building, is located in Worcester, Massachusetts at 484 Main Street in Worcester County. The Property was reportedly constructed circa 1880 and renovated in the 1950's. The Property consists of a 30-unit condominium office complex with one, 6-story building, totaling 200,000 gross square feet±[1] and situated on a two lots totaling approximately 2.3-acres. The office building has office spaces with some retail, law offices, and the majority of the larger tenants are non-profit organizations. There are two separate parking lots that are reportedly dedicated for the Subject Property, one at the rear of the building and one a few blocks west of the building.

The building is situated with the front eastern side of the building along Main Street; the southern side along a parking lot; the northern side directly abutting an adjacent building and service alley; and the western side along Aldrich Street. Concrete sidewalks are provided along the street sides of the building.

The building structure consists of a combination of cast-in-place concrete columns and walls supporting concrete beams and cast-in-place concrete slabs with supplemental structural steel columns, beams and trusses. Wood framed floors, walls and roofs are also in place and visible in some locations. The primary exterior materials consist of brick masonry and stucco for the side and utility walls and stone cladding for the storefront sides along Main Street and Aldrich Street. Fixed insulated inset and band glazing is provided throughout the building with single-pane storefronts and original stairwell windows. There is a 7-story masonry boiler stack at the rear of the building that is no longer utilized. The roofs are low-slope, mechanically-fastened, ballasted, and adhered single-ply EPDM membrane roofs with some built-up roofs covered by polyurethane foam. A service alley passes under the rear of the building where there is a vertical offset of the building. The rear of the building along High Streetoccupies two floors even with the 3rd and 4th floors of the front portion. The basement occupies the front portion of the building up to the alley.

The building is generally heated with a central gas-fired boiler and perimeter convectors. Heating and cooling is also provided by air handlers with chilled and hot water coils, split system units, and packaged units. Domestic hot water is provided by individual electric tank-type water heaters. Fire and life safety equipment includes various fire alarm devices and controls, and automatic fire sprinkler and fire alarm systems. Two geared traction passenger elevators service the building. One set of up and down escalators provides access from the 1st to the 5th floor. An emergency generator serves the Subject Property.

The property has sparse landscaping consisting of stone and concrete sidewalks at the storefronts. Asphalt paving is in place at the service alley and parking lots.

1 Square footage obtained from the Pre-Survey Questionnaire.

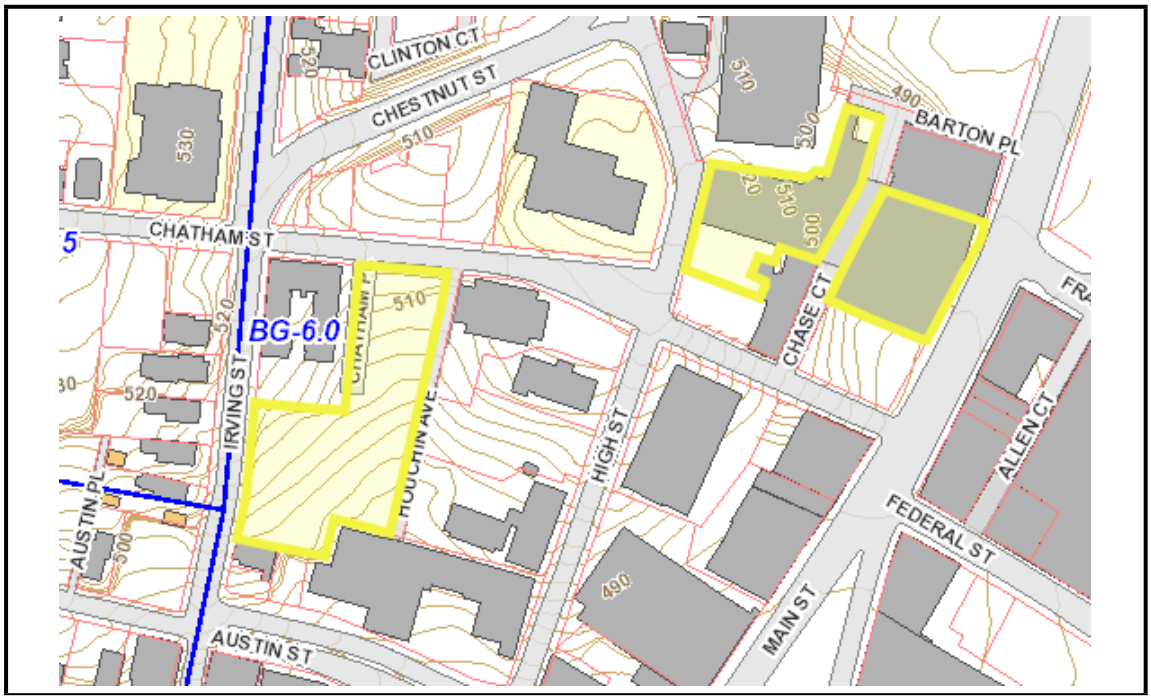
Location

The Subject Property is located along the eastern side of the intersection of Franklin Street and Main Street. There is an offsite parking lot one block west of the subject building along the southern side of Chatham Street. The Subject Property is approximately 1 mile northwest of Interstate 290. The Subject Property is located in a central city location of Worcester diagonally across from the Worcester City Hall building.

Two drives provide access to the Subject Property from the adjacent road frontages. An alley access, Chase Court, provides access to the middle of the building at the 3rd floor and passes under the building to the northern side. The western side parking lot is accessed via one entrance from the western side on Aldrich Street. The remote parking lot has three entrances, two along Chatham Street and one along Irving Street. The eastern entrances to the parking lot are listed as Chatham Place and Houchin Avenue and dead end within the parking lot.

Property use in the vicinity of the Subject Property is mixed with multifamily residential, commercial, retail, and municipal development.

According to the City of Worcester municipal department, the Subject Property has multiple owners with seven of the spaces owned by *Denholm Condominium Trust*. The overall property is identified as Parcel ID CO-NDO-03005 and occupies an area of 2.34-acres.



Site Observation & Observation Summary

Thomas Richter, P.E., Senior Engineer of *EBI* surveyed the property on January 10, 2020 and was accompanied by, and interviewed, Mr. Doug Morris, Maintenance Engineer of the Subject Property with Glickman Kovago & Jacobs. At the time of the survey, the weather was overcast and approximately 45° Fahrenheit. During the survey, representative areas of the site, common areas, vacant spaces, mechanical spaces, mechanical equipment, building components were observed. Additional consultants from *EBI*, surveyed the Subject Property earlier in the week to report on the Subject Property mechanical, electrical, plumbing, and fire alarm systems.

It should be noted that the estimated costs recommended in the reserves for this report are after any required environmental cleanup operations are completed such as asbestos, mold, oil, and/or other contamination.

Maintenance & DCT/Resident/Tenant Responsibility

Maintenance, repair, and replacement of the plumbing, mechanical, electrical, HVAC systems, and interior finishes within the tenant spaces at the property are reportedly the responsibility of the Subject Property condominium owners and retail tenants.

Maintenance, repair, and replacement of the roofs, facades, landscaping, pavement and parking, elevator, life safety systems, and utility service feeds, along with common area interior finishes, plumbing,

mechanical, electrical and HVAC systems and components at the property are reportedly the responsibility of *DCT*.

Purpose & Limitations

The exclusive purpose of this *Study* is to assist the *DCT* management and/or *DCT* by helping them identify key factors, develop assumptions, gather and assemble information, and develop a financial model for 10-year planning. The *Study* is based on an on-site analysis of Denholm Building assets. *EBI*'s analysis includes observing the general physical condition and maintenance status of the property, suggesting repair or maintenance items considered customary for the property to continue in its current operation compared to properties of similar age and condition, and assisting the *DCT* and/or *DCT* in its responsibility for the preparation and fair representation of this *Study*.

This *Study* was performed utilizing methods and procedures consistent with established commercial practices and in conformance with generally accepted reserve *Study* standards. A reserve *Study* involves performing procedures to identify, quantify and evaluate condition of components based on visual observation for the purpose of making a financial projection. The procedures selected are based on the reserve professional's judgement. *EBI* believes that the procedures we have performed are sufficient and appropriate to support the *Study* as presented. We are not responsible for any events subsequent to the date of this *Study*.

The extent of the physical survey for the production of this *Study* has been limited, by contract and agreed upon Scope of Work, to visual observations and a walk-through of the property. No destructive or invasive testing methods were performed in compiling the components lists or condition. Assumptions regarding the overall condition of the property have been developed based upon a survey of representative areas of the Subject Property. As such, no representation of all aspects of all areas or components is made.

Critical Repairs as may be identified during the survey are typically limited to life, safety, health, or building code violation issues observed at the Subject Property. Non-Critical Repairs as may be identified during the survey are typically repairs that are not life-safety or code issues, but instead construction deficiency issues that require repairs necessary to complete the developer's punchlist. Routine, normal or customary annual maintenance or preventative maintenance items are not calculated in this *Study*.

This assessment is based on the evaluator's opinion of the physical condition of the improvements and the estimated expected remaining useful life of those improvements, based on his observations in the field at the time of the survey, and the written or verbal information received. The conclusions presented are based on the evaluator's professional judgment. The actual performance of individual components or systems may vary from a reasonably expected standard and may be affected by circumstances that are not readily ascertainable or viewable, or that occur after the date of the survey.

The gathering of data and information for this *Study* has been completed in general conformance with ASTM E 2018 – 15 and generally accepted reserve study standards. The gathering of data includes the identification and quantification of common area components. Where quantities cannot be determined from information provided or physical takeoffs, lump sum estimates or allowances are used. The costs shown are based on professional judgment and the apparent or actual extent of the observed defect, including the cost to design, procure, construct and manage the repair or replacement. Where property-unique or specialty equipment is present, *EBI* relies solely on data regarding maintenance and/or replacement costs provided by on-site individuals with first-hand knowledge of the specific equipment.

The survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession, and in accordance with generally accepted practices of other consultants currently practicing in the same locality under similar conditions. The level of care and skill exercised is

also commensurate with the fees charged for *EBI*'s services. No other representation, expressed or implied, and no warranty or guarantee is included or intended. The Report speaks only as of its date, in the absence of a specific written update of the Report, signed and delivered by *EBI*.

Components considered for inclusion in the reserve study are all those components that are the maintenance responsibility of the Trust that are anticipated to require future major repair or replacement under the assumption that such components are subject to normal maintenance activities and normal wear and tear. The component list was compiled based upon the site survey of common area spaces, inquiry of the Trust management, and selected vendors providing maintenance services to the Trust. The component list is believed to be complete, except for the exclusions noted below, which are considered normal exclusions.

Exclusions from the analysis are:

- Building structural components (considered lifetime component)
- Utility service mains (considered lifetime or greater than 40-year component)
- Street/pavement base material (considered lifetime and municipal component)
- Building code upgrades (considered unforeseen conditions)
- Environmental or geologic conditions

Although excluded from this reserve study, future costs may arise due to unforeseen conditions and events or defective materials and methods of construction.

Estimated future major repair and replacement costs are generally based on current replacement costs projected to estimated repair or replacement date, applying an inflation factor of 3% for the entire 10-year financial analysis term. Current estimated replacement costs are derived from a variety of sources including: actual prior costs, current bids, vendor or contractor estimates, management's estimates, *EBI* Consulting's cost database, or cost estimator manuals. This data is considered reliable and has been relied upon in the determination of current cost. Current cost includes material or product cost, labor, overhead, delivery, and sales tax.

EBI is not aware of any material modifications that should be made to the financial exhibits referred to above, based upon the stated significant assumptions and exclusions, for them to be presented in conformity with generally accepted reserve study guidelines. Any additional information that becomes available after *EBI's* survey and draft submission concerning the Subject Property should be provided to *EBI* so that *EBI's* Study may be revised and modified, if necessary, at additional cost. This *Study* has been prepared in accordance with *EBI's* Standard Conditions for Engagement, which is an integral part of this *Study*. This *Study* is restricted to the management and members of the *DCT* and/or *DCT*, and should not be relied upon by others not involved in the establishment of the significant assumptions and exclusions upon which this *Study* is based. Readers of the *Study* should consider the significant assumptions, excluded components, and general exclusions in forming their own conclusions regarding the reserve study report.

Generally accepted reserve study standards require that component lists compiled at the major or minor component level be presented to supplement the basic financial exhibits. These component lists are the joint responsibility of *EBI* and the *DCT*'s management, and were used to prepare the basic financial exhibits. The information contained in these lists has been subjected to the procedures applied in the compilation of the *Study*, and *EBI* is not aware of any material modifications that should be made thereto.

EBI may use various abbreviations to describe various site, building or system components or legal descriptions. Not all abbreviations may be applicable to this *Study*. The abbreviations most often utilized are defined below.

BTUH	British Thermal Units per Hour	KW	Kilowatt
CFM	Cubic Feet per Minute	MBH	Thousand BTUs per Hour

FF&E	Furniture, Fixtures & Equipment	RUL	Remaining Useful Life
FCU	Fan Coil Unit	TPO	Thermoplastic polyolefin

1.0 FINANCIAL POSITION

Significant Assumptions

Significant assumptions considered in this reserve study are as follows:

Minimum useful life of components is one year.
Minimum replacement cost for a single item is $500. A group of items with individual costs of less than $500 are included if the aggregate cost exceeds $1,000.
Addition of new components due to unexpected deterioration will be made as necessary.
Customary preventative maintenance programs exist and customary maintenance procedures are exercised.
No unusual conditions exist; normal wear and tear only is anticipated.
Continued use of existing amenities will occur.
Adequate property insurance coverage is maintained.
Regular reserve assessments will be made as indicated in funding plan.

1.1 CRITICAL REPAIRS AND CAPITAL NEEDS

The cost estimates shown on the tables are based on data obtained from the Owner for items already planned, quotes from contractors, *EBI*'s in-house acquisition database costs and our experience with costs and estimates for similar issues, property and building types, city cost indexes, and assumptions regarding future economic conditions. These projected costs are augmented by cost estimate resource documents such as the National Construction Estimator, Means Building Construction Cost Data, or Means Facilities Maintenance and Repair Cost Data Publications.

1.1.1 CRITICAL REPAIRS & NON-CRITICAL REPAIRS - TABLE 1

Each of the Immediate Repair items noted during the survey are listed on the following page on Table 1, and compiled on the Executive Summary Table. Items are grouped and cross-referenced by Report section. Critical Repairs as may be identified during the survey are typically limited to life, safety, health, building code violation or building or property stabilization issues observed at a Subject Property.

Each of the Short Term Repair items noted during the survey are listed on the following page on Table 1, and compiled on the Executive Summary Table. Items are grouped and cross-referenced by Report section. Non-Critical Repairs as may be identified during the survey are typically repairs that are not life, safety, stabilization or code issues, but deferred maintenance or repairs necessary or of significant cost so to warrant them as a Short Term Repair, and/or that cannot be completed within a short timeframe due to the magnitude of the issue, the scope of work or weather.

1.1.2 CAPITAL NEEDS - TABLE 2

Each of the Replacement Reserve items noted during the survey are listed in *Table 2 – Capital Needs*, and compiled on the *Executive Summary – Critical Repairs and Capital Needs* table. Items are grouped and cross-referenced by *Report* section. Routine operational or customary annual maintenance items are not reported or included in this *Report.*

Table 1 - Critical and Non-Critical Repairs

Denholm Building
484 Main Street
Worcester, Massachusetts
EBI Project # **1319000655**

Site Survey Date: 1/10/2020
Report Date: 1/22/2020
Property Type: Office
Number of Buildings: 1
Number of Floors: 6

Building Area: 200,000
Number of Units: 30
Property Age: 140
Analysis Term: 10

SECTION NUMBER	*SECTION NAME*	*RECOMMENDED WORK*	*QUANTITY*	*UNIT COST*	*Markup for Contingency, Permits, Overhead/Profit, General Conditions, etc.*	*UNIT COST (Including Markup)*	*UNIT DESCRIPTION*	*ESTIMATED CRITICAL REPAIR COST*	*Short Term Repair?*	*ESTIMATED NON-CRITICAL REPAIR COST*	COMMENTS OR ADDITIONAL DESCRIPTION
2.0	**SITE CONDITIONS**										
2.1	Site Features	None			20.0%						
2.2	Landscaping / Improvements	Repair areas of deteriorated/damaged concrete sidewalk	300	$20.39	20.0%	$24.46	per square foot	$7,339.32			Sidewalk cracks and/or trip hazards were observed. Two former light pole base bolts remain in the sidewalk.
2.2	Landscaping / Improvements	Front sidewalk sealing	760	$3.50	20.0%	$4.20	per linear foot	$3,192.00			Minor moisture infiltration through the sidewalk paver and stone slabs was observed and reported.
2.3	Pavement/ Parking	Localized full-depth asphalt repairs (> 1,000 SF)	4,103	$3.97	20.0%	$4.76	per square foot	$19,530.53			The remote parking lot is in generally fair condition with the northeastern entrance drive in poor condition. Remote parking lot asphalt paving repairs.
2.4	Amenities	None			20.0%						
2.5	Utilities	None			20.0%						
3.0	**STRUCTURE**										
3.1	Substructure	None			20.0%						
3.2	Superstructure	Clean and repair basement column	1	$1,500.00	20.0%	$1,800.00	each		✔	$1,800.00	Clean and recast concrete around base of column at rear of basement.
4.0	**BUILDING ENVELOPE**										
4.1	Roof	Complete roofing installation Section E	1		20.0%		action item				Complete roofing installation delayed due to weather.
4.1	Roof	Rework parapet walls and flashings	1	$5,000.00	20.0%	$6,000.00	lump sum				Repair worn parapet walls and flashings.
4.1	Roof	Repair two roof leaks roof sections A and B	2	$1,300.00	20.0%	$1,560.00	$3,120.00				Complete roof repairs at section A and B.
4.1	Roof area C	EPDM 60 mil roof replacement - mid rise	7,015	$9.64	20.0%	$11.57	per square foot		✔	$81,170.57	Replace built-up and foam roof section C.
4.1	Roof area D	EPDM 60 mil roof replacement - mid rise	3,521	$9.64	20.0%	$11.57	per square foot		✔	$40,741.49	Replace built-up roof section D.
4.2	Facades	Façade survey and report	1	$5,000.00	20.0%	$6,000.00	allowance	$6,000.00			Retain façade consultant and recommend repairs.
4.2	Facades	Complete façade consultant recommended repairs	1	TBD	20.0%	TBD	TBD		✔	TBD	This report can be updated when the costs are provided by the façade consultant.
4.2	Facades	Remove masonry boiler chimney	1	$4,500.00	20.0%	$5,400.00	allowance	$5,400.00			The boiler chimney stack was observed to be in fair to poor condition. The top of the stack exhibited cracking and the base smaller brick skirt is deteriorating.
4.3	Windows and Doors	Commercial window replacement	14	$826.50	20.0%	$991.80	each		✔	$13,885.20	Ten fogged windows and four cracked insulated panes were observed.
4.3	Windows and Doors	Commercial window replacement	22	$1,074.45	20.0%	$1,289.34	each		✔	$28,365.48	The wood framed stairwell and chimney area windows appear to be original to the building and have exceeded their expected useful life.

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5.0	**BUILDING INTERIORS**										
5.1	Bsmt/Attic	General basement cleanup	17,000	$2.50	20.0%	$3.00	per square foot		✔	$51,000.00	Clean up basement worn and damaged finishes to a stable condition.
5.2	Interior F & C	None			20.0%						
6.0	**ACCESSIBILITY**										
6.1	Accessibility	None			20.0%						
7.0	**BUILDING SYSTEMS**										
7.1	Plumbing	Water heater catch pan installation	2	$386.00	20.0%	$463.20	each	$926.40			Catch pans were noted missing on two water heaters.
7.1	Plumbing	Evaluation of galvanized water piping	1	$2,500.00	20.0%	$3,000.00	each	$3,000.00			The domestic galvanized water piping to be evaluated by a qualified professional to assess its current condition, identify repair needs, and provide an estimate of its remaining useful life.
7.1	Plumbing	Evaluation of galvanized steam piping	1	$5,000.00	20.0%	$6,000.00	each	$6,000.00			Steam piping appeared to be in poor condition in the basement, with significant corrosion observed.
7.1	Plumbing	Evaluation of galvanized sanitary piping	1	$5,000.00	20.0%	$6,000.00	each	$6,000.00			Sanitary piping appeared to be in poor condition in the basement. Significant corrosion was observed.
7.2	HVAC	Replace condenser 3 to 4.5 Tons	2	$4,551.00	20.0%	$5,461.20	each	$10,922.40			Unit is past its estimated useful life and in poor condition.
7.2	HVAC	Replace condenser 5 to 7 Tons	1	$5,321.00	20.0%	$6,385.20	each	$6,385.20			Unit is past its estimated useful life and in poor condition.
7.2	HVAC	Replace condenser 10 to 14.5 Tons	1	$10,302.00	20.0%	$12,362.40	each	$12,362.40			Unit is past its estimated useful life and in poor condition.
7.2	HVAC	Replace condenser 15 to 19.5 Tons	2	$11,291.00	20.0%	$13,549.20	each	$27,098.40			Units are past their estimated useful life and in poor condition.
7.2	HVAC	Replace air handler 10 Tons	6	$14,815.00	20.0%	$17,778.00	each	$106,668.00			Units are past their estimated useful life and in poor condition.
7.2	HVAC	Replace air handler 12 Tons	2	$17,019.00	20.0%	$20,422.80	each	$40,845.60			Units are past their estimated useful life and in poor condition.
7.2	HVAC	Replace air handler 3000 cfm	1	$13,191.00	20.0%	$15,829.20	each	$15,829.20			Unit is past its estimated useful life and in poor condition.
7.2	HVAC	Replace air handler 4000 cfm	1	$15,478.00	20.0%	$18,573.60	each	$18,573.60			Unit is past its estimated useful life and in poor condition.
7.2	HVAC	Replace rooftop package unit 12.5 Tons	1	$31,110.00	20.0%	$37,332.00	each	$37,332.00			Unit is past its estimated useful life and in poor condition.
7.2	HVAC	Replace rooftop package unit 15 Tons	1	$33,975.00	20.0%	$40,770.00	each	$40,770.00			Unit is past its estimated useful life and in poor condition.
7.2	HVAC	replace boiler 3,770 MBH	1	$177,690.00	20.0%	$213,228.00	each	$213,228.00			Leak was noted on boiler.
7.2	HVAC	Licensed engineer to provide feasibility study to replace boiler	1	$7,500.00	20.0%	$9,000.00	each	$9,000.00			Immediate Repairs are recommended to engage a licensed Engineering firm to evaluate the conversion of the current oil-fired steam boiler to a natural gas steam boiler and provide feasibility and cost to replace the boiler.
7.3	Electric	Inspection of Federal Pacific equipment	1	$5,000.00	20.0%	$6,000.00	each	$6,000.00			EBI recommends that a licensed electrician be engaged to inspect the main Federal Pacific Electric switchboards and distribution panels and provide recommendations regarding the equipment in regards to repair/replacement.

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SECTION NUMBER	*SECTION NAME*	*RECOMMENDED WORK*	*QUANTITY*	*UNIT COST*	*Markup for Contingency, Permits, Overhead/Profit, General Conditions, etc.*	*UNIT COST (Including Markup)*	*UNIT DESCRIPTION*	*ESTIMATED CRITICAL REPAIR COST*	*Short Term Repair?*	*ESTIMATED NON-CRITICAL REPAIR COST*	COMMENTS OR ADDITIONAL DESCRIPTION
7.3	Electric	Inspection of electrical equipment	1	$3,000.00	20.0%	$3,600.00	each	$3,600.00			EBI observed that panels and local disconnects (identified in red in the table of the report) appear to need re-torqueing and tightening to ensure proper connections due to above normal temperatures.
7.3	Electric	Replace gas-fired generator	1	$31,490.00	20.0%	$37,788.00	each		✔	$37,788.00	Unit is past its estimated useful life and in fair to poor condition.
7.4	F/L Safety	Sprinkler system 5 year test	1	$4,500.00	20.0%	$5,400.00	each	$5,400.00			NFPA 25 - 5 year test - Site contact did not have knowledge of the last time the test was performed
7.5	Elevators	Elevator modernization - 6 - 10-stories Traction	12	$53,998.00	20.0%	$64,797.60	per elevator per floor		✔	$777,571.20	The elevators appear to be in generally fair condition. The elevator controls are dated and periodic service calls are required to keep them operational and/or to free passengers when down.
8.0	**MUNICIPAL RESEARCH**										
8.1	Municipal Information & Zoning	None			20.0%						
8.2	Building & Planning	None			20.0%						
8.3	Fire Department	None			20.0%						
9.0	**NATURAL HAZARDS**										
9.1.1	Seismic	None			20.0%						
9.1.2	Flood Zone	None			20.0%						
9.1.3	Wind Zone	None			20.0%						
9.2	Suspect Mold & Moisture	None			20.0%						
							DEFERRED MAINTENANCE:	**Critical**		**Non-Critical**	
								$611,403		**$1,032,322**	
							TOTAL:	**$1,643,725**			

TABLE 2 - Capital Needs Reserves

Denholm Building
484 Main Street
Worcester, Massachusetts
EBI Project # 1319000655

Site Survey Date: 1/10/2020
Report Date: 1/22/2020
Property Type: Office
Number of Buildings: 1
Number of Floors: 6

Building Area: 200,000
Number of Units: 30
Property Age: 140
Analysis Term: 10

SECTION NUMBER	SECTION NAME	RECOMMENDED WORK	AVERAGE EFFECTIVE USEFUL LIFE	EFFECTIVE AGE	REMAINING USEFUL LIFE	TOTAL QUANTITY OVER TERM	APPROXIMATE QUANTITY PER YEAR	UNIT COST (adjusted by location factor)	Markup for Contingency, Permits, Overhead/Profit, General Conditions, etc.	UNIT COST (Including Markup)	UNIT DESCRIPTION	ESTIMATED COST PER YEAR	Annual Costs									RECOMMENDED TOTAL OVER THE TERM
													2020 YEAR 1	2021 YEAR 2	2022 YEAR 3	2023 YEAR 4	2024 YEAR 5	2025 YEAR 6	2026 YEAR 7	2027 YEAR 8	2028 YEAR 9	2029 YEAR 10	
2.0	**SITE CONDITIONS**																						
2.1	Site Features	None	-						20.0%														
2.2	Landscaping / Improvements	None	-						20.0%														
2.2	Landscaping / Improvements	Repair areas of deteriorated/damaged concrete sidewalk	5		5	400	200	$20.39	20.0%	$24.46	per square foot	$4,893					4,893					4,893	$9,786
2.3	Pavement/ Parking	Patching, crack sealing, sealing and striping of asphalt pavement	5	2	3	138,672	69,336	$0.35	20.0%	$0.42	per square foot	$29,341			29,341					29,341			$58,682
2.3	Pavement/ Parking	Mill and overlay asphalt pavement	25	var	var	13,867	6,934	$1.21	20.0%	$1.45	per square foot	$10,086			10,086					10,086			$20,172
2.4	Amenities	None	-						20.0%														
2.5	Utilities	None	-						20.0%														
3.0	**STRUCTURE**																						
3.1	Substructure	None	-						20.0%														
3.2	Superstructure	None	-						20.0%														
4.0	**BUILDING ENVELOPE**																						
4.1	Roof area A/B	EPDM 60 mil roof replacement - mid rise	20	17	3	14,954	14,954	$9.64	20.0%	$11.57	per square foot	$173,033			173,033								$173,033
4.1	Roof west	EPDM 60 mil roof replacement - mid rise	20	13	7	9,090	9,090	$9.64	20.0%	$11.57	per square foot	$105,180							105,180				$105,180
4.1	Roof canopy roofs	EPDM 60 mil roof replacement - mid rise	20	10	10	2,250	2,250	$9.64	20.0%	$11.57	per square foot	$26,035										26,035	$26,035
4.2	Facades	Clean and repoint brick	3		3	6,000	2,000	$3.35	20.0%	$4.02	square foot	$8,040			8,040			8,040			8,040		$24,120
4.3	Windows and Doors	Renew/recaulk windows and doors	15	12	3	4,508	4,508	$2.75	20.0%	$3.30	per linear foot	$14,875			14,875								$14,875
5.0	**BUILDING INTERIORS**																						
5.1	Bsmt/Attic	None	-						20.0%														
5.2	Interior F & C 1st floor	Carpet replacement - common area	8	var	var	6,100	6,100	$2.72	20.0%	$3.26	square foot	$19,916						19,916					$19,916
5.2	Interior F & C 1st floor	Common area painting	8	var	var	12,600	6,300	$0.55	20.0%	$0.66	per square foot	$4,158		4,158								4,158	$8,316
5.2	Interior F & C 1st floor	Acoustical ceiling tile	20	var	var	6,100	6,100	$1.58	20.0%	$1.89	square foot	$11,535					11,535						$11,535
5.2	Interior F & C 2nd floor	Carpet replacement - common area	8	var	var	6,700	6,700	$2.72	20.0%	$3.26	square foot	$21,875							21,875				$21,875
5.2	Interior F & C 2nd floor	Common area painting	8	var	var	7,800	7,800	$0.55	20.0%	$0.66	per square foot	$5,148			5,148								$5,148
5.2	Interior F & C 2nd floor	Acoustical ceiling tile	20	var	var	6,700	6,700	$1.58	20.0%	$1.89	square foot	$12,670						12,670					$12,670
5.2	Interior F & C 3rd floor	Carpet replacement - common area	8	var	var	9,000	9,000	$2.72	20.0%	$3.26	square foot	$29,384								29,384			$29,384
5.2	Interior F & C 3rd floor	Common area painting	8	var	var	14,300	14,300	$0.55	20.0%	$0.66	per square foot	$9,438			9,438								$9,438
5.2	Interior F & C 3rd floor	Acoustical ceiling tile	20	var	var	9,000	9,000	$1.58	20.0%	$1.89	square foot	$17,019							17,019				$17,019
5.2	Interior F & C 4th floor	Carpet replacement - common area	8	var	var	7,500	7,500	$2.72	20.0%	$3.26	square foot	$24,486									24,486		$24,486
5.2	Interior F & C 4th floor	Common area painting	8	var	var	8,500	8,500	$0.55	20.0%	$0.66	per square foot	$5,610				5,610							$5,610
5.2	Interior F & C 4th floor	Acoustical ceiling tile	20	var	var	7,500	7,500	$1.58	20.0%	$1.89	square foot	$14,183								14,183			$14,183
5.2	Interior F & C 5th floor	Carpet replacement - common area	8	var	var	5,300	5,300	$2.72	20.0%	$3.26	square foot	$17,304										17,304	$17,304
5.2	Interior F & C 5th floor	Common area painting	8	var	var	8,500	8,500	$0.55	20.0%	$0.66	per square foot	$5,610					5,610						$5,610

TABLE 2 - Capital Needs Reserves

Denholm Building
484 Main Street
Worcester, Massachusetts
EBI Project # 1319000655

Site Survey Date: 1/10/2020
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Property Type: Office
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SECTION NUMBER	SECTION NAME	RECOMMENDED WORK	AVERAGE EFFECTIVE USEFUL LIFE	EFFECTIVE AGE	REMAINING USEFUL LIFE	TOTAL QUANTITY OVER TERM	APPROXIMATE QUANTITY PER YEAR	UNIT COST (adjusted by location factor)	Markup for Contingency, Permits, Overhead/Profit, General Conditions, etc.	UNIT COST (Including Markup)	UNIT DESCRIPTION	ESTIMATED COST PER YEAR	Annual Costs 2020 YEAR 1	2021 YEAR 2	2022 YEAR 3	2023 YEAR 4	2024 YEAR 5	2025 YEAR 6	2026 YEAR 7	2027 YEAR 8	2028 YEAR 9	2029 YEAR 10	RECOMMENDED TOTAL OVER THE TERM
5.2	Interior F & C 5th floor	Acoustical ceiling tile	20	var	var	5,300	5,300	$1.58	20.0%	$1.89	square foot	$10,022								10,022			$10,022
5.2	Interior F & C 6th floor	Carpet replacement - common area	8	var	var	3,400	3,400	$2.72	20.0%	$3.26	square foot	$11,101			11,101								$11,101
5.2	Interior F & C 6th floor	Common area painting	8	var	var	5,300	5,300	$0.55	20.0%	$0.66	per square foot	$3,498				3,498							$3,498
5.2	Interior F & C 6th floor	Acoustical ceiling tile	20	var	var	3,400	3,400	$1.58	20.0%	$1.89	square foot	$6,430					6,430						$6,430
5.2	Interior	Refuse cart replacement	10	1	9	24	24	$250.00	20.0%	$300.00	each	$7,200									7,200		$7,200
5.2	Interior	General maintenance tool replacement	20	var	var	3	1	$1,500.00	20.0%	$1,800.00	each	$1,800		1,800			1,800			1,800			$5,400
6.0	**ACCESSIBILITY**																						
6.1	Accessibility	None	-						20.0%														
7.0	**BUILDING SYSTEMS**																						
7.1	Plumbing	Plumbing fixture replacement	20	var	var	8	2	$3,500.00	20.0%	$4,200.00	each	$8,400		8,400	8,400	8,400	8,400						$33,600
7.1	Plumbing	Replace instant point of use electric water heater 10 gallon	15	13	var	2	1	$835.00	20.0%	$1,002.00	each	$1,002		3,006					1,002				$4,008
7.1	Plumbing	Replace water heater 50 gallon	15	10	5	1	1	$2,119.00	20.0%	$2,542.80	each	$2,543					2,543						$2,543
7.1	Plumbing	replace instant point of use water heater 20 gallon	15	var	var	2	1	$954.00	20.0%	$1,144.80	each	$1,145		1,145			1,145						$2,290
7.2	HVAC	Replace condenser 5 to 7 Tons	16	7	9	1	1	$5,321.00	20.0%	$6,385.20	each	$6,385									6,385		$6,385
7.2	HVAC	Replace cooling tower 250 Tons	25	21	4	1	1	$76,245.00	20.0%	$91,494.00	each	$91,494				91,494							$91,494
7.2	HVAC	Replace HVAC pumps	25	21	4	2	2	$14,636.00	20.0%	$17,563.20	each	$35,126				35,126							$35,126
7.3	Electric	Replace electrical transformer 1000 KVA	45	42	2	2	1	$82,032.88	20.0%	$98,439.46	each	$98,439		98,439	98,439								$196,879
7.4	F/L Safety	None	-						20.0%														
7.5	Elevators	Escalator refurbishment	25	var	var	8	2	$25,000.00	20.0%	$30,000.00	each	$60,000			60,000	60,000	60,000	60,000					$240,000
8.0	**MUNICIPAL RESEARCH**																						
8.1	Municipal Information & Zoning	None	-						20.0%														
8.2	Building & Planning	None	-						20.0%														
8.3	Fire Department	None	-						20.0%														
9.0	**NATURAL HAZARDS**																						
9.1.1	Seismic	None	-						20.0%														
9.1.2	Flood Zone	None	-						20.0%														
9.1.3	Wind Zone	None	-						20.0%														
9.2	Suspect Mold & Moisture	None	-						20.0%														
											ANNUAL RECOMMENDATIONS, UNINFLATED			116,948	427,900	204,128	102,355	100,626	145,076	94,816	46,112	52,389	**$1,290,350**
											INFLATION FACTOR, IN PERCENTAGE 1.030		100.00%	103.00%	106.09%	109.27%	112.55%	115.93%	119.41%	122.99%	126.68%	130.48%	
											ANNUAL RECOMMENDATIONS, INFLATED @ 3.00% AFTER YEAR ONE			**$120,457**	**$453,959**	**$223,057**	**$115,202**	**$116,653**	**$173,229**	**$116,611**	**$58,413**	**$68,356**	**$1,445,936**

Notes:
1.

PRESENT VALUE OF RECOMMENDED TOTAL ANNUAL RESERVES PER SF PER YEAR **$0.65**
INFLATED VALUE OF RECOMMENDED TOTAL ANNUAL RESERVES PER SF PER YEAR ***$0.72***

Notes:
1.

PRESENT VALUE OF RECOMMENDED TOTAL ANNUAL RESERVES PER UNIT PER YEAR **$4,301**
INFLATED VALUE OF RECOMMENDED TOTAL ANNUAL RESERVES PER UNIT PER YEAR ***$4,820***

2.0 SITE

2.1 TOPOGRAPHY & DRAINAGE

DESCRIPTION

The Subject Property is located at an elevation of approximately 490 to 520 feet above mean sea level (msl). The building is tiered with five stories visible along Main Street, two levels visible along Chatham Street, and a central raised section bringing the building up to 7 floors. The western side of the building is level with the 3rd and 4th floors of the front of the building. A basement is located under the eastern portion of the building up to the alleyway.

COMPONENTS LIST

Geologic and topography components are assumed to be life-long items and stable at the time of construction completion, and as such, are excluded from the Reserve Study. It should be noted that steady streams of ground water enter the basement and area pumped out by various sump pumps. The separate MEP report will report on sump pump condition, repairs and replacement.

COMMENTS & RECOMMENDATIONS

Please see Table 1 for the recommended Immediate and Non-Critical Repairs listed below:

- **None**

2.2 LANDSCAPING & SITE IMPROVEMENTS

DESCRIPTION

The property has sparse, landscaping along storefront sides generally consisting of stone slab, granite paver, brick paver, and cast-in-place concrete sidewalks. Decorative municipal cast metal light poles are situated along the municipal sidewalks. A traffic light is located at the front of the building for the T-intersection between Main Street and Franklin Street.

Chain link fencing is in place at a portion of the site including the rear of the building near the boiler stack and along portions of the remote parking lot.

Cast-in-place concrete/stone walls are in place near the boiler stack to accommodate localized grade changes.

Building mounted signage is in place in two front façade spaces and on one illuminated sign along the southern side of the front façade.

Stone sidewalk along Main Street.

Concrete sidewalk along Chatham Street.

View of stone slab sidewalk from basement

View of front sidewalk.

COMPONENTS LIST

LIST OF LANDSCAPING & SITE IMPROVEMENT ITEMS

ITEM DESCRIPTION	TYPE	QTY.	AGE (YRS.)
Concrete sidewalks	Cast-in-place concrete	4,700 SF	1-20+
Stone sidewalks	Granite pavers and stone slabs	3,000 SF	10-50+
Brick sidewalks	Concrete brick pavers	600 SF	1
Building-mounted signage	2 flat, 1 protruding building signs	3 EA	20+
Chain link fencing	6’ high chain link fencing	240 LF	20+
Wood fencing	Painted wood knee fence at remote parking lot	100 LF	20+
Site street lights/traffic light	2 Municipal light poles, 1 traffic light	3 EA	1

CONDITION

The landscaping and site improvements appear to be in good to fair condition. Most of the improvements can be considered long-term items, but minor repairs can still be expected over a 10-year term, and Capital Needs are recommended accordingly. Sidewalk cracks and/or trip hazards were observed. Two former light pole base bolts remain in the sidewalk. Based on observed conditions, Critical Repairs are recommended for sidewalk crack repairs and to level the light pole bolts.

Minor moisture infiltration through the sidewalk paver and stone slabs was observed and reported. Critical Repairs are recommended to reseal the stone slab joints and/or stone paver mortar joints. Based on the observed condition and expected useful life, Capital Needs are recommended for sidewalk repairs during the analysis term.

Washed out mortar at granite pavers

Cracked stone sidewalk at front of building

Sidewalk along remote parking lot

Deteriorated sidewalk at remote parking lot

	
Broken granite paver at front of building	Light pole bolts to be leveled

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **Sidewalk repairs/level light pole bolts**
- **Stone slab joint sealing/mortar replacement**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **None**

Please see Table 2 for the recommended Capital Needs listed below:

- **Sidewalk repairs**

2.3 PAVEMENT AND PARKING

DESCRIPTION

According to the site contact and pre-survey questionnaire, there are 191 parking spaces at the remote parking lot and 23 spaces were counted behind the building along Aldrich Street. The rear parking lot is accessed via one entrance drive from High Streetand is configured with 23 spaces in three rows of cars within a larger parking lot also utilized by the adjacent building. The remote parking lot is an L-shaped lot with two entrance drives along Chatham Street and one entrance drive along Irving Street. The remote parking lot is located within a larger parking lot with dedicated parking spaces along the building and within a fenced area behind the building. The entry drives are concrete pavement. The parking lots are paved with asphalt pavement.

One alley road, Chase Court, passes under the building near the midpoint at the 3rd level of the front portion of the building. The alley road is utilized for loading, service, and limited parking. One loading dock is located along the northern side of the building within the alley and dumpsters are located within the alley.

View of southern side of service alley

View of loading dock within service alley

View of parking lot behind building

View of remote parking lot

COMPONENTS LIST

LIST OF PAVEMENT & PARKING ITEMS

ITEM DESCRIPTION	TYPE/LOCATION	APPROX. QTY.	AGE (YRS.)
Asphalt paving	Asphalt pavement behind building	6,700 SF	2 years old
Asphalt paving	Remove parking lot paving	53,500 SF	20+ years old
Striping	White parking space striping	3,800 LF	2-10 years old

CONDITION

The asphalt paved lot behind the building was reportedly repaved in 2017 and is in generally good condition. The third row of this lot is beyond the asphalt rework and is in fair condition. The remote parking lot is in generally fair condition with the northeastern entrance drive in poor condition. Based on

observed conditions, Critical Repairs are recommended to repave the remote parking lot entrance drive. Based on the observed condition and expected useful life, Capital Needs are recommended for periodic asphalt milling and overlay, striping, crack filling and sealcoating during the analysis term. The alleyway paving is in fair condition and appears to be a municipal owned property and repairs are not recommended.

Remote parking lot asphalt paving at southeastern corner

Entrance drive to remote parking lot

Pothole at remote parking lot

Faded striping at remote parking lot

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **Asphalt pavement repairs**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **None**

Please see Table 2 for the recommended Capital Needs listed below:

- **Asphalt pavement patching, crack filling, sealcoat and striping**

- **Asphalt milling and overlay**

2.4 SITE AMENITIES

DESCRIPTION
There are no site amenities.

CONDITION
Not applicable

RECOMMENDATIONS
Please see Table 1 for the recommended Critical Repairs listed below:

- **None**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **None**

Please see Table 2 for the recommended Capital Needs listed below:

- **None**

2.5 UTILITIES

2.5.1 Water & Sewer

DESCRIPTION
The City of Worcester provides water and sewer service to the Subject Property site. The sewer is discharged into the municipal lines beneath the abutting street.

2.5.2 Gas/Oil

DESCRIPTION
National Grid provides gas service to the Subject Property.

2.5.3 Electrical

DESCRIPTION
National Grid provides electric service to the site. The service enters the property underground to pad-mounted transformers within the basement feeding secondary runs to the main switchgear. The utility reportedly owns and maintains the lines up to the building.

2.5.4 Storm Drainage

DESCRIPTION
The storm water flow from the site is controlled via on-site structures discharging into the municipal system. The buildings' internal roof drains are tied to catch basins in the paved areas.

Rear domestic and sprinkler water service line

One of two main transformers

Main gas meter within service alley

Front of building domestic water meter

COMPONENTS LIST

The front of building domestic/sprinkler water service was recently replaced due to utility pipe deterioration. It was reported that the electrical utility company is working on reconfiguring the main electric service.

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **None**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **None**

Please see Table 2 for the recommended Capital Needs listed below:

- **None**

3.0 STRUCTURE

3.1 GENERAL INFORMATION

DESIGN SOIL BEARING PRESSURE
Not available.

DESIGN STRUCTURAL CRITERIA
Floor Live Load / Partition Loading:	not provided
Roof Live Load / Snow Load:	not provided
Wind Criteria:	not provided
Lateral Load Resisting System:	not provided

3.2 SUBSTRUCTURE

DESCRIPTION
The Subject Property building is constructed with cast-in-place, reinforced concrete, brick, and stone foundations and footings of various sizes supporting the load-bearing exterior and interior walls and columns. Concrete slabs-on-grade of underdetermined thickness are provided throughout the rear portion of the building. The front portion of the building is constructed on a basement space.

Stucco covered stone basement foundation wall at front of building

Basement brick foundation walls

	
Basement perimeter foundation system	Basement foundation system

COMPONENTS LIST

Substructure and foundation components are assumed to be life-long items and stable at the time of construction completion, and as such, are excluded from the Reserve Study. The foundation walls appear to be in generally fair condition with some ground water infiltration observed in several locations. Sump pumps are in place around the basement space where needed. It was reported that one of the sump pumps stopped working and partial basement flooding occurred. The separate MEP report recommends repairs and replacement of the plumbing components.

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **None**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **None**

Please see Table 2 for the recommended Capital Needs listed below:

- **None**

3.3 SUPERSTRUCTURE

DESCRIPTION

The Subject Property's superstructure consist of a combination of cast-in-concrete columns, beams, and floor slabs, structural steel columns, beams, and trusses, and wood floor, roof, and wall framing. Ornamentally finished cast iron columns were observed in the Post Office space. Lateral resistance is provided by a combination of floor and roof diaphragms, interior and exterior masonry shear walls, and structural steel bracing.

	
Steel and wood roof framing at 7th floor storage space	Stairwell structure showing wood roof sheathing
	
Cast iron column supporting wood framing	Ornamental cast iron building column visible in Post Office space

COMPONENTS LIST

Superstructure components are assumed to be life-long items and stable at the time of construction completion, and as such, are excluded from the Reserve Study for the most part. One column at the rear of the basement was corroding at the concrete base envelopment. Critical Repairs are recommended to clean the affected area and re-cast the base in concrete as recommended by a qualified contractor.

	
Heavy steel bolted and riveted basement girder support	Basement cast-in-place concrete floor framing
	
Concrete encased column at rear of basement	Corrosion evident at concrete encased column at rear of basement

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **None**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **Clean and repair concrete column encasement at rear of basement**

Please see Table 2 for the recommended Capital Needs listed below:

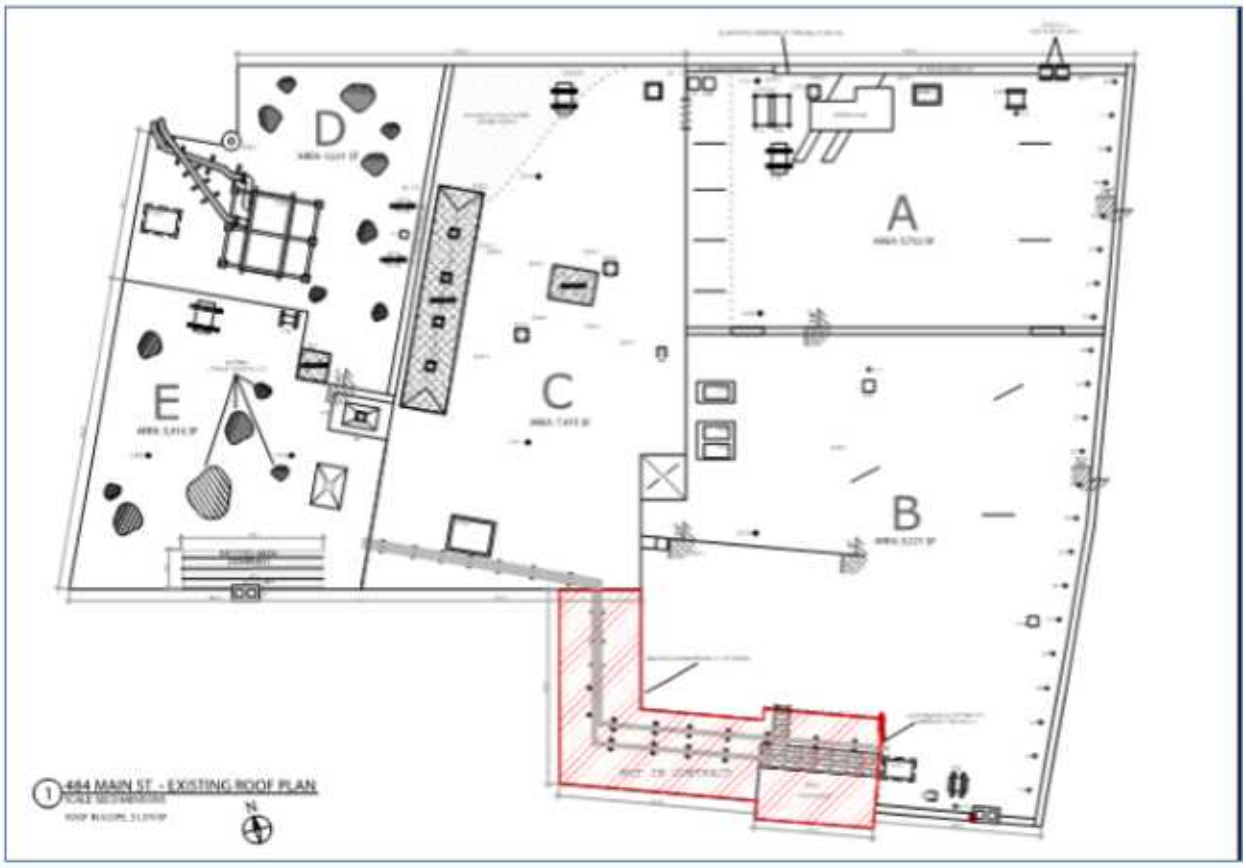
- **None**

4.0 BUILDING ENVELOPE

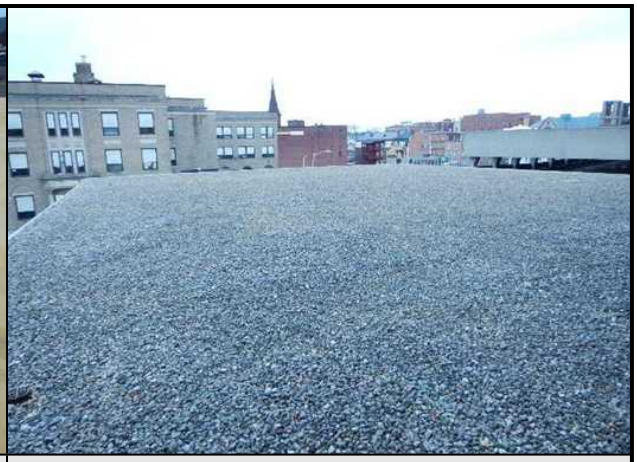
4.1 ROOFING

DESCRIPTION

The Subject Property has low-slope, single-ply, 60 mil thick, EPDM-membrane roofs, built-up roofs, and polyurethane insulation covered roofs. The central roof areas are shown in the diagram below with roof sections labeled A through E. Additional roof sections include the western 2-story roof section and perimeter canopy roofs.



	
Front EPDM membrane roofing designated section A and B	Front roof parapet wall with copper facing and steel struts
	
New EPDM roofing over 7th floor entrance corridor	View of polyurethane foam roofing section C

	
Newly installed polyurethane foam roofing section E	Ballasted EPDM membrane roofing at western end of building

COMPONENTS LIST

LIST OF ROOF COMPONENTS

ROOF LOCATION	MATERIAL/INSTALLATION TYPE	APPROX. QTY.	AGE (YRS.)
Roof section A	EPDM	5,733 SF	20 years old
Roof section B	EPDM	9,221 SF	20 years old
Roof section C	Polyurethane foam	7,015 SF	10+ years old
Roof section D	Built-up with gravel	3,521 SF	25+ years old
Roof section E	Polyurethane foam on built-up roof in progress	3,816 SF	< 1 year old
Western side roof	Ballasted EPDM	9,090 SF	12 years old
Southern side 7th floor corridor	Fully adhered EPDM	1,840 SF	2 years old
Western side canopy roof	EPDM	450 SF	10+ years old
Eastern side canopy roof	EPDM	1,800	10+ years old
Northern side canopy roof	EPDM	600 SF	<10 years old

CONDITION

A third party roof report was provided to *EBI* for review by *Elements-Mgmt* dated November 2018. The report focused on the central high roofs encompassing 29,306 SF and did not include the western ballasted roof or the perimeter canopy roofs. The report states that the roof decks are wood decks with gravel built-up systems and the polyurethane foam and EPDM roofs were installed on top of the built-up system. Section C is polyurethane foam installed on top of built-up roofing. Section E is newly applied polyurethane foam installed on top of a built-up roof. It was reported that the installation occurred late in 2019 and due to cold weather, the application could not be completed and some of the foam did not properly adhere and/or seal. Currently there are active leaks in this area that are being diverted for the most part. Critical Repairs are recommended to complete the roofing project at section E.

Overall, the third party roof report states that roof sections A through E have failed due to leaks and/or wet underlayment/insulation. The A/B roofing section underlayment is wet and fasteners are starting to

poke through. The older polyurethane foam roof section C, UV protectant layer has worn and faded and the foam is eroding and delaminating from the built-up roofing. The older built-up roof section D is in poor condition and reportedly leaks. In addition, the report states that a portion of the flashings are failing, a portion of the drains have reduced openings, the parapet wall copings have failed joints, and nearby facades are deteriorating. It appears that since the November 2018 report was completed, roof section E was covered with polyurethane foam (however was not completed), and the A/B roof was patched in some sections. Based on the observed and reported condition, Non-Critical Repairs are recommended to replace built-up roof section D and PUF covered built-up roof section C.

The EPDM-membrane front roof A/B, appears to be in fair condition. It was reported that there are two active leaks, one at a drain that is causing moisture damage within a 4th floor tenant space and another that is being diverted into a drain. Critical Repairs are recommended to repair the two leaks. The masonry parapet wall coping was observed to be in fair to poor condition. Non-Critical Repairs are recommended to rework the parapet walls and/or coping at the A/B roof. Based on the observed and reported condition and expected useful life, Capital Needs over the loan term section recommended to replace the A/B roof.

The western ballasted EPDM membrane roof is reportedly in good condition with little problems reported and appears to be 12 years old. One small leak was repaired and no other problems were noted. Based on the observed condition and expected useful life, Capital Needs are recommended to replace this roof during the analysis term.

The canopy roofs are reportedly in good operating condition and the northern canopy roof is reportedly less than 10 years old and the front and rear canopy roofs are over 10 years old. It was reported that the front canopy roof had repairs within the last 10 years. Based on the observed condition and expected useful life, Capital Needs are recommended for canopy roof replacement of the front and rear canopy roofs during the analysis term.

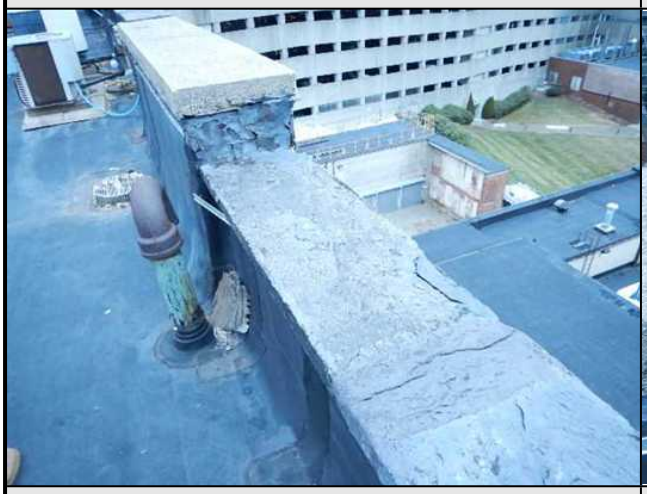
It should be noted that due to the age of the subject building, before roof demolition operations start, an asbestos investigation is recommended to determine the material makeup for the various roof sections for safe and proper disposal.

Polyurethane foam roofing showing erosion

Built-up roofing at section D

Unfinished polyurethane foam roof section E

4th floor tenant space roof leak



Roof section A/B parapet wall

Roof section A/B parapet wall cracked coping

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **Complete roofing installation section E**
- **Repair two roof leaks roof sections A and B**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **Rework parapet walls and flashings**
- **Replace built-up roof section D**
- **Replace polyurethane foam roofing roof section C**

Please see Table 2 – Capital Needs for the recommended items listed below:

- **Replace EPDM membrane roof section A/B**
- **Replace EPDM ballasted western side roof**
- **Replace EPDM canopy roofs**

4.2 FAÇADES

DESCRIPTION

During the site survey, representative building façades were viewed from the surrounding grade, from windows at upper floors, and from roof decks. In-depth analysis of the façades is beyond the scope of work for this *Report*.

The primary exterior materials consist of granite and limestone wall panels at the eastern and western storefront facades and brick and stucco along the secondary remaining walls. The front of the building features ground level storefronts covered with a canopy roof and upper alternating horizontal bands of stone panels and insulated glazing to the 5th floor. The western façade features two stories of limestone wall panels surrounding a 1st floor storefront covered by a canopy roof. The central high roof areas of the building are more visible along the northern and eastern sides and feature brick, stucco and EPDM covered walls along the A/B roof area. Façade detailing includes stone window sills, arched brick window headers, and tapered brick cornices at the roof lines. A whimsical mural is painted along the southern brick façade that borders the adjacent parking lot.

Front eastern façade

Rear western façade

Northern side of building overlooking western parking lot

Southern side of building showing mural

Northern side of building showing alley and bridge

Southern side of building showing brick detailing

COMPONENTS LIST

LIST OF FAÇADE COMPONENTS

ITEM DESCRIPTION	MATERIAL/LOCATION	QTY.	AGE (YRS.)
Stone wall panels	Granite cladding, front of building	700 SF	50+ years old
Limestone wall panels	Limestone cladding, front of building	5,000 SF	50+ years old
Limestone wall panels	Limestone cladding, rear of building	1,500 SF	50+ years old
Brick/stucco	Brick façade, northern façades	18,300 SF	50+ years old
Brick/stucco	Brick façade, southern façades	14,200 SF	50+ years old
Brick/stucco	Brick façade, western façades	5,100 SF	50+ years old
EPDM membrane	Fully adhered EPDM membrane at inner walls	2,000 SF	10+ years old

CONDITION

The survey of the façade condition is based on limited observation of areas of the exterior walls and the age of the improvements. Façade observations for a multi-story building are limited primarily to exterior finishes of the lower levels of the façades and those portions of the upper façades observable from roof areas or windows at upper floors. This does not represent a comprehensive or in-depth façade survey. Concealed and/or obscured façade material attachment systems were not viewed. The condition of the facades' hidden defects, if any, or defects not readily observable from the viewing areas mentioned above, cannot be opined on, and is beyond the scope of work for this assessment.

The façade finishes appear to be in fair to poor condition. The brick was observed to have missing mortar and/or step cracking at numerous areas. Periodic mortar repairs were observed throughout the building. Chipping stucco was also observed, with spalled stucco observed at the upper southern side over the mural. Cracked façade finishes were observed along the northern side where the exterior was reportedly repaired but the stairwell outer wall exhibits cracking. Based on the extent of missing mortar, chipped stucco, and areas difficult to reach, Critical Repairs are recommended to retain a façade consultant to determine the extent of façade repairs needed at the subject building to include brick, stucco, chimney stack, parapet walls, sealants, and glazing assembly condition and recommended repairs. Non-Critical Repairs are recommended to complete the recommended façade repairs from the façade consultant report. Based on the observed condition and expected useful life, Capital Needs are recommended for periodic façade repairs during the analysis term that includes cleaning and pointing brick and stone and repairing stucco.

The boiler chimney stack was observed to be in fair to poor condition. The top of the stack exhibited cracking and the base smaller brick skirt is deteriorating. Based on the observed condition, Non-Critical Repairs are recommended for the removal of the masonry boiler chimney.

Bottom beam at alleyway bridge southern side showing minor cracking

Missing mortar at front of building granite cladding

	
Northern façade brick mortar joint deterioration	Brick mortar deterioration at southern mural facade
	
Washed out mortar joints at window sill along northern side	Previous mortar repointing along northern side of building

Cracking noted at rear stone facade

Base boiler chimney skirt deterioration

Façade cracking at interior of northern stairwell

Cracking masonry boiler stack at top

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **Retain façade consultant to determine façade repairs**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **Complete façade consultant recommended repairs**
- **Remove masonry boiler chimney**

Please see Table 2 for the recommended Capital Needs listed below:

- **Brick clean and point**

4.3 WINDOWS AND DOORS

DESCRIPTION

The front of the building is finished with ribbon insulated glazing at the upper floors and single-pane storefront glazing at the ground level. The front entrance features two sets of manual dual leaf swing doors entering vestibules and then internal manual swing and one revolving door. The southern entrance is equipped with push button swing ADA designated doors. The rear entrance also features single-pane storefront glazing with two sets of manual dual leaf swing doors. Main entrance doors are bronze aluminum single pane glazed storefront assemblies. Service doors are typically hollow metal doors set into metal frames. The doors are furnished with standard hardware, and panic hardware was observed at emergency exit doors. There are also wood-framed, single-pane, divided lite windows at the stairwells and it appears behind the masonry boiler chimney.

Revolving door vestibule entrance

Single-pane stairwell original windows

Front of building storefront assembly with canopy overhang

Storefront façade along western side

Typical sliding office windows

Upper floor windows overlooking front roof

COMPONENTS LIST

LIST OF WINDOWS & DOORS

ITEM DESCRIPTION	ITEM/LOCATION	QTY.	AGE (YRS.)
Aluminum storefronts	Fixed aluminum storefronts, east side	175 LF	30+
Aluminum storefronts	Fixed aluminum storefronts, west side	80 LF	30+
Entrance doors	Aluminum swing door assemblies, east side	3 SETS	20+
Entrance doors	Aluminum revolving door, east side	1 EA	20+
Entrance doors	Aluminum swing door assemblies, west side	2 SETS	20+
Office windows	Fixed insulated ribbon windows, 4’ x 6’, east side	168 EA	30+
Office windows	Fixed insulated windows, double 2’ x 4’, all sides	60 EA	30+
Wood framed windows	Fixed, divided lite, wood, single pane windows, 3’ x 5’	22 EA	50+
Hollow metal access doors	Painted steel service doors, middle	5 EA	10+
Overhead garage doors	Manual overhead metal doors, middle	2 EA	10+

CONDITION

The exterior aluminum insulated windows appear to be in generally good condition and are reportedly weathertight. Ten fogged windows and four cracked insulated panes were observed. Based on observed conditions, Non-Critical Repairs are recommended to replace the fogged and cracked panes throughout the building. Additional fogged and broken windows likely are present at the subject building and a thorough review of every window is recommended before the windows are replaced. Through wear and tear, and occasional misuse, doors are expected to require minor repairs, limited replacement, and adjustments over their life, and Capital Needs are recommended accordingly.

The wood framed stairwell and chimney area windows appear to be original to the building and have exceeded their expected useful life and excessive maintenance would be required to repair/refurbish them so they could remain in place. Based on the observed condition and expected useful life, Non-Critical Needs are recommended to replace the wood framed windows where they remain.

The service doors appear to be in generally operational condition and significant replacement is not anticipated during the analysis term.

The window and door sealant condition was observed to be in generally fair condition. Based on the observed condition and expected useful life, Capital Needs are recommended for window and door sealant renewal to include wet sealing of the windows where needed.

	
Service alley maintenance garage door	Fogged window pane in office space
	
Cracked pane along eastern side of building	Cracked pane along eastern side of building

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **Replace broken pane and/or fogged window panes**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **Replace wood framed windows**

Please see Table 2 for the recommended Capital Needs listed below:

- **Window and door sealant renewal**

5.0 BUILDING INTERIORS

5.1 BASEMENTS/ATTICS

DESCRIPTION

The Subject Property has a utility and storage basement is in place under the front portion of the building up to the service alley. The basement is currently mostly empty and houses boiler and utility components. The basement is finished with VCT, concrete, and carpeted floors, and masonry perimeter walls with limited interior wood framed walls with GWB wall and ceiling finishes. The basement also houses the maintenance office near the boiler room. No attic spaces are present in the subject building, however there is a storage space above the 6th floor space which has exposed structures and minimal finishes.

Stripped basement finishes

Remaining basement finishes

	
Rear of basement	Basement maintenance shop

COMPONENTS

The basement was reportedly utilized during the time when the building was a department store and furniture was sold at the basement level. Currently, the basement is in generally poor condition with recent flooding damage observed due to a malfunctioning sump pump. Moisture infiltration appears to be a common issue along several perimeter walls where ground water is constantly seeping in and needs to be pumped out. Based on the observed condition, Non-Critical Repairs are recommended for a general cleanup of the basement so that worn and water damaged finishes are removed and the basement is in an easier to maintain condition.

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **None**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **General basement cleanup**

Please see Table 2 for the recommended Capital Needs listed below:

- **None**

5.2 INTERIOR FINISHES & COMPONENTS

DESCRIPTION

The interior common areas into which entry was made possible are finished with average quality materials consistent with similar property use types. The finishes generally consist of the materials listed in the table below.

TYPICAL INTERIOR FINISHES

AREA OR ROOM	FLOOR	WALLS	CEILING
Lobby	6" SQ tile	Painted GWB, plaster	Painted GWB, plaster, suspended acoustic ceiling
Offices	Carpet	Painted GWB, plaster	Suspended acoustic tile, painted GWB, plaster
Elevator lobbies	Carpet, vinyl	Painted GWB, plaster	Suspended acoustic tile, painted GWB, plaster
Corridors	Carpeting	Painted GWB	Suspended acoustic tile, painted GWB, plaster
Common restrooms	Ceramic tile	Ceramic tile, painted GWB, vinyl sheet	Suspended acoustic tile
Stairs	Exposed concrete	Painted plaster	Painted plaster
Basement	Concrete, carpet, VCT	Masonry, painted GWB	Exposed structure, suspended acoustic tile

The Subject Property has interior common areas consisting of a main lobby, corridors leading to tenant spaces, common restrooms on upper floor, trash rooms, one set of elevators that service between the basement and the 6th floor, and up and down escalators that service between the 1st and 5th floors. The building has three main staircases, two that reach the 6th floor.

Front lobby finishes

Typical corridor finishes

Southeast Asian Coalition space

6th floor *Easter Seals* tenant space

Common restroom finishes

Office space conference room

COMPONENTS LIST

LIST OF INTERIOR COMPONENTS

ITEM DESCRIPTION	ITEM/LOCATION	QTY.	AGE (YRS.)
Flooring	Terra cotta floor tile 6" x 6", 1st floor	6,100 SF	20+ years old
Walls	Painted GWB, plaster, 1st floor	6,300 SF	20+ years old
Ceiling	Suspended acoustic tile	6,100 SF	20+ years old
Flooring	Carpet, vinyl flooring, 2nd floor	6,700 SF	3+ years old
Walls	Painted GWB, plaster, 2nd floor	7,800 SF	3+ years old
Ceiling	Suspended acoustic tile, painted GWB, 2nd floor	6,700 SF	10+ years old
Flooring	Carpet, vinyl flooring, 3rd floor	9,000 SF	20+ years old
Walls	Painted GWB, plaster, 3rd floor	14,300 SF	20+ years old

LIST OF INTERIOR COMPONENTS

ITEM DESCRIPTION	ITEM/LOCATION	QTY.	AGE (YRS.)
Ceiling	Suspended acoustic tile, painted GWB, 3rd floor	9,000 SF	20+ years old
Flooring	Carpet, vinyl flooring, 4th floor	7,500 SF	20+ years old
Walls	Painted GWB, plaster, 4th floor	8,500 SF	20+ years old
Ceiling	Suspended acoustic tile, painted GWB, 4th floor	7,500 SF	20+ years old
Flooring	Carpet, vinyl flooring, 5th floor	5,300 SF	20+ years old
Walls	Painted GWB, plaster, 5th floor	8,500 SF	20+ years old
Ceiling	Suspended acoustic tile, painted GWB, 5th floor	5,300 SF	20+ years old
Flooring	Carpet, vinyl flooring, 6th floor	3,400 SF	20+ years old
Walls	Painted GWB, plaster, 6th floor	5,300 SF	20+ years old
Ceiling	Suspended acoustic tile, painted GWB, 6th floor	3,400 SF	20+ years old
Drill press	*Craftsman 15", maintenance shop*	1 EA	5+ years old
Bench grinder	6" bench grinder, maintenance shop	1 EA	5+ years old
Table saw	Delta 10" table saw, maintenance shop	1 EA	5+ years old
Maintenance shop tools	Various loose tools	Lump Sum	5+ years old
Ladder	Step ladder 6'	1 EA	5+ years old
Ladder	Step ladder 8'	1 EA	5+ years old
Recycle/refuse carts	Poly wheeled carts	14 EA	1 year old
Trash cans	Stainless steel corridor trash cans	2 EA	2+ years old

CONDITION

The common area interior finishes and furnishings are in good to fair condition. Based on the observed condition and expected useful life, Capital Needs are recommended for periodic corridor carpet/vinyl flooring replacement, corridor wall painting, and corridor ceiling refurbishment during the analysis term.

The refuse carts are new and in good condition. Based on the observed condition and expected useful life, Capital Needs are recommended for refuse cart replacement during the analysis term.

The maintenance shop is equipped with general maintenance stationary and mobile tools that are in good to fair condition. Based on the observed condition and expected useful life, Capital Needs are recommended for periodic maintenance tool replacement during the analysis term.

	
Typical restroom finishes	Common corridor tenant entrances at 5th floor
	
Rear entrance corridor	2nd floor full tenant corridor area

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **None**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **None**

Please see Table 2 for the recommended Capital Needs listed below:

- **Corridor carpet/flooring replacement**
- **Corridor wall painting**
- **Corridor ceiling refurbishment**
- **Refuse cart replacement**
- **General maintenance tool replacement**

6.0 ACCESSIBILITY

DESCRIPTION

The *Americans with Disabilities Act (ADA)*, *Title III*, *28 CFR Part 36*, enacted July 26, 1990 and effective January 26, 1992, governs public accommodation and commercial properties. *Title III* of the *ADA* divides facilities into two basic categories: places of *public accommodation* and *commercial facilities*, with different obligations for each facility type. The provisions of *Title III* provide that persons with disabilities should have accommodations and access to public facilities that are equal, or similar, to those available to the general public. Assessment of any other *Titles*, or their provisions of the *ADA*, including those that govern employer and/or tenant responsibilities, is specifically excluded from this Scope of Work and *Report*. Since tenants and employers at properties are usually responsible for making their leased areas *ADAAG*-compliant, assessment for *ADAAG* compliance in these areas was not completed.

Regardless of a property's age, these areas and facilities must be maintained and operated to comply with the *Americans with Disabilities Act Accessibility Guidelines (ADAAG)*. Facilities initially occupied after the effective date are required to fully comply with the *ADAAG*. Existing facilities constructed prior to this date are held to the lesser standard of compliance as *Title III* calls for owners of buildings occupied prior to the effective date to expend "reasonable" sums, and make "reasonable efforts", to make "practicable" or "readily achievable" modifications to remove barriers, unless said modification would create an undue financial burden on the property or is structurally infeasible. When renovating buildings occupied prior to the effective date, the area renovated, and the path of travel accessing the renovated area, must comply with the *ADAAG*. As an alternative, a *reasonable accommodation* pertaining to the deficiency must be made. The definitions of "reasonable," "reasonable efforts," "practicable." and "readily achievable," are site dependent and vary based on the owner's financial status.

Due to the unique nature of each property, the extent of analysis required, and the many variables of compliance with the *ADAAG* guidelines, the evaluation of costs for full *ADAAG* compliance is beyond the scope of this *Report*. A separate *ADAAG Compliance Audit* may be ordered and may reveal additional aspects of the property that are not in compliance.

For the purposes of this *Report* the survey is limited to visual observations of only a representative sample of areas readily observable or easily accessible, and to those areas set forth in *EBI's Modified Accessibility Compliance Checklist and Costs* included in Appendix C of this *Report*. The survey is limited to identifying potential routine maintenance or renovation actions that can increase accessibility over time and may or may not, achieve full *ADAAG* compliance. Places of *public accommodation* at the Subject Property were visually observed for general compliance with the major requirements of the ADA, taking into consideration the current use of the property, its age and renovation history. No actual measurements were taken to verify compliance.

If you have additional questions concerning the *ADA* and the *ADAAG*, calls can be made to the *United States Department of Justice (USDOJ) ADA Hotline* at (800) 514-0301 followed by touching "7" on the touch tone keypad. Additionally, information is available online at the *USDOJ ADA* website at http://www.usdoj.gov/crt/ada/adastd94.pdf or http://www.access-board.gov/adaag/html/adaag.htm.

OBSERVATIONS

Commercial retail areas of the Subject Property fall into the *public accommodation* category, therefore, the Americans with Disabilities Act (ADA), Title III, 28 CFR Part 36, is applicable to those portions of the Subject Property.

There are no *areas of public accommodation* at the Subject Property condominium common area spaces. Therefore, the *Americans with Disabilities Act (ADA)*, *Title III*, *28 CFR Part 36* is not applicable to the residential areas of the Subject Property.

A visual review of the property, in conformance with *EBI's Modified Accessibility Compliance Checklist and Costs*, concluded that the Subject Property is not in complete conformance with the *ADAAG*. Modifications to correct observed *ADAAG* deficiencies for the Subject Property and their associated estimated costs are detailed in *EBI's Modified Accessibility Compliance Checklist and Costs* immediately following. The following items or deficiencies were observed at the Subject Property that do not appear to be in compliance with ADA and its stated requirements:

- The total number of accessible spaces is not considered to be in compliance with ADA requirements.
- The total number of van-accessible spaces is not considered to be in compliance with ADA requirements.

	
Standard handicapped-accessible parking spaces are not provided.	Van-accessible parking spaces are not provided.

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **Complete ADA compliance upgrades**

Please see Table 2 for the recommended Capital Needs listed below:

- **None**

LIMITED ACCESSIBILITY COMPLIANCE CHECKLIST AND COSTS

Facility Name: Denholm Building
Facility Address: 484 Main Street
Worcester, Massachusetts
Property Age: 140 Years

Legend:
ADA: Americans with Disabilities Design Standards
FHA: Fair Housing Accessibility Design Manual

1.0 ADA - Parking and Exterior Accessible Routes		Yes	No	Not Applicable	Referenced Standard(s)	Description/Location of Deficiency	Recommended Corrective Action	Quantity	Unit Price	Units	Total Cost
1.1	Does there appear to be sufficient handicapped-accessible parking spaces with respect to the total number of reported spaces?		✔		ADA 208.2	Standard handicapped-accessible parking spaces are not provided.	Provide accessible parking spaces for ADA compliance.	3	$200	each	$600
1.2	At least one in every six accessible spaces is required requred to be van-accessible.		✔		ADA 208.2.4	Van-accessible parking spaces are not provided.	Provide van-accessible parking spaces adjacent to areas of public accommodation.	1	$200	each	$200
1.3	Are accessible car parking spaces 96 inches wide minimum? (Measure from the centerline of the markings.) (NOTE: In Florida accessible spaces must be 144 inches wide minimum)			✔	ADA 502.2						
1.4	Are accessible van parking spaces 132 inches wide minimum? (Exception: Van parking spaces can be 96 inches wide minimum when the access aisle is 96 inches wide minimum.) (Measure from the centerline of the markings.)			✔	ADA 502.2						
1.5	Are there access aisles adjacent to each accessible space, and if present, are they at least 60 inches wide? (Two spaces may share an access aisle that is between them. Exception: Angled van accessible parking spaces must have the access aisle on the passenger side of the accessible space.)			✔	ADA 502.3						
1.6	Do the access aisles adjoin an accessible route? (NOTE: Compliant curb ramps present at head of access aisle, or access aisles flush with sidwalks.)			✔	ADA 502.3						
1.7	Do the **existing** ADA spaces appear to be marked with the International Symbol of Accessibility on a vertically-mounted sign?			✔	ADA 502.6						
1.8	Do the **existing** van-accessible spaces appear to be marked with a sign reading "Van-Accessible"?			✔	ADA 502.6						
1.9	Is the bottom edge of the ISA sign at least 60 inches above the finish grade of the parking space? (NOTE: "VAN ACCESSIBLE" sign can be lower than 60 inches.)			✔	ADA 502.6						
1.10	Are the clear widths of the walking surface of the accessible routes 36 inches minimum?			✔	ADA 403.5.1						
1.11	Are accessible routes free from barriers, such as stairs, steps, or vertical changes greater than 1/4"? (NOTE: a vertical change up to 1/2" is allowable if beveled with a slope no steeper than 1:2. This does not include ramps.)			✔	ADA 303.2, 303.3	Only offsite parking provided, parking near building individually reserved spaces					
1.12	Do all protruding objects located between 27 inches above the floor and 80 inches above the floor protrude no greater than 4 inches into the circulation path if they do not have protection via a guardrail or other barrier with a bottom edge 27 inches above finish grade?			✔	ADA 307.2						
1.113	Is the clear opening width of the accessible entrance door at least 32", between the face of the door and the stop, when door is open 90 degrees?	✔			ADA 404.2.3						
1.14	Is the door hardware on exterior access doors to *areas of public accommodation* operable with one hand and does not require tight grasping, pinching, or twisting of the wrist?	✔			ADA 402.7						
1.15	At accessible entrances, is the door threshold height less than 1/4 inch high for vertical thresholds, or less than 1/2 inch high with a beveled slope of < 1:2?	✔			ADA 404.2, 303.2						
1.16	Does the accessible route feature a stable, firm, and slip-resistant walking surface?	✔			ADA 502.4						
1.17	If not all entrances are accessible, is there a sign at the accessible entrance with the International Symbol of Accessibility?	✔			ADA 216.6						
1.18	Do all ramps on accessible pathways serving *areas of public accommodation* (including curb ramps) appear to have a slope not exceeding 1:12?	✔			ADA 405.2						
1.19	Do depressed curb ramps on accessible pathways serving *areas of public accommodation* have flared sides with a slope not exceeding 1:10?	✔			ADA 406.3						
1.20	If a ramp has a rise higher than 6", are there handrails on both sides?	✔			ADA 405.8						
1.21	Does the width between railings for ramps on accessible pathways serving *areas of public accommodation* appear to be at least 36 inches?	✔			ADA 405.5						
1.22	Is there a level landing at least 60" x 60" at the top and bottom of each ramp run?	✔			ADA 405.7						

LIMITED ACCESSIBILITY COMPLIANCE CHECKLIST AND COSTS

Facility Name: Denholm Building
Facility Address: 484 Main Street
Worcester, Massachusetts
Property Age: 140 Years

Legend:
ADA: Americans with Disabilities Design Standards
FHA: Fair Housing Accessibility Design Manual

2.0 ADA - Interior Accessible Routes		Yes	No	Not Applicable	Referenced Standard(s)	Description/Location of Deficiency	Recommended Corrective Action	Quantity	Unit Price	Units	Total Cost
2.1	Are all accessible routes at least 36" wide (32" wide through doorways)?			✔	ADA 403.5.1	No interior public accomodations					
2.2	Do floor surfaces appear to be firm, stable, and slip resistant ?			✔	ADA 40.2, 302.1						
2.3	If carpeting is present, is it securely fastened, with a maximum pile height of 1/2 inch?			✔	ADA 302.2						
2.4	Do all objects on circulation paths through public areas, e.g. fire extinguishers, drinking fountains, signs, etc, protrude no more than 4" into the path, **or** if object protrudes more than 4", is the bottom leading edge at 27 inches or lower above the floor, or 80 inches or higher above the floor?			✔	ADA 307.4						
2.5	Is the door hardware on interior doors serving areas of public accommodation operable with one hand and does not require tight grasping, pinching, or twisting of the wrist?			✔	ADA 404.2.7						
2.6	Are the door threshold heights less than 1/4 inch high for vertical thresholds, or less than 1/2 inch high with a beveled slope of < 1:2?			✔	ADA 404.2, 303.2						
2.7	**For elevators in areas of public accommodation only:** Is the interior at least 54" deep by at least 36" wide?			✔	ADA 407.4.1						
2.8	**For elevators in areas of public accommodation only:** Are in-car controls no less than 15" and no greater than 48" above the floor, **or** up to 54 inches above the floor for a parallel approach?			✔	ADA 408.4.6, 407.6.1						
2.9	**For elevators in areas of public accommodation only:** Do elevator control buttons appear to be designated by both Braille and by raised standard alphabet characters (mounted to the left of the button)?			✔	ADA 407.4.1.1, 703.2						
2.10	**For elevators in areas of public accommodation only:** Are there audible signals which sound as the car passes or is about to stop at a floor?			✔	ADA 407.4.8						
2.11	**For elevators in areas of public accommodation only:** Is there a two-way emergency communication system within the elevator cab that is push-button activated, and does it providevisual indication that a rescue is on the way?			✔	ADA 407.4.9, 308						
3.0 ADA - Public Restrooms		**Yes**	**No**	**Not Applicable**	**Referenced Standard(s)**	**Description/Location of Deficiency**	**Recommended Corrective Action**	**Quantity**	**Unit Price**	**Units**	**Total Cost**
3.1	Is the door hardware on accessible restroom doors operable with one hand and does not require tight grasping, pinching, or twisting of the wrist?			✔	ADA 404.2.7	No public restrooms provided					
3.2	Do accessible restroom entry doors have a 32" minimum clear width when the door is opened 90 degrees?			✔	ADA 404.2.3						
3.3	Do public restrooms feature an unobstructed wheelchair turnaround (60" turning diameter)?			✔	ADA 306.2.1						
3.4	**Floor-mounted toilets:** Do public restrooms feature at least one toilet compartment or area a minimum of 60"-wide and 59"-deep?			✔	ADA 604.8						
3.5	**Wall-mounted toilets:** Do public restrooms feature at least one toilet compartment or area a minimum of 60"-wide and 56"-deep?			✔	ADA 604.8						
3.6	Is the centerline of the toilet 16 inches minimum to 18 inches maximum from the side wall or partition?			✔	ADA 604.2						
3.7	Is the height of the toilet seat 17 inches minimum to 19 inches maximum above finish floor?			✔	ADA 604.4						
3.8	Do sink/toilet handles appear to be operable with one hand without grasping, pinching or twisting?			✔	ADA 606.4						
3.9	Do the sinks appear to be provided with clearance for a wheelchair to roll under (minimum 27" clearance)?			✔	ADA 606.2, 606.3						
3.10	Is the height of the lavatory rim or counter 34 high maximum above the finished floor?			✔	ADA 606.3						
3.11	Are water supply, drain, and primer pipes, as well as sharp or abrasive surfaces under lavatories insulated or otherwise shielded to protect against contact?			✔	ADEA 606.5						
3.12	Do soap dispensers, towel dispensers and other accessories that are not over an obstruction (i.e., a sink) mounted no higher than 48" above the floor?			✔	ADA 308.2						
3.13	Are mirrors that are located above lavatories or countertops installed with the bottom edge of the reflecting surface 40 inches maximum above finish floor?			✔	ADA 603.3						
3.14	Are compliant toilet grab bars provided in toilet **rooms** (minimum 36" rear and 42" side)?			✔	ADA 604.5						
							Total Estimated Cost of Handicapped-Accessibility Compliance Recommendations:				**$200**

7.0 BUILDING SYSTEMS

7.1 PLUMBING

DESCRIPTION

As part of the survey, the Subject Property plumbing system was surveyed by a representative of *EBI* Consulting, and a separate MEP LS Report was completed. The following is a brief description of the plumbing equipment as reported in the above referenced report. Please refer to the report for a more detailed description of the equipment and findings. A copy of this report is included in Appendix B of this Report.

Domestic water service to the building consists of 2-inch water lines which enters the building in two locations. Domestic water pressure at the Subject Property is provided by the incoming municipal service. The observed supply domestic water piping is galvanized steel and copper.

Backflow devices are furnished for the potable water and fire sprinkler systems at the site. The backflow preventers are located in the basement. Backflow typically occurs when contaminated liquids mix with potable (drinking) water. This may occur due to a cross-connection between the public water system and a consumer's plumbing system. The two most common types of backflow are backpressure and back-siphoning. Back-siphoning is commonly caused by main breaks or other conditions that create a drop in the water distribution system pressure, allowing contaminates to enter the water supply and affecting the customers' potable water. Backpressure occurs when elevation or pumping pressure forces contaminates into the municipal water distribution system, thus overcoming the system water pressure. The reversal of contaminated liquids can unknowingly infuse pollutants, pesticides, and other harmful agents into the drinking water. Contaminates can come from sources such as a garden hose, a lawn irrigation system, industry, or small businesses such as dry cleaners, photo labs, funeral homes, restaurants or the local grocer, to name a few. The basis for current cross-connection control and backflow prevention is based on the U.S. Clean Water Act, state and local health requirements that have been put in place to comply with the clean drinking water act, and increased urgency to secure the water supply.

Sanitary sewer drain and vent lines were observed as cast iron piping. Common area domestic hot water is generated by one 50-gallon electric water heater. Domestic water within tenant spaces is provided by individual electric water heaters of varying size.

Domestic hot water is provided to the common hallway bathrooms by one, 4500 Watt, 50 gallon Vanguard electric hot water boiler located in the fourth floor Men's restroom. Domestic hot water is provided to tenants by individual electric water heaters varying in brand and capacity, typically located below kitchen sinks.

A main gas meter and 2-inch service is located below the Bridge between the two sections of the building and supplies natural gas throughout the property. Welded and threaded black iron pipe is used for main gas piping throughout the Subject Property. Service lines from the main line are yellow coated stainless steel. The split system refrigerant lines are insulated and exit the roof via metal sleeves or exits through sleeves in the exterior wall which minimize water infiltration from the elements.

	
Front of building domestic water backflow preventer	Tenant closet mounted water heater
	
Domestic water meter at front of building	Main gas meter in alleyway

Please refer to the detailed conditions and recommendations in the MEP LS Report from *EBI* Consulting. The report provides a full description of the bulleted Recommendations and Repairs below. A copy of this report is included in *Appendix B* of this *Report.*

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **Water heater catch pan installation**
- **Sanitary pipe inspection by qualified professional**
- **Steam piping inspection by qualified professional**
- **Galvanized piping inspection by qualified professional**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **None**

Please see Table 2 for the recommended Capital Needs listed below:

- **Replace electric water heaters**

7.2 HVAC

DESCRIPTION

As part of the survey, the HVAC equipment was surveyed by a representative of *EBI* Consulting, and a separate MEP LS Report was completed. The following is a brief description of the HVAC equipment as reported in the above referenced report. Please refer to the report for a more detailed description of the equipment and findings. A copy of this report is included in *Appendix B* of this *Report.*

The building is heated by a basement-mounted natural gas fired low-pressure steam boiler which feeds steam radiators and fan coil units throughout the building. The building is cooled by water side economizer system consisting of a water holding tank in the basement, a cooling tower on the roof, and fan coil units throughout the building.

The primary components of the heating and cooling systems are listed in the table below:

HVAC COMPONENTS

AREA SERVED	NO. OF UNITS	MFR., MODEL #	TONS OR BTUS	TYPE OF EQUIPMENT	AGE
Whole Building	2	*HB Smith*, 1953	3,744 MBH	Gas/Oil-fired Steam Boiler	50 years old
Suite 180	1	*Nordyne,* GB3BM-060K-CB	5-ton	Fan Coil Unit	15 years old
Suite 110	1	*Comfort Aire,* HBV060A1C30CLT	5-ton	Water Source Heat Pump	1 year old
Suite 100	1	*Carrier Weathermaker,* 50K12-268A3	10-ton	Self Contained Air Handler	50 years old
Suite 120	1	*Mitsubishi,* PK24EK	2-ton	Heat Pump	14 years old
Suite 150	1	*Carrier,* 50K12-268A3	10-ton	Self Contained Air Handler	50 years old
Unknown	1	*Bryant,* 524JE08A000A20AAA	7.5-ton	Air Handler	5 years old
Suite 200	1	*Skymark,* CSV096B2M1AAAA0A-A	8-ton	Self Contained Air Handler	5 years old
Suite 200	1	*Trion,* N2AHD20A06A	Unknown	Media Air Cleaner	Unknown
Suite 200	2	*York,* K3EU120A33B	10-ton	Air Handler	13 years old
Suite 300	1	*Not Accessible*	Unknown	Air Handler	Unknown
Suite 320	1	*Carrier,* FB4ANF048000AFAA	4-ton	Fan Coil Unit	20 years old
Suites 320 & 330	1	*Carrier Weathermaker,* 50K12-268A3	10-ton	Self Contained Air Handler	50 years old
Suite 345	1	*Trane,* GEVE18031DAA00TFD	15-tons	Water Source Heat Pump	3 years old
Suite 355	1	*Not Accessible*	Unknown	Fan Coil Unit	Unknown
Suite 360	1	*Carrier Weathermaker,* 50K12-268A3	10-ton	Self Contained Air Handler	50 years old

HVAC COMPONENTS

Area Served	No. of Units	MFR., Model #	Tons or BTUs	Type of Equipment	Age
Suite 400	1	*Climatrol,* Model Number not Accessible	~3-ton	Fan Coil Unit	Unknown
Suite 420	1	*Trane,* Model Number not Accessible	~5-ton	Fan Coil Unit	Unknown
Suites 430	1	*Carrier,* 50XCW14BCNG5AA	12-tons	Self Contained Air Handler	4 years old
Suites 450	1	*Carrier,* Model Number not Accessible	10-ton	Air Handler Unit	30 years old
Suite 450	1	*Carrier,* 09DC016200	15.8-ton	Condenser	50 years old
Suite 460	1	*Carrier,* 50K12-268A3	10-ton	Self Contained Air Handler	50 years old
Suite 500	1	*Carrier,* 50BB016510	12-ton	Water Cooled Air Handler	Unknown
Suite 520	1	*Not Accessible*	~5-ton	Fan Coil Unit	Unknown
Suite 535	1	*Not Accessible*	~5-ton	Fan Coil Unit	Unknown
Suite 560	1	*Carrier,* 50K8 A179	7-ton	Air Handler	50 years old
Suite 560	1	*Not Accessible*	~7.5-ton	Fan Coil Unit	Unknown
Suite 560	1	*Lennox, HS18-511*	4-ton	Condenser	34 years old
Suite 600	1	*Carrier,* 50K16-A879	12-ton	Self Contained Air Handler	50 years old
Whole Building	1	*Marley, NC3211GS*	259-ton	Cooling Tower	21 years old
Unknown	2	*Carrier,* 9AB8 114	10-ton	Condenser	21 years old
Unknown	1	*Carrier,* 38BA008540	7-ton	Condenser	37 years old
Unknown	1	*Carrier,* 38AE016500	15-ton	Condenser	37 years old
Unknown	1	*Goodman,* GSC130603CB	5-ton	Condenser	7 years old
Unknown	1	*Carrier,* 38AE016500	15-ton	Condenser	37 years old
Unknown	1	*Carrier,* 50TJ-016	15-ton	RTU	23 years old
Unknown	1	*Trane,* CAUD-B756-B	3-ton	Condenser	31 years old
Unknown	1	*BDP,* 559C150	12.5-ton	RTU	36 years old

	
Chilled water pumps	Tenant space air handler
	
Rooftop cooling tower	Basement low pressure steam boiler

Please refer to the detailed conditions and recommendations in the MEP LS Report from *EBI* Consulting. The report provides a full description of the bulleted Recommendations and Repairs below. A copy of this report is included in *Appendix B* of this *Report.*

RECOMMENDATIONS

Please see Table 1 for the recommended Immediate Repairs listed below:

- **Replace Gas-Fired Steam Boiler (3770 MBH)**
- **Licensed Engineering firm to evaluate the replacement and natural gas conversion of oil-fired steam boiler (3770 MBH) and provide cost**
- **Replace six (6) DX condensers**
- **Replace eight (8) SCAHU's**
- **Replace two (2) DX AHU**
- **Replace two (2) RTU's**

Please see Table 1 for the recommended Short Term Repairs listed below:

- **None**

Please see Table 2 for the recommended Replacement Reserves listed below:

- **Replace one (1) DX condensers**
- **Replace Cooling Tower (250 Ton)**
- **Replace Two (2) Pump Motors (25 HP)**

7.3 ELECTRICAL

DESCRIPTION

As part of the survey, the Subject Property electrical equipment was surveyed by a representative of *EBI* Consulting, and a separate MEP LS Report was completed. The following is a brief description of the electrical equipment as reported in the above referenced report. Please refer to the report for a more detailed description of the equipment and findings. A copy of this report is included in *Appendix B* of this *Report.*

The incoming services are rated as 3,000-Amp, three-phase, four-wire, 120/208-Volt mains, feeding the main distribution panels (MDPs). The incoming services and MDPs are located within two electrical rooms in the basement, one serving the North side of the building, and the other serving the South. These MDPs feed circuit breaker panels for each tenant space and the common areas.

The observed services are protected by circuit breakers. Beyond standard ground rods or grounded connections to major piping systems, additional lightning protection was not observed.

The electrical equipment is made by *Federal Pacific*, *Pacific Electric, Westinghouse Electric, Square D*, and *General Electric*. The equipment was installed at various points throughout the buildings' life, and varies in age considerably. There are separate switches for the two main conduit risers. The buss conduit risers feed power to the electrical distribution panels on each floor.

The Subject Property reportedly has copper branch wiring and copper feeder cables. Standard electrical devices, switches, and fixtures consistent with the Subject Property use type were also observed through the building. Aluminum branch wiring was not reported to or observed by *EBI* during the site assessment.

GFCI fixtures were observed during the survey in the restrooms and kitchen areas.

One *Pincor* natural gas-fired, 56-KVA generator provides fire and life safety power backup to the subject building.

	
One of two main electrical services	Vintage electrical knife switch panel
	
Tenant circuit breaker panels	Basement mounted backup generator

	
Main disconnect lever	Basement electrical control panel

Please refer to the detailed conditions and recommendations in the MEP LS Report from *EBI* Consulting. The report provides a full description of the bulleted Recommendations and Repairs below. A copy of this report is included in *Appendix B* of this *Report.*

RECOMMENDATIONS

Please see Table 1 for the recommended Immediate Repairs listed below:

- **Re-torqueing of panels with hotspots by a qualified electrician**
- **Inspection of FPE Electrical Equipment by Licensed Electrician**

Please see Table 1 for the recommended Short Term Repairs listed below:

- **Replace Gas-Fired Emergency Generator (60 kW)**

Please see Table 2 for the recommended Replacement Reserves listed below:

- **None**

4.4 BUILDING & SITE FIRE & LIFE SAFETY

DESCRIPTION

As part of the survey, the Subject Property fire and life-safety system was surveyed by a representative of *EBI Consulting*, and a separate MEP LS Report was completed. The following is a brief description of the plumbing equipment found at the Subject Property as reported in the above referenced report. Please refer to the report for a more detailed description of the equipment and findings.

The fire sprinkler water service is supplied to the building underground via Schedule 40 steel four (4)-inch line where it is fed through a backflow preventer; there are two locations on either end of the basement. Sprinkler water distribution is via a steel fire rated piping system throughout the building.

In addition to the two (2) wet sprinkler systems, there is a dry system that serves the store fronts on the 1st floor of the building.

Observed fire and life safety systems serving the building includes Firelite multiple-zone, fire alarm control panel that has an auto-dialer reportedly tying the system to a 24-hour monitoring service, an

addressable master fire control panel with interface from remote panels. The fire panel has supervision with network display units located in the first floor lobby. There are remote nodes of the alarm system on each floor, located in the electrical closets.

The Subject Property also has hardwired with battery-backup smoke detectors, pull stations at entrances to egress stairways and building entrances, illuminated exit lights with battery-backup along exit paths, emergency battery lighting units in stairways, horn/light annunciators in common area restrooms and corridors, and fire extinguishers spread throughout the tenant spaces, security system with closed circuit TV cameras.

The Subject Property is reportedly equipped with a Knox box at the building and a full coverage, wet and dry-pipe sprinkler system with check valves, tamper and flow switches.

Sprinkler riser in basement

Fire alarm panel

Horn strobe alarm in corridor

Wall-mounted fire extinguisher

Please refer to the detailed conditions and recommendations in the MEP LS Report from *EBI* Consulting. The report provides a full description of the bulleted Recommendations and Repairs below. A copy of this report is included in *Appendix B* of this *Report.*

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **Fire extinguisher renewal inspection**
- **Sprinkler system annual inspection NFPA 25 sprinkler system 5 year test**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **None**

Please see Table 2 for the recommended Capital Needs listed below:

- **None**

4.5 ELEVATORS AND CONVEYING SYSTEMS

DESCRIPTION

The Subject Property is provided with two, 2,500-pound capacity, *Otis* geared hoist, passenger elevators that service from the basement to the 6th floor. The elevator machinery is located within a rooftop penthouse above the 6th floor and consists of two 20-Hp Beckwith DC geared hoists and two 25-Hp motor generators providing DC power. Controls are relay logic panels. The elevators operate at a speed of 250 feet per minute.

The 1st to the 5th floors are also serviced by four sets of *Otis* escalators. The escalators have a capacity of 5,000 pounds and operate at a speed of 125 feet per minute. The escalators are narrow construction with transparent decaled side rails.

It should be noted that there is also a set of defunct elevators and one freight elevator that is not in service. It was reported that there also may have been water hydraulic operated elevators at one time. The defunct elevator shaft could be seen from the rear staircase behind the Post Office tenant space.

Passenger elevator cab control panel

Passenger elevator cab finishes

Elevator geared hoist unit

Elevator relay logic controls

Escalator transparent side rails

Typical escalator narrow width travel

COMPONENTS LIST

LIST OF ELEVATORS & CONVEYING SYSTEM ITEMS

ITEM DESCRIPTION	MFR. / MODEL NO. / CAPACITY	QTY.	INSTALLED / EFFECTIVE AGE
Passenger elevators	*Otis*, 2,500 pound capacity, basement to 6th floor	2	1950's / 30 years
Escalators	*Otis*, 5,000 pound capacity, 1st floor to 2nd floor	2	1950's / 30 years
Escalators	*Otis*, 5,000 pound capacity, 2nd to 3rd floor	2	1950's / 30 years
Escalators	*Otis*, 5,000 pound capacity, 3rd to 4th floor	2	1950's / 30 years
Escalators	*Otis*, 5,000 pound capacity, 4th to 5th floor	2	1950's / 30 years

CONDITION

The elevators appear to be in generally fair condition. The elevator controls are dated and periodic service calls are required to keep them operational and/or to free passengers when down. Based on the observed condition and expected useful life, Non-Critical Repairs are recommended for elevator modernization that could include updating the elevator controls to solid state, eliminating the need for motor-generators, door operators, and the updating of the elevator cab finishes and controls. The elevator certificates were up to date and expire on April 3, 2020.

The escalators appear to be in generally good operational condition. Based on the observed and reported condition, Capital Needs are recommended for escalator refurbishment during the analysis term. The escalator certificates were up to date and expire on December 31, 2020.

Elevator certificates posted in cabs

Escalator certificates posted at base

RECOMMENDATIONS

Please see Table 1 for the recommended Critical Repairs listed below:

- **None**

Please see Table 1 for the recommended Non-Critical Repairs listed below:

- **Elevator modernization**

Please see Table 2 for the recommended Capital Needs listed below:

- **Escalator refurbishment**

8.0 REFERENCES

8.1 CONTACTS

DESCRIPTION

The following individuals were interviewed for information concerning the Subject Property. Documentation applicable to the Subject Property was requested and reviewed when and where available and/or reasonably ascertainable. Individuals listed without phone numbers were contacted in person or by e-mail or information was obtained online.

REFERENCES				
RESOURCE	**CONTACT**	**INFORMATION PROVIDED**	**PHONE OR WEB**	**DATE**
Site contact and building escort with Glickman Kovago & Jacobs	Mr. Doug Morris, Maintenance Technician	Building information	dmorris@glickmankovago.com	1/10/2020
City of Worcester Code Enforcement	Website	Building and fire code violations	Inspections@worcesterma.gov	1/18/2020
City of Worcester GIS Data Base	Website	Property identification and ownership	Gisdata.worcesterma.gov	1/14/2020
City of Worcester Tax Department	Website	Tax map	Worcesterma.gov	1/14/2020
City of Worcester Zoning Department	Website	Property zoning	Worcesterma.gov	1/14/2020

8.2 PERTINENT INFORMATION PROVIDED OR OBTAINED

The following information was provided and reviewed as background information for this study:

EXHIBITS RECEIVED AND REVIEWED	YES	DESCRIPTION/COMMENTS
1. A.L.T.A. Survey		Not Provided
2. Legal Description of the Property	✔	Obtained by *EBI*
3. Location Maps	✔	Obtained by *EBI*
4. Project Specifications		Not Provided
5. Soils Report		Not Provided
6. Local Building Code Compliance		Not Provided
7. Date of Permits and Cert. of Occupancy		Not Provided
8. Building Plans:		
a. Architectural		Not Provided
b. Structural		Not Provided
c. Mechanical		Not Provided
c. Electrical		Not Provided
d. Plumbing		Not Provided
10. Other		
a. Stacking plan	✔	Provided by the client
b. Floor areas	✔	Provided by the client
c. Evacuation floor plans	✔	Provided by the client
d. Condo fees	✔	Provided by the client
e. Roof report	✔	Provided by the client

APPENDIX A - PROFESSIONAL QUALIFICATIONS

EBI Consulting
environmental | engineering | due diligence

Thomas Richter, P.E.
Senior Engineer
Kintnersville, PA 18930
Office/Mobile: 717.825.9517

Summary of Experience

Mr. Richter is a licensed engineer with 27 years of experience in heavy manufacturing and the construction industry. The last 13 years have been within the due diligence industry performing property condition assessments, construction monitoring, and plan and cost reviews. Mr. Richter has completed approximately 850 property condition assessments for a variety of properties including high-rise offices and apartments, low-rise apartment complexes, local to regional retail centers, hospitality facilities, warehouses, federal buildings, manufacturing facilities, and mixed use properties. Plan and Cost Review and Construction Monitoring projects have mainly included low and high-rise apartment buildings, small to regional retail centers, and warehouses. Construction monitoring has included owner-rep project oversight with weekly to monthly progress reports. Mr. Richter has concentrated on equity level property assessments over the last few years coordinating various discipline sub reports into one comprehensive report.

Relevant Project Experience

- Madison Avenue, NYC 1930's era, 28-story high-rise office building with over 2.2 million square feet of rentable area occupying full city block and containing extensive mechanical equipment.
- Cleveland, OH, Key Center, 1990's 57-story high-rise office complex with over 1.6-MM gross square feet of area including a 25-story Marriot hotel and 10-story historic office building. The property includes a 2-story underground parking garage, extensive HVAC equipment, 36 elevators, 2 escalators, and spacious high ceiling lobby areas. Completed multi-discipline Equity Property Condition Report.
- Multi-family complex, Chadds Ford, PA 2002 construction. The property consists of five 4-story buildings, 352 units, garages, swimming pool, and totaling 350,000 square feet.
- Chicago, Il, The Mart, 1930's landmark riverfront retail office building. The property consists of a 25-story 4.3-MM gross SF building with parking garage, spacious lobby and amenities, 47 elevators, extensive HVAC equipment, encompassing a long city block.
- Tampa, FL, 1990's Class A office complex, consisting of three, 6-story office buildings totaling 420,000 gross square feet. Completed multi-discipline Equity Property Condition Report.
- Newark, NJ, Riverfront Stadium, 1999 minor league baseball stadium consisting of a 2-story, 60,000 gross square feet building complex, stadium and fields, on an 8-acre site. Completed Equity Property Condition Report.
- Franklin, TN 1990's interconnected quad office complex totaling 510,000 square feet with common center courtyard. Completed Equity Property Condition Report.
- Denver, Co 2003, 7-story office building totaling 162,000 square feet with below ground parking garage. Completed Equity Property Condition Report.
- Fifth Avenue, New York 38-story 1920's historic landmark multi-tenant office building with ground level retail totaling 440,000 square feet.
- Jacksonville, FL triad 4-story office complex totaling 288,000 square feet on 19-acre lot. Completed Equity Property Condition Report.

Thomas Richter, P.E.
Senior Engineer
Kintnersville, PA 18930
Office/Mobile: 717.825.9517

- World Financial Center, NYC, 54-story Class A Office Building with base retail shops, and 2.1-million-SF of building area. Extensive MEP systems including 33 traction elevators, several 500-Ton cooling towers and central chiller plant serving 2,200 VAV boxes, water tanks, fire pumps.
- Broadway, NYC, 44-story Class A office building constructed in 1989 totaling 1,017,000-SF. Performed MEP portion of pre-purchase PCA.
- Eighth Avenue, NYC, 50-story Class A office building constructed in 1989 totaling 1,808,000-SF. Performed MEP portion of pre-purchase PCA.
- Headquarter Building, NYC, 52-story Class A office building constructed in 2007 totaling 1,265,000-SF. Performed MEP portion of PCA for sell back financing deal.
- Resort Hotel, San Juan, Puerto Rico, 1940's era renovated in 2004. 173 upscale guest rooms. Included chillers, cooling towers, fire pump, generator and elevators.
- Industrial Park, Heredia, Costa Rica, constructed from 2000 to 2005. Consisting of 10 industrial research and high tech manufacturing buildings totaling 580,000-SF including pharmaceutical and high-end machining companies.
- Garden apartment complex, Elkins Park, PA. Property consists of 130 apartment buildings with 1,798 units on 122-acres. MEP systems included oil and gas central boilers.
- Freezer Warehouse, Newark, NJ, 2005. Sub-zero, 60-foot high freezer warehouse with 8.5 million cubic feet of storage using Freon chillers and cooling towers.
- Grocery and Freezer Warehouses, Carteret, NJ constructed in 1994. Total warehouse area of 1,087,000-SF on 49-acres.
- NY Times NYC headquarters, 52-story high-rise completed in 2007, 1,550,000-SF of building area, 32 elevators, ranked 5th tallest New York City building.
- NY Times printing facility, Edison, NJ constructed in 1960's on 86-acres with 1,708,000-SF of building area. Plant closed down, performed pre-purchase PCA for developer.
- Distribution Center, Gouldsboro, PA, 1,026,000-SF tilt-up warehouse constructed in 2007. PCA was performed near completion and included close out documentation.
- Four Distribution Centers, Memphis, TN. Distribution centers included 28 warehouse/manufacturing buildings, totaling 1,700,000-SF. Performed PCA three separate times.
- Baltimore Federal Building, constructed in 2004 with an area of 244,000-SF. Performed PCA on non-secured areas.
- IBM chip making facility on 157-acres in Fishkill, NY with 982,000-SF of building area. Performed several PCA reports over several years before and after plant closing.
- Multi-tenant 1990 office building, Cleveland, OH. 295,000-SF with 7-story parking garage.

Education
New Jersey Institute of Technology, Bachelor of Science, Mechanical Engineering, 1989

Professional Registrations
Professional Engineer, New Jersey, 2004

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Luis Munoz
Reviewer/ Senior Program Manager
Orlando, FL 32789
Office: 407.599.3120
Mobile: 407.399.4747

Summary of Experience

Mr. Munoz is a Senior Program Manager with over 20 years of experience specializing in facility investigations, property condition site assessments, construction management and monitoring. In addition, he has experience in quality assurance of the installation of foundation, structural, and roofing systems, as well as performing investigations and preparation of forensic engineering reports for investigation and remediation.

Relevant Project Experience

Project Conditions Assessment (PCA)

Mr. Munoz has completed numerous assesments and reviews property condition assessments for a wide range of properties such as office, multifamily, industrial, retail, hospitality, malls, and high rise properties in accordance with ASTM standards. Mr. Munoz has conducted these services in the United States as well as the Caribbean, Mexico, and Europe. These assessments are prepared to provide prospective buyers, current owners, and lenders information regarding the current condition of the facility components and the potential economic liability. Within the last four years, Mr. Munoz has completed over 200 reviews of engineering assessments of office, multifamily, industrial, retail, hospitality, malls, and high rise properties, throughout the U.S. in accordance with ASTM standards.

Capital Needs Assessment (CNA)

Mr. Munoz has completed numerous assesments and reviews of engineering assessments of apartment complexes, manufactured housing parks, healthcare facilities, throughout the U.S. in accordance with HUD MAP 223(f), HUD MAP 232/223(f), MAP 202/223(f)as well as the HUD LEAN 232/223(f) protocols. Mr. Munoz has conducted these services throughout the United States. These assessments are prepared to provide prospective buyers, current owners, and lenders information regarding the current condition of the facility components and the potential economic liability. Within the last four years, Mr. Munoz has completed over 400 reviews of engineering assessments of multi-family apartment complexes and healthcare facilities, throughout the U.S. in accordance with HUD MAP 232/223(f) as well as the HUD LEAN 232/223(f) protocols.

Phase One Assesments

Mr. Munoz has completed numerous environmental due diligence reports for property owners and financial institutions for portfolios and individual projects throughout the country. Property types included industrial, retail, multi-family apartment, office buildings and large-scale commercial developments.

Americans with Disabilities Act Assesments

Conducted Americans with Disabilities Act Compliance Surveys for property compliance, and transaction due diligence site assessments. Responsibilities associated with conducting Americans with Disabilities Act Compliance Surveys include evaluating facilities for compliance.

Education

B.S. in Operations Engineering, University of Central Florida, Orlando Florida

EBI Consulting
environmental | engineering | due diligence

Luis Munoz
Reviewer/ Senior Program Manager
Orlando, FL 32789
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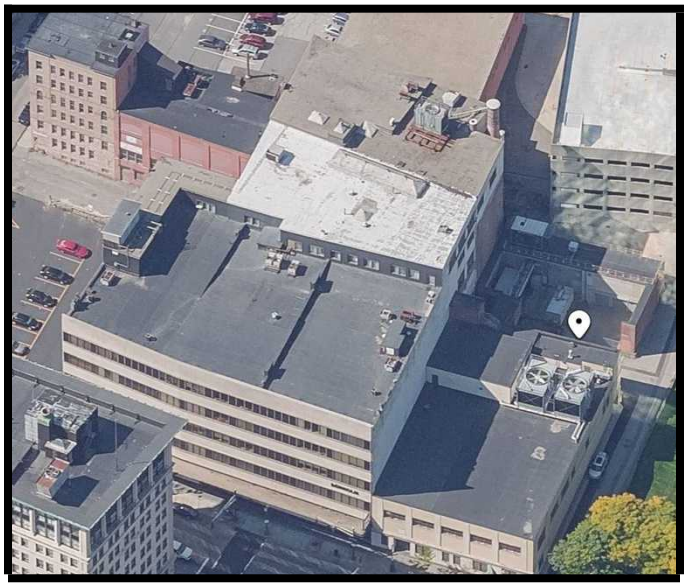
Professional Registrations
SBCCI Mechanical Inspector, Certified 1994
SBCCI Building Inspector, Certified 1994
Certified Building Contractor/ CGC2550

APPENDIX B - CONSULTANT REPORTS

MEP/LS Report

MECHANICAL ELECTRICAL PLUMBING LIFE SAFETY REPORT



Prepared for:

Denholm Condominium Trust
484 Main Street
Worcester, MA 01608

Denholm Building

484 Main Street
Worcester, MA 01608

EBI Project No. 1319000663

January 15, 2020

EBI Consulting
environmental | engineering | due diligence

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January 15, 2020

Mr. James Hayes
Denholm Condominium Trust
484 Main Street
Worcester, MA 01608

Subject: Mechanical Electrical Plumbing Life Safety Report, Denholm Building
484 Main Street, Worcester, MA 01608
EBI Project #1319000663

Dear Mr. Hayes:

Attached please find our *Mechanical Electrical Plumbing Life Safety Report*, (the *Report*) for the above-mentioned asset (the Subject Property). During the property survey and research, our property surveyor met with agents representing the Subject Property, or agents of the owner, and reviewed the property and its history. The *Report* was completed according to the terms and conditions authorized by you. The gathering of data and information for this *Report* has been completed in general conformance with ASTM E 2018 – 15.

The exclusive purpose of the *Report* is to observe the general physical condition and maintenance status of the property, to suggest repair or maintenance items considered customary for the property to continue in its current operation compared to properties of similar age and condition, and to assist *Denholm Condominium Trust* in its Due Diligence effort in evaluating the Property.

This *Report* was performed utilizing methods and procedures consistent with established commercial practices and in conformance with industry standards. The suggestions represent *EBI's* opinion based on written, graphic or verbal information, the property condition and data available to us at the time of the survey. Factual information regarding operations, conditions or data provided by the Client, occupants, owner or their representative has been assumed to be correct and complete.

The *Report* speaks only as of its date in the absence of a specific written update of the *Report* signed and delivered by *EBI Consulting*.

EBI is an independent contractor, not an employee of either party to this transaction, and its compensation was not based on the findings or recommendations made in the *Report* or on the closing of any business transaction.

Thank you for the opportunity to prepare this *Report,* and assist you with this project. Please call us if you have any questions or if we may be of further assistance.

Respectfully Submitted,

Martin Stowell, CEM
Author/Energy Engineer

William (Andy) Reed
423.290.2578
Reviewer / Project Manager
areed@ebiconsulting.com

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Appendix A – IR Survey

Appendix B - PROFESSIONAL Qualifications

EXECUTIVE SUMMARY TABLE

Property Name:	**484 Main Street**	*Property Type:*	**Office**
Address:	**484 Main Street**	*Property Age:*	**140**
City and State:	**Worcester, MA**	*No. of Units or Tenants:*	**1**
Site Survey Date:	**January 8, 2020**	*Square Feet:*	**200,000**
Report Date:	**January 16, 2020**	*Analysis Term (Yrs.):*	**10**
EBI Project #:	**1319000663**		

Section #	Section Name	Immediate Repairs	Short Term Repairs	Replacement Reserves
2.0 BUILDING SYSTEMS				
2.1	Building Plumbing	$15,926		$42,440
2.2	HVAC	$539,015		$133,005
2.3	Building Electrical	$9,600	$37,788	$196,879
2.4	Building & Site Fire/Life Safety	$5,400		
2.5	Elevators & Conveying Systems			
	TOTALS:	**$569,941**	**$37,788**	**$372,324**

	Dollars per sf/yr	Dollars per unit/yr	
Present Value of Replacement Reserves Cost Estimate	$0.18616	$37,232.38	$372,324
Inflated Value of Replacement Reserves Cost Estimate	*$0.19905*	*$39,809.48*	*$398,095*
Immediate Repairs Cost Estimate	$569,941		
Short Term Repairs Cost Estimate		$37,788	
Total Deferred Maintenance Cost Estimate, After Multiplier	$607,728		

EXECUTIVE SUMMARY

PROPERTY DESCRIPTION

The Subject Property, known as Denholm Building, is located in Worcester, MA at 484 Main Street in Worcester County. The Property was reportedly constructed in the 1890s and renovated in the 1980s. The Property consists of a six-story, reportedly 170,000-gross square foot[1] and 150,000 net rentable square foot[2], multi-tenant, mixed-use, office/retail building. The building contains a full, partially-finished basement.

SITE OBSERVATION & OBSERVATION SUMMARY

Martin Stowell and Lucy Bass of *EBI* surveyed the property on January 8, 2020 and were accompanied by, and interviewed, Maintenance Supervisor Mr. Doug Morris, *Glickman Kovago & Jacobs*. At the time of the survey, the weather was partly cloudy and approximately 35° to 40° Fahrenheit. During the survey, representative areas of the site, common areas, tenant spaces, mechanical spaces, mechanical equipment and building components were observed.

IMMEDIATE REPAIRS AND REPLACEMENT RESERVES

Itemized Immediate and Short Term repairs, as well as Replacement Reserves are provided in Appendix A of this report. The cost estimates shown on the tables are based on data obtained from the Owner for items already planned, quotes from contractors, *EBI's* in-house Acquisition database costs and our experience with costs and estimates for similar issues, property and building types, city cost indexes, and assumptions regarding future economic conditions. These projected costs are augmented by cost estimate resource documents such as the *National Construction Estimator*, *Means Building Construction Cost Data*, or *Means Facilities Maintenance and Repair Cost Data Publications*.

IMMEDIATE REPAIRS & SHORT TERM REPAIRS - TABLE 1

Each of the Immediate Repair items noted during the survey are listed on the following page on Table 1, and compiled on the Executive Summary Table. Items are grouped and cross-referenced by Report section. Immediate Repairs as may be identified during the survey are typically limited to life, safety, health, building code violation or building or property stabilization issues observed at a Subject Property.

Each of the Short Term Repair items noted during the survey are listed on the following page on Table 1, and compiled on the Executive Summary Table. Items are grouped and cross-referenced by Report section. Short Term Repairs as may be identified during the survey are typically repairs that are not life, safety, stabilization or code issues, but deferred maintenance or repairs necessary or of significant cost so to warrant them as a Short Term Repair, and/or that cannot be completed within a short timeframe due to the magnitude of the issue, the scope of work or weather.

1 **Gross square footage** obtained from the Owner's representative.
2 **Net rentable square footage** obtained from the Owner.

REPLACEMENT RESERVES - TABLE 2

Each of the Replacement Reserve items noted during the survey are listed on the following pages on Table 2, and compiled on the Executive Summary Table. Items are grouped and cross-referenced by *Report* section. Routine or customary annual maintenance items are not reported or included in this *Report* unless otherwise noted.

1.0 PURPOSE & LIMITATIONS

The exclusive purpose of this *Mechanical Electrical Plumbing Life Safety Report* (the *Report*) is to observe the general physical condition and maintenance status of the property, to suggest repair or maintenance items considered customary for the property to continue in its current operation compared to properties of similar age and condition, and to assist *Denholm Condominium Trust*, in its Due Diligence effort in evaluating the Property. Amendments to EBI's limitations as stated herein that may occur after issuance of the Re*port* are considered to be included in this *Report. EBI's* liability to a purchaser wishing to use this *Report* is limited to the cost of the *Report*. By accepting draft and final Reports, *Denholm Condominium Trust* agrees to these terms and limitations.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, easily accessible or made accessible by the property contact and interviews with owners, agents, occupants, or other appropriate persons involved with the Subject Property. Municipal information was obtained through file reviews of reasonably ascertainable standard government record sources, and interviews with the authorities having jurisdiction over the property. Findings, conclusions and recommendations included in the *Report* are based on our visual observations in the field, the municipal information reasonably obtained, information provided by the Client, and/or a review of readily available and supplied drawings and documents. No disassembly of systems or building components or physical or invasive testing was performed. EBI renders no opinion as to the property condition at un-surveyed and/or inaccessible portions of the Subject Property. EBI relies completely on the information provided during the site survey, or provided or obtained during the writing of the draft *Report*, whether written, graphic or verbal, provided by the property contact, owner or agent, or municipal source, or as shown on any documents reviewed or received from the property contact, owner or agent, or municipal source, and assumes that information to be true and correct. EBI assumes no responsibility for property information or prior reports withheld or not provided during preparation of the *Report* for any reason whatsoever. The observations in this *Report* are valid on the date of the survey. EBI uses the date of first occupancy to establish the Subject Property age.

The contents of the *Report* may not represent a detailed analysis by individual consultants of the Subject Property façades, roof, paving, mechanical, electric, plumbing, elevator, sprinkler, or fire and life safety systems depending on the scope of work selected by *Denholm Condominium Trust*. The extent of the physical survey for the production of this Report has been limited, by contract and agreed upon Scope of Work, (consistent with the guidelines of the ASTM E 2018 – 15 Scope of Work, as referenced below) to visual observations and a walk through of the property. Assumptions regarding the overall condition of the property have been developed based upon a survey of representative areas of the Subject Property. As such, no representation of *all* aspects of *all* areas or components is made.

Immediate Repairs as may be identified during the survey are typically limited to life, safety, health, building code violation or building or property stabilization issues observed at the Subject Property. Routine, normal or customary annual maintenance or preventative maintenance items are not reported or included in this *Report*.

Short Term Repairs as may be identified during the survey are typically repairs that are not life, safety, stabilization or code issues, but deferred maintenance or repairs necessary or of significant cost so to warrant them as a Short Term Repair, and/or that can't be completed within a short timeframe due to the magnitude of the issue, the scope of work or weather.

This assessment is based on the evaluator's opinion of the physical condition of the improvements and the estimated expected remaining useful life of those improvements, based on his observations in the field at the time of the survey, and the written or verbal information received. The conclusions presented are based on the evaluator's professional judgment. The actual performance of individual components or systems may vary from a reasonably expected standard and may be affected by circumstances that are not readily ascertainable or viewable, or that occur after the date of the survey.

Where quantities cannot be determined from information provided or physical takeoffs, lump sum estimates or allowances are used. The costs shown are based on professional judgment and the apparent or actual extent of the observed defect, including the cost to design, procure, construct and manage the repair or replacement. Where property-unique or specialty equipment is present, EBI relies solely on data regarding maintenance and/or replacement costs provided by the designated site contact or on-site individuals with first-hand knowledge of the specific equipment.

EBI provides Pre-Survey Questionnaires for completion by the designated site or property contact, as provided by *Denholm Condominium Trust* or their agent. The information requested in the questionnaire assists in our research of the Subject Property to obtain pertinent property data, discover existing physical deficiencies, chronic problems, the extent of repairs, if any, and their costs, and pending repairs and improvements. If the completed Pre-Survey Questionnaire is not returned as of this *Report*, this is a limiting factor in our analysis. If the questionnaire is returned at a later date showing a material difference from information provided in the Report, we will forward the questionnaire to you under separate cover. If no response is received, or no material difference is noted in the questionnaire, our Report will not be modified.

EBI may not have been provided with roof design or installation details, and may not have been provided with warranty information (see Section 3.4). EBI has relied on general industry performance of similar type roofs and general observations of the surface covering of the roof to determine if roof replacement is warranted during the analysis term. EBI is not responsible for roof failure that may occur earlier than estimated due to hidden conditions or defects that cannot be readily ascertainable by general observation.

EBI may not have been provided with façade reports, and cannot opine on costs to repair façades of buildings five stories or more without receipt of current façade reports (see *Section 3.3*). EBI has relied on general industry performance of similar façade systems and general observations of the surfaces of the façades to determine if repair or replacement is warranted during the analysis term. EBI is not responsible for façade failures that may occur earlier than estimated due to hidden conditions or defects that cannot be readily ascertainable by general observation.

If the municipality in which the Subject Property is located has governing ordinances requiring façade studies, and a copy is not provided to EBI, this is a limiting factor in our assessment and analysis. Prudent property management will have had façade reports completed on their high-rise property, and if a copy of the report is not provided to EBI, this too, is a limiting factor in our assessment and analysis.

The gathering of data and information for this *Report* was completed in general conformance with ASTM E 2018 – 15 Standard Guide for Property Condition Assessment: Property Condition Assessment Process, and with the scope of services approved by the client.

The survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession, and in accordance with generally accepted practices of other consultants currently practicing in the same locality under similar conditions. The level of care and skill exercised is also commensurate with the fees charged for EBI's services. No other representation, expressed or implied, and no warranty or guarantee is included or intended. The *Report* speaks only as of its date, in the absence of a specific written update of the *Report*, signed and delivered by EBI.

Limiting factors

Any additional information that becomes available after *EBI's* survey and draft submission concerning the Subject Property should be provided to *EBI* so that *EBI's* conclusions may be revised and modified, if necessary, at additional cost. This *Report* has been prepared in accordance with *EBI's Standard Conditions for Engagement*, which is an integral part of this *Report.*

DEVIATIONS FROM THE GUIDE

EBI includes an analysis of estimated Replacement Reserves in this *Report*. *EBI* uses an approximate threshold of $1,000 in aggregate for reporting Critical & Non-Critical Repair or Replacement Reserve items. Material life, safety, health, fire or building code violation or building or property stabilization issues observed at the Subject Property will be reported regardless of cost.

CONDITION

EBI uses terms describing conditions of the various site, building, and system components. The terms used are defined below. It should be observed that a term applied to an overall system does not preclude that a part or a section of the system or component may be in a different condition.

Excellent	The component or system is in new or like new condition and no deferred maintenance is recommended.
Good	The component or system is sound and performing its function, and/or scheduled maintenance can be accomplished through routine maintenance. It may show signs of normal aging or wear and tear and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing at a capacity that is considered to be acceptably sufficient, but may be obsolete or is approaching the end of its expected useful life. The component or system may exhibit evidence of deferred maintenance, previous repairs, or workmanship not in compliance with commonly accepted standards. Repair or replacement may be recommended in the near-term of the loan to prevent further deterioration, restore it to good condition, prevent premature failure, or to prolong its expected useful life.
Poor	The component or system has either failed or cannot be relied upon to continue performing its original function as a result of having exceeded its typical expected useful life, excessive deferred maintenance or state of disrepair. Present condition could contribute to, or cause, the deterioration of other adjoining elements or systems. Repair or replacement is recommended.

ABBREVIATIONS

EBI may use various abbreviations to describe various site, building or system components or legal descriptions. Not all abbreviations may be applicable to all *Reports.* The abbreviations most often utilized are defined below.

ACT	Acoustic Ceiling Tile
ABS	Acrylonitrile-Butadiene-Styrene
ADA	Americans with Disabilities Act
AHU	Air Handling Unit
APA	American Plywood Association
BTU	British Thermal Unit (a measurement of heat)
BTUH	British Thermal Units per Hour
BUR	Built Up Roof
CFM	Cubic Feet per Minute
CMU	Concrete Masonry Unit
CPVC	Chlorinated Poly Vinyl Chloride
DWH	Domestic Water Heater
DX	Direct Expansion
EPDM	Ethylene Propylene Diene Monomer
EUL	Expected Useful Life, Effective Useful Life
FF&E	Furniture, Fixtures & Equipment
FCU	Fan Coil Unit
HCP	Handicapped Person
FEMA	Federal Emergency Management Agency
FHA	Forced Hot Air
FHW	Forced Hot Water
FIRM	Flood Insurance Rate Map
FOIA	Freedom Of Information Act
FOIA	Freedom Of Information Act
FRT	Fire retardant treated plywood
GFI	Ground Fault Interrupt (circuit)
GWB	Gypsum Wall Board
HCP	Handicapped Person
HID	High Intensity Discharge (lighting)
HVAC	Heating, Ventilating and Air Conditioning
KW	Kilowatt
KVA	Kilovolt Ampere
MBH	Thousand BTUs per Hour
MDP	Main Distribution Panel
OSB	Oriented Strand Board
PTAC	Packaged Terminal Air Conditioning (Unit)
PEX	Polyethylene Cross-Linked Tubing
PVC	Poly Vinyl Chloride
RTU	Roof Top Unit
RUL	Remaining Useful Life
TPO	Thermoplastic polyolefin
SEER	Seasonal Energy Efficiency Rating
SCAHU	Self Contained Air Handler
VAV	Variable Air Volume box
VCT	Vinyl Composition Tile
VWC	Vinyl Wall Covering
WSHP	Water Source Heat Pump

2.0 BUILDING SYSTEMS

2.1 PLUMBING

DESCRIPTION

Domestic water service to the building consists of a 2-inch diameter water line which enters the building in two locations: one at the north side basement wall, and the other along the south side basement wall. Domestic water pressure, at the Subject Property, is provided by the incoming municipal service.

The observed supply domestic water piping is galvanized steel and copper. Sanitary sewer drain and vent lines were observed as hub and spigot cast iron piping.

Backflow devices are furnished for the potable water and fire sprinkler systems at the site. The backflow preventers are located in the basement. Backflow typically occurs when contaminated liquids mix with potable (drinking) water. This may occur due to a cross-connection between the public water system and a consumer's plumbing system. The two most common types of backflow are backpressure and back-siphoning. Back-siphoning is commonly caused by main breaks or other conditions that create a drop in the water distribution system pressure, allowing contaminates to enter the water supply and affecting the customers' potable water. Backpressure occurs when elevation or pumping pressure forces contaminates into the municipal water distribution system, thus overcoming the system water pressure. The reversal of contaminated liquids can unknowingly infuse pollutants, pesticides, and other harmful agents into the drinking water. Contaminates can come from sources such as a garden hose, a lawn irrigation system, industry, or small businesses such as dry cleaners, photo labs, funeral homes, restaurants or the local grocer, to name a few. The basis for current cross-connection control and backflow prevention is based on the U.S. Clean Water Act, state and local health requirements that have been put in place to comply with the clean drinking water act, and increased urgency to secure the water supply.

A main gas meter and 2" service is located below the Bridge between the two sections of the building and supplies natural gas throughout the property. Welded and threaded black iron pipe is used for main gas piping throughout the Subject Property. Service lines from the main line are yellow coated stainless steel. The split system refrigerant lines are insulated and exit the roof via metal sleeves or exits through sleeves in the exterior wall which minimize water infiltration from the elements.

Domestic hot water is provided to the common hallway bathrooms by one, 4500 Watt, 50 gallon *Vanguard* electric hot water boiler located in the fourth floor Men's restroom. Domestic hot water is provided to tenants by individual electric water heaters varying in brand and capacity, typically located below kitchen sinks.

The Subject Property domestic hot water systems are reported as follows:

SUBJECT PROPERTY DOMESTIC WATER HEATERS

MANUFACTURER	FUEL TYPE	CAPACITY	APPROX. AGE	LOCATION
Vanguard	electric	50	10	4th floor men's restroom
Rheem	electric	Not Accessible	Not Accessible	2nd floor women's restroom
Stiebel Eltron	electric	2.5 Gal Tankless	4	Suite 110
Ruud	electric	6	13	Suite 120
Rheem	electric	Not Accessible	Not Accessible	Suite 200
Rheem	electric	6	Unknown	Suite 300
Bradford White	electric	19	10	Suite 345
Bradford White	electric	6	13	Suite 360
Unknown	electric	6	8	Suite 430
State Select	electric	6	20	Suite 450
AO Smith	electric	10	2	Suite 535
Kenmore	electric	19.9	14	Suite 580
Rheem	electric	19.9	5	Suite 600

Plumbing Fixtures

The plumbing fixtures are vitreous china with chrome fittings. The building common restrooms contain *Gerber* and American Standard 1.6 gallons-per-flush (GPF) vitreous china water closets with manual flush valves. The building contains *American Standard* 1.0 GPF vitreous china urinals. The vitreous china sinks are wall mounted against the walls. The sinks in the common area restrooms have manual faucets with lever-type handles.

The common area approximate restroom fixture count for the building is comprised of the following:

- 14 toilets (men)
- 17 restroom sinks (men)
- 13 urinals (men)
- 18 toilets (women)
- 15 restroom sinks (women)

Gas meter

Typical Toilet

Typical Bathroom Sink

Typical Urinal and Sink

Common Bathroom Water Heater

Typical Tenant Space Water Heater

OBSERVATIONS

The water closets, urinals and bathroom fixtures were reportedly installed as part of the major renovation in the 1980s. The manual flush valves for the water closets and urinals appear to be in good to fair working order. The bathroom fixtures observed appeared to be in good to fair condition and in working order. Plumbing fixtures usually have an estimated useful life of 20 years. Based on its reported age, current condition, and expected useful life, Replacement Reserves of the water closets, urinals and bathroom fixtures are recommended during the beginning of analysis term.

The Common Bathroom and Tenant Space water heaters vary in age and in working order. Based on the reported age, current condition, and expected useful life of the water heaters, Replacement Reserves are recommended for 1 common water heater and 7 tenant space water heaters during the analysis term.

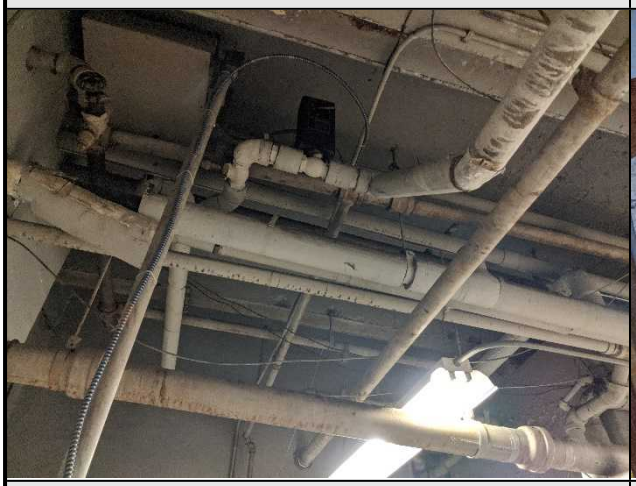
The water heater in Suite 120 does not have a catch pan underneath to assist in minimizing damage from leaking of the tank. Based on observed and reported conditions, Immediate Repairs are recommended for installation of a drain pan in Suite 120.

The Subject Property domestic galvanized and copper water piping on the first floor through the sixth floor appears to be in fair condition, with no reported problems noted; the water piping in the basement appears to be in fair to poor condition with visible corrosion noted. Galvanized steel piping is susceptible to internal corrosion as zinc in the piping erodes over time. This can significantly affect the water pressure and quality in plumbing supply lines. Internal pipe corrosion cannot be identified through visual observation. Therefore, based on the overall condition, use of galvanized piping and age, it is recommended that the domestic water piping be evaluated by a qualified professional to assess its current condition, identify repair needs, and provide an estimate of its remaining useful life as an Immediate Repair. Any modifications/repairs recommended by the evaluation should be completed as part of Short Term Repairs.

The sanitary lines where able to be observed, appear to be in fair to poor condition. The Subject Property is over 45 years old and the sewer pipes are starting to erode. It is recommended that the sanitary lines be evaluated by a qualified professional to assess its current condition, identify repair needs, and provide an estimate of its remaining useful life as an Immediate Repair. Any modifications/repairs recommended by the evaluation should be completed as part of Short Term Repairs.

The steam piping where able to be observed, appear to be in fair to poor condition. The Subject Property is over 45 years old and the sewer pipes are starting to corrode. It is recommended that the steam piping be evaluated by a qualified professional to assess its current condition, identify repair needs, and provide an estimate of its remaining useful life as an Immediate Repair. Any modifications/repairs recommended by the evaluation should be completed as part of Short Term Repairs.

The domestic backflow preventer annual inspection was performed in August 2019. A copy of the inspection is included in the appendices if this Report.

	
Sprinkler System Piping	Water Piping
	
Insulated Steam Piping	Steam System Piping
	
Water Heater Lacking Catch Pan	Pipe Insulation and Backflow Preventer

RECOMMENDATIONS

Please see Table 1 for the recommended Immediate Repairs listed below:

- **Water heater catch pan installation**
- **Sanitary pipe inspection by qualified professional**
- **Steam piping inspection by qualified professional**
- **Galvanized piping inspection by qualified professional**

Please see Table 1 for the recommended Short Term Repairs listed below:

- **None**

Please see Table 2 for the recommended Replacement Reserves listed below:

- **Replace plumbing fixtures**
- **Replace electric water heater (50 gal.)**
- **Replace electric water heater (6 gal.)**
- **Replace electric water heater (6 gal.)**
- **Replace electric water heater (6 gal.)**
- **Replace electric water heater (6 gal.)**
- **Replace electric water heater (20 gal.)**
- **Replace electric water heater (20 gal.)**

2.2 HVAC

DESCRIPTION

The building is heated by a grade-mounted natural gas fired steam boiler which feeds steam radiators and fan coil units throughout the building. The building is cooled by either air cooled DX condensers and/or Self Contained Air Handler DX condensers/WSHP consisting of a water holding tank in the basement and a cooling tower on the roof. The primary components of the heating and cooling systems are listed in the table below:

HVAC COMPONENTS

AREA SERVED	NO. OF UNITS	MFR., MODEL #	TONS OR BTUS	TYPE OF EQUIPMENT	AGE (YEARS)
Whole Building	2	*HB Smith*, 1953	3,744 MBH	Gas/Oil-fired Steam Boiler	50
Suite 180	1	*Nordyne,* GB3BM-060K-CB	5-ton	Fan Coil Unit	15
Suite 110	1	*Comfort Aire,* HBV060A1C30CLT	5-ton	Water Source Heat Pump	1
Suite 100	1	*Carrier Weathermaker,* 50K12-268A3	10-ton	Self Contained Air Handler	50
Suite 120	1	*Mitsubishi,* PK24EK	2-ton	Heat Pump	14
Suite 150	1	*Carrier Weathermaker,* 50K12-268A3	10-ton	Self Contained Air Handler	50
Unknown	1	*Bryant,* 524JE08A000A20AAA	7.5-ton	Air Handler	5
Suite 200	1	*Skymark,* CSV096B2M1AAAA0A-A	8-ton	Self Contained Air Handler	5
Suite 200	1	*Trion,* N2AHD20A06A	Unknown	Media Air Cleaner	Unknown
Suite 200	2	*York,* K3EU120A33B	10-ton	Air Handler	13
Suite 300	1	*Not Accessible*	Unknown	Air Handler	Unknown
Suite 320	1	*Carrier,* FB4ANF048000AFAA	4-ton	Fan Coil Unit	20
Suites 320 & 330	1	*Carrier Weathermaker,* 50K12-268A3	10-ton	Self Contained Air Handler	50
Suite 345	1	*Trane,* GEVE18031DAA00TFD	15-tons	Water Source Heat Pump	3
Suite 355	1	*Not Accessible*	Unknown	Fan Coil Unit	Unknown
Suite 360	1	*Carrier Weathermaker,* 50K12-268A3	10-ton	Self Contained Air Handler	50
Suite 400	1	*Climatrol,* Model Number not Accessible	~3-ton	Fan Coil Unit	Unknown
Suite 420	1	*Trane,* Model Number not Accessible	~5-ton	Fan Coil Unit	Unknown
Suites 430	1	*Carrier,* 50XCW14BCNG5AA	12-tons	Self Contained Air Handler	4
Suites 450	1	*Carrier,* Model Number not Accessible	10-ton	Air Handler Unit	30

HVAC COMPONENTS

AREA SERVED	NO. OF UNITS	MFR., MODEL #	TONS OR BTUS	TYPE OF EQUIPMENT	AGE (YEARS)
Suite 450	1	*Carrier,* 09DC016200	15.8-ton	Condenser	50
Suite 460	1	*Carrier Weathermaker,* 50K12-268A3	10-ton	Self Contained Air Handler	50
Suite 500	1	*Carrier,* 50BB016510	12-ton	Water Cooled Air Handler	Unknown
Suite 520	1	*Not Accessible*	~5-ton	Fan Coil Unit	Unknown
Suite 535	1	*Not Accessible*	~5-ton	Fan Coil Unit	Unknown
Suite 560	1	*Carrier,* 50K8 A179	7-ton	Air Handler	50
Suite 560	1	*Not Accessible*	~7.5-ton	Fan Coil Unit	Unknown
Suite 560	1	*Lennox, HS18-511*	4-ton	Condenser	34
Suite 600	1	*Carrier,* 50K16-A879	12-ton	Self Contained Air Handler	50
Whole Building	1	*Marley, NC3211GS*	259-ton	Cooling Tower	21
Unknown	2	*Carrier,* 9AB8 114	10.0	Condenser	21
Unknown	1	*Carrier,* 38BA008540	7-ton	Condenser	37
Unknown	1	*Carrier,* 38AE016500	15-ton	Condenser	37
Unknown	1	*Goodman,* GSC130603CB	5-ton	Condenser	7
Unknown	1	*Carrier,* 38AE016500	15-ton	Condenser	37
Unknown	1	*Carrier,* 50TJ-016	15-ton	RTU	23
Unknown	1	*Trane,* CAUD-B756-B	3-ton	Condenser	31
Unknown	1	*BDP,* 559C150	12.5	RTU	36

Due to the mandated higher efficiencies for the HVAC equipment, any replacement HVAC unit is now required to be at or above 14 SEER which has increased the cost of new equipment. For residential split systems, and the phase-out of R-22, the indoor and outdoor equipment may both need to be replaced to meet the requirements. For now, there are available HVAC components to keep these systems operational. Currently, the new refrigerant used for the equipment is R-410a which operates at a higher pressure and is not compatible with R-22, nor is it as harmful to the environment.

Heating for the tenant offices and retail spaces is provided by either air handlers or fin-tube radiators fed with steam from the central boiler. Cooling for the tenant offices and retail spaces is provided by either air cooled DX condensers and/or water cooled DX condensers/WSHP consisting of a water holding tank in the basement, condenser water pumps and a cooling tower on the roof. The air and water cooled condensers utilize R-22.

Temperature control for the FCU's, AHU's and baseboard radiators is provided by remote, wall-mounted analog or digital thermostats**.**

Steam for the heating system is provided by one *HB Smith* central boiler that has been converted from fuel oil fired to natural gas fired. There is a second inoperable oil-fired boiler that has not been

converted to natural gas. The operating natural gas-fired boiler is able to carry the load of the entire building, but in the case of failure, the building has no back-up and would be left with no heat.
The Subject Property utilizes water treatment system for the condenser water system. The water is treated with various chemicals to prolong the life of the individual components of the HVAC. As defined at http://www.answers.com, "Water treatment is used to optimize most water-based industrial processes, such as: heating, cooling, processing, cleaning, and rinsing, so that operating costs and risks are reduced. Poor water treatment lets water interact with the surfaces of pipes and vessels which contain it. Steam boilers can scale up or corrode, and these deposits will mean more fuel is needed to heat the same amount of water. Cooling towers can also scale up and corrode, but left untreated, the warm dirty water they can contain will encourage bacteria to grow."

The mechanical rooms observed were free and clear of owner storage and tenant storage, and appear to be well maintained and cleaned regularly by staff.

Central gas-fired steam boiler

Typical Radiator

Water Treatment System

Typical Fan Coil Unit

	
Rooftop Condenser	Cooling Tower

OBSERVATIONS

Discussions with the owner's representative indicate that, according to the Subject Property lease terms, the owner is responsible for HVAC repairs and replacement. Based on the age of the HVAC equipment Replacement Reserves are recommended for replacement of approximately 15 fan coil units and 9 rooftop condensers.

The indoor Self Contained Air Handler (SCAHU), DX AHU's, FCU's and WSHP's units appear to be in good to poor overall condition due to their age, with no reported problems noted. The average useful life of this type units of this size and type is approximately 25 to 30 years, depending upon their location, maintenance and use type. The units are reportedly serviced on an as-needed basis, and a review of the service records didn't indicate any major problems or issues with the equipment. Based on their average effective useful life, current condition, the R-22 statement above and reported maintenance program, Immediate Repairs for the replacement of eight (8) SCAHU's and one (2) DX AHU is recommended.

The rooftop-mounted HVAC DX condensing units appear to be in fair to poor overall condition due to their age, with no reported problems noted. The average useful life of these units of this size and type is approximately 14 to 18 years, depending upon their location, maintenance and use type. The HVAC units are reportedly serviced on an as-needed basis, and a review of the service records didn't indicate any major problems or issues with the equipment. Based on their average effective useful life, current condition, the R-22 statement above and reported maintenance program, Immediate Repairs for the replacement of six (6) DX condensers and Replacement Reserves for the replacement of one (1) DX condensers is recommended during the analysis term.

The RTU's appear to be in fair to poor overall condition due to their age, with no reported problems noted. The average useful life of these units of this size and type is approximately 20 years, depending upon their location, maintenance and use type. The HVAC units are reportedly serviced on an as-needed basis, and a review of the service records didn't indicate any major problems or issues with the equipment. Based on their average effective useful life, current condition, the R-22 statement above and reported maintenance program, Immediate Repairs for the replacement of two (2) RTU's is recommended.

The cooling tower is 21 years old, appears to be in good overall condition, with no reported problems noted. The average useful life of cooling towers of this size and type is approximately 20 to 25 years, depending upon its location, maintenance and use type. The cooling tower is reportedly serviced on a regular basis, and an interview with the maintenance technician did not indicate any major problems or issues with the equipment. Based on their average effective useful life, current condition and reported maintenance program, Replacement Reserves are recommended to replace the cooling tower during the analysis term.

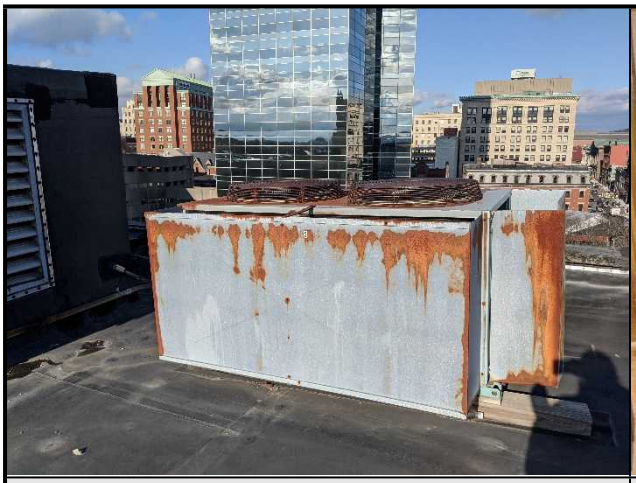
The condenser water pumps are 21 years old, appears to be in good overall condition, with no reported problems noted. The average useful life of pumps of this size and type is approximately 20 to 25 years, depending upon its location, maintenance and use type. Based on their average effective useful life, current condition and reported maintenance program, Replacement Reserves are recommended to replace the cooling tower during the analysis term.

The natural gas boiler (3770 MBH) is approximately 50 years old, appears to be in fair to poor overall condition, with a leak reported at the time of the site inspection. The average useful life of boilers of this size and type is approximately 25 to 30 years, depending upon their location, maintenance and use type. The boiler is reportedly serviced on a regular basis. An interview with the building engineer did not indicate any major problems or issues with the equipment. Based on their average effective useful life, current condition and reported maintenance program, Immediate Repairs are recommended to replace the boiler.

The oil-fired boiler (3770 MBH) is approximately 50 years old, appears to be in poor overall condition and has been in an inoperable condition for over 5 years. The average useful life of boilers of this size and type is approximately 25 to 30 years, depending upon their location, maintenance and use type. Based on their average effective useful life, current condition and reported maintenance program, Immediate Repairs are recommended to engage a licensed Engineering firm to evaluate the conversion of the current oil-fired steam boiler to a natural gas steam boiler and provide feasibility and cost to replace the boiler.

The ductwork appears to be in good condition and no further recommendations are made. The ductwork was concealed in the floor truss spaces and ceiling fur-downs at the time of survey.

The water treatment equipment is in good condition and appear to be operating. Based on its reported age, current condition, and expected useful life, Replacement Reserves are not recommended for water treatment system replacement during the analysis term.

	
Rooftop Air-Cooled DX Condenser	Typical Air Handler Unit
	
Condenser System Pumps	Inoperable Air Handler Unit
	
Sump Pump	Inoperable Oil-fired boiler

RECOMMENDATIONS

Please see Table 1 for the recommended Immediate Repairs listed below:

- **Replace Gas-Fired Steam Boiler (3770 MBH)**
- **Licensed Engineering firm to evaluate the replacement and natural gas conversion of oil-fired steam boiler (3770 MBH) and provide cost**
- **Replace six (6) DX condensers**
- **Replace eight (8) SCAHU's**
- **Replace two (2) DX AHU**
- **Replace two (2) RTU's**

Please see Table 1 for the recommended Short Term Repairs listed below:

- **None**

Please see Table 2 for the recommended Replacement Reserves listed below:

- **Replace one (1) DX condensers**
- **Replace Cooling Tower (250 Ton)**
- **Replace Two (2) Pump Motors (25 HP)**

2.3 ELECTRICAL

DESCRIPTION

The incoming services are rated as 3,000-Amp, three-phase, four-wire, 120/208-Volt mains, feeding the main distribution panels (MDPs). The incoming services and MDPs are located within two electrical rooms, one serving the North side of the building, and the other serving the South. These MDPs feed circuit breaker panels for each tenant space and the common areas.

The observed services are protected by circuit breakers. Beyond standard ground rods or grounded connections to major piping systems, additional lightning protection was not observed.

The electrical equipment is made by *Federal Pacific*, Pacific Electric, Westinghouse Electric, Square D, and *General Electric*. The equipment was installed at various points throughout the buildings life, and vary in age considerably. There are separate switches for the two main conduit risers. The buss, conduit risers feed power to the electrical distribution panels on each floor. A copy of the one-line diagram was not provided to *EBI*.

The Subject Property reportedly has copper branch wiring and copper feeder cables. Standard electrical devices, switches, and fixtures consistent with the Subject Property use type were also observed through the building. Aluminum branch wiring was not reported to or observed by *EBI* during the site assessment. GFCI fixtures were observed during the survey in the restrooms and kitchen areas.

SUBJECT PROPERTY ELECTRICAL SYSTEM

BUILDING	SERVICE	PHASE WIRE	VOLT	TYPE

Building #1 North	3,000-AMP	3-Phase, 4-Wire	120/208	Switchgear / board
Building #1 South	3,000-AMP	1-Phase, 3-Wire	120/208	Switchgear / board
Building #1 North	3,000-AMP	1-Phase, 3-Wire	120/208	MDP
Building #1 South	3,000-AMP	1-Phase, 3-Wire	120/208	MDP

From a review of the electrical system and drawings, it appears that the Subject Property has a radial distribution system to the main electrical switchboards. The utility company distribution system powers two liquid-filled transformers located throughout the site as part of the sub-station. *EBI* requested information on ownership of the transformers from the site contact and was told the transformers are owned and maintained by the subject property.

The transformers fall into two basic categories, dry and liquid-filled, with the most widely used type being liquid-filled containing mineral oil. Prior to 1979, many liquid-filled transformers contained oils with Polychlorinated Biphenyls or PCBs. The property was constructed in 1890 and the possibility of the transformer containing PCBs exists. The liquid-filled transformers are typically located outside due to the potential of fire hazard from oil leaks.

A 45-kW natural gas -fueled emergency generator serves the Subject Property.

SUBJECT PROPERTY EMERGENCY GENERATOR

MANUFACTURER	APPROXIMATE KVA	FUEL	HOURS	AGE
Pincor	56.25 KVA	Natural Gas	Unknown	40

Interior lighting
Lighting throughout all tenant areas, common hallways, and the basement is primarily from fluorescent fixtures. The fixtures typically are 2'x4' with two to four T-8 lamps.

Main Electrical Panels

Main Switchgear

Main transformer

Distribution Panel

Emergency Generator

Distribution Panels

OBSERVATIONS

There were no reported or observed problems with the electrical system sizes or capacities. This utility appears to be configured and operated in a manner consistent with its intended use, and adequate for the use type. Discussions with the owner's representative indicate that, according to the Subject Property lease terms, the owner is responsible for interior electric repairs and replacement.

The electrical main/switchboard components at the Subject Property generally appear to be in fair to poor condition. Although no problems were identified during the MEPSE II survey, the two 3000-amp, 120/208-Volt service switchboard generally appears to be in fair to poor condition and approximately 40-60 years old. EBI recommends that a licensed electrician be engaged to inspect the main Federal Pacific Electric switchboards and distribution panels and provide recommendations regarding the equipment in regards to repair/replacement. Costs for the inspection are included as an Immediate Repair item.

The main switchgear 1000 KVa transformer are approximettely 40 years old, appears to be in fair overall condition, with no reported problems noted. The average useful life of transformers of this size and type is approximately 40 to 50 years, depending upon its location, maintenance and use type. Based on their average effective useful life, current condition and reported maintenance program, Replacement Reserves are recommended to replace the main switchgear 1000 KVa transformers at the beginning of the analysis term.

EBI performed a survey of the available main electrical components (switchgear, transformers, and distribution panels,) with an Infrared Thermal Imaging Camera, inspecting for hot spots which may indicate loose wiring, poor connections, load imbalance, cracked/broken wiring insulation, and/or old and failing electrical components. Typically, it is recommended that electrical components have at least a 40% load during an IR inspection. At the time of the survey, the property met this minimum load condition.

The InterNational Electrical Testing Association (NETA) provides guidelines, which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F. EBI observed that panels and local disconnects (identified in red in the table below) appear to need retorquing and tightening to ensure proper connections due to above normal temperatures. Immediate Repairs are recommended for retorquing of these panels and disconnects by a qualified electrician.

These NETA guidelines do not apply to the dry-type transformers, which are typically labeled with standard temperature rises of 80°C (176°F), 115°C (239°F), or 150°C (302°F), which is the temperature rise above ambient conditions which the transformer is rated to.

EBI recorded the following operating temperatures at the following electrical equipment while on site:

Location	Equipment Type	Equipment Tag	Manufacturer	Rate Amps	Rated Voltage	High Temp
Basement	Distribution Panel	No Tag	Murray	125	120/240	71.1
Basement	Distribution Panel	No Tag	NI	NI	NI	71.3

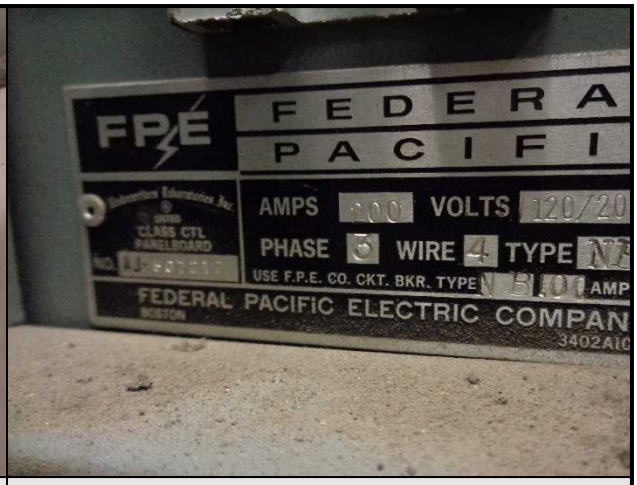
Location	Equipment Type	Equipment Tag	Manufacturer	Rate Amps	Rated Voltage	High Temp
Basement	Distribution Panel	No Tag	NI	NI	NI	68.7
Basement	Distribution Panel	No Tag	NI	NI	NI	69.5
Basement	Distribution Panel	No Tag	NI	NI	NI	71.5
Basement	Distribution Panel	No Tag	NI	NI	NI	72.1
Basement	Main Switchgear	SD1 Section 1	Federal Pacific	600	13,800	75.3
Basement	Main Switchgear	SD1 Section 1	Federal Pacific	600	13,800	74.3
Basement	Switchgear 1	PE Xformer	Pioneer Electric	2780	NI	106.0
Basement	Main Electrical Panel	D1 Section 1	Federal Pacific	3000	120/208	80.8
Basement	Main Electrical Panel	D1 Section 2	NI	NI	NI	70.3
Electrical Room 1	Transformer	NI	Westinghouse	NI	NI	88.9
Basement	Distribution Panel	No Tag	NI	NI	NI	55.6
Basement	Distribution Panel	D5	Federal Pacific	800	120/208	66.2
Basement	Distribution Panel	D6	Federal Pacific	200	120/208	63.5
Basement	Distribution Panel	D6	Federal Pacific	200	120/208	64.2
Basement	Distribution Panel	D6	Federal Pacific	200	120/208	61.3
Basement	Switchgear	SD4	NI	NI	NI	61.5
Basement	Switchgear 2	PE Xformer	NI	NI	NI	97.5
Basement	Main Electrical Panel	D4 Section 1	NI	NI	NI	78.9
Basement	Main Electrical Panel	D4 Section 2	NI	NI	NI	63.8
Basement	Main Electrical Panel	D4 Section 3	NI	NI	NI	72.5
Basement	Electric Meter	Meter 2	NI	NI	NI	65.2
Basement	Local Disconnects	No Tag	NI	NI	NI	87.2
Basement	Local Disconnects	No Tag	NI	NI	NI	93.5
Basement	Local Disconnects	No Tag	NI	NI	NI	99.3
Basement	Distribution Panel	Boil. RM. POW. PNL. Section 1	NI	NI	NI	65.5
Basement	Distribution Panel	Boil. RM. POW. PNL. Section 2	NI	NI	NI	65.8
Basement	Distribution	LIGHT.PNL.SHIP.RM D6	NI	NI	NI	72.5

Location	Equipment Type	Equipment Tag	Manufacturer	Rate Amps	Rated Voltage	High Temp
	Panel					
Basement	Distribution Panel	No Tag	NI	NI	NI	76.0
Basement	Distribution Panel	No Tag	NI	NI	NI	68.6
Basement	Distribution Panel	No Tag	Westinghouse	100	120/208	79.0
2nd Floor	Distribution Panel	Main Building South	NI	NI	NI	68.1
2nd Floor	Distribution Panel	EL3	NI	NI	NI	54.6
2nd Floor	Distribution Panel	No Tag	Square D Company	100	208/120	77.5
2nd Floor	Distribution Panel	No Tag	NI	NI	NI	57.8
1st Floor	Distribution Panel	No Tag	Bryant	NI	NI	76.2
1st Floor	Distribution Panel	No Tag	Bryant	NI	NI	74.2
1st Floor	Distribution Panel	No Tag	NI	NI	NI	73.4
1st Floor	Distribution Panel	Wom. Shoe Dept. – Rear From base. Dist. Swbrd	Westinghouse	100	120/208	65.6
1st Floor	Distribution Panel	Wind PNL	Murray	NI	NI	72.9
1st Floor	Distribution Panel	Main Bldg. South – Section 1	General Electric	NI	NI	70.6
1st Floor	Distribution Panel	Main Bldg. South – Section 2	General Electric	NI	NI	70.7
1st Floor	Distribution Panel	D-2-9	General Electric	NI	NI	103.7
1st Floor	Distribution Panel	Prodigy Services	Square D Company	NI	NI	68.9
1st Floor	Distribution Panel	D3-1	Westinghouse	200	120/208	80.6
3rd Floor	Distribution Panel	Panel B section 1	Federal Pacific	225	120/208	76.8
3rd Floor	Distribution Panel	Panel B section 2	Federal Pacific	225	120/208	80.2
3rd Floor	Distribution Panel	Panel A Section 1	Federal Pacific	225	120/208	77.2
3rd Floor	Distribution Panel	Panel A Section 2	Federal Pacific	225	120/208	76.3
3rd Floor	Distribution Panel	No Tag	NI	NI	NI	79.3
3rd Floor	Distribution Panel	Annex North Section 1	NI	NI	NI	80.2
3rd Floor	Distribution Panel	Annex North Section 2	NI	NI	NI	80.9
4th Floor	Distribution Panel	Annex North Section 1	NI	NI	NI	78.5
4th Floor	Distribution Panel	Annex North Section 2	NI	NI	NI	78.4
4th Floor	Distribution	D4-10 Section 1	Westinghouse	225	120/208	89.8

Location	Equipment Type	Equipment Tag	Manufacturer	Rate Amps	Rated Voltage	High Temp
	Panel					
4th Floor	Distribution Panel	D4-10 Section 2	NI	NI	NI	83.4
4th Floor	Distribution Panel	No Tag	NI	NI	NI	78.7
Suite 450	Distribution Panel	No Tag	Westinghouse	200	120/208	73.2
Suite 450	Distribution Panel	No Tag	Siemens	225	240/120	74.2
4th Floor	Distribution Panel	No Tag	I-T-E Panelboard	400	240	81.1
5th Floor	Distribution Panel	No Tag	NI	NI	NI	81.7
5th Floor	Distribution Panel	No Tag	I-T-E Panelboard	100	240	79.2
5th Floor	Distribution Panel	No Tag	Westinghouse	100	120	78.2
5th Floor	Distribution Panel	No Tag	NI	NI	NI	73.5
5th Floor	Distribution Panel	No Tag	Westinghouse	200	120/208	88.7
5th Floor	Distribution Panel	Bridge Bldg North	Westinghouse	200	120/208	77.7
5th Floor	Distribution Panel	Bridge Bldg North	Westinghouse	200	120/208	75.8
5th Floor	Distribution Panel	P1	I-T-E Panelboard	225	240	74.4
5th Floor	Distribution Panel	No Tag	I-T-E Panelboard	100	240	79.0
Suite 535	Distribution Panel	No Tag	Square D Company	NI	NI	79.3
6th Floor	Distribution Panel	No Tag	NI	NI	NI	85.1
6th Floor	Distribution Panel	No Tag	I-T-E Panelboard	400	240	87.9
6th Floor	Distribution Panel	No Tag	I-T-E Panelboard	100	240	84.7
6th Floor	Distribution Panel	No Tag	NI	NI	NI	74.6
6th Floor	Local Disconnects	No Tag	NI	NI	NI	112.1
4th Floor	Distribution Panel	High St. Annex	NI	NI	NI	75.7

NI=No Information

The emergency generator is approximately 40 years old and appears to be in fair to poor condition. Generators of this size and type have an average expected useful life of approximately 25 to 30 years, depending on their maintenance and amount of regular testing and usage, but can be extended with refurbishment/overhaul of the unit. The emergency generator was not operated during our on-site assessment. According to maintenance personnel, the generator is exercised at regular intervals during the year and was last tested. Based on its reported age, current condition, and expected useful life, Short Term Repairs are recommended for replacement of the emergency generator.

	
Federal Pacific Switchgear	Federal Pacific Panelboard
	
Emergency Generator	Disconnects with hot spots

RECOMMENDATIONS

Please see Table 1 for the recommended Immediate Repairs listed below:

- **Retorquing of panels with hotspots by a qualified electrician**
- **Inspection of FPE Electrical Equipment by Licensed Electrician**

Please see Table 1 for the recommended Short Term Repairs listed below:

- **Replace Gas-Fired Emergency Generator (60 kW)**

Please see Table 2 for the recommended Replacement Reserves listed below:

- **Transformer replacement**

2.4 BUILDING & SITE FIRE & LIFE SAFETY

DESCRIPTION

The fire sprinkler water service is supplied to the building underground via Schedule 40 steel four (4)-inch line where it is fed through a backflow preventer; there are two locations on either end of the basement. Sprinkler water distribution is via a steel fire rated piping system throughout the building.

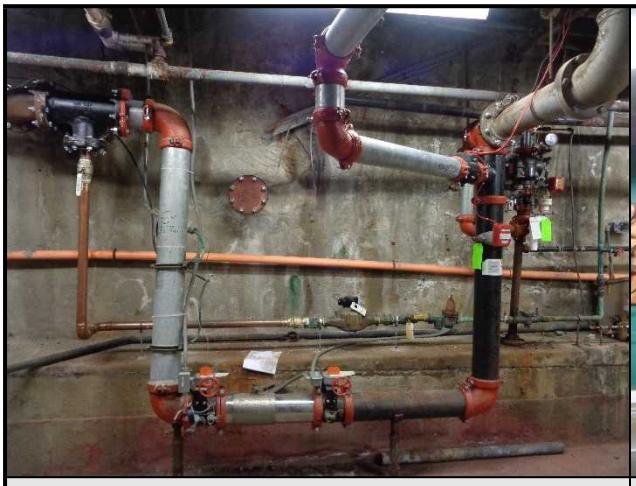
In addition to the two (2) wet sprinkler systems, there is a dry system that serves the store fronts on the 1st floor of the building.

Observed fire and life safety systems serving the building includes Firelite multiple-zone, fire alarm control panel that has an auto-dialer reportedly tying the system to a 24-hour monitoring service, an addressable master fire control panel with interface from remote panels. The fire panel has supervision with network display units located in the first floor lobby. There are remote nodes of the alarm system on each floor, located in the electrical closets.

FIRE AND LIFE SAFETY DEVICES

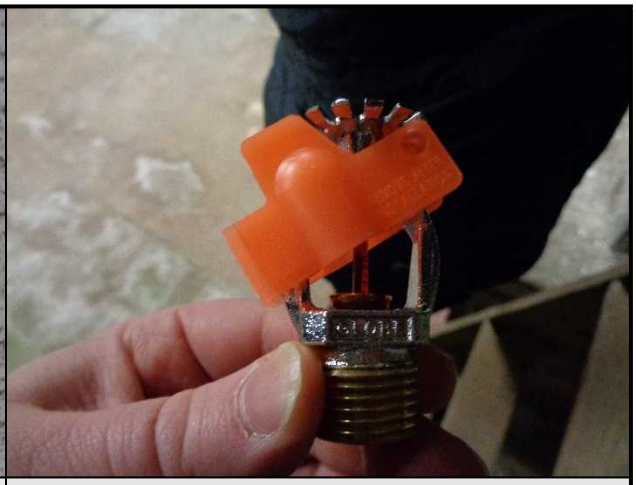
The Subject Property also has hardwired with battery-backup smoke detectors, pull stations at entrances to egress stairways and building entrances, illuminated exit lights with battery-backup along exit paths, emergency battery lighting units in stairways, horn/light annunciators in common area restrooms and corridors, and fire extinguishers spread throughout the tenant spaces, security system with closed circuit TV cameras.

The Subject Property is reportedly equipped with a *Knox* box at the building and a full coverage, wet and dry-pipe sprinkler system with check valves, tamper and flow switches.



Wet Sprinkler System - North

Wet Sprinkler System - South

	
Standard Response Sprinkler head	Spare Fast Response Sprinkler Head
	
Fire Alarm Control Panel	Exit sign, Pull station, Strobe & Horn

OBSERVATIONS

There were no reported or observed problems with the life safety system or configuration. The fire alarm control panels, alarm systems, and sprinkler systems were last tested on December 4, 2018, and appears to be in serviceable condition.

The fire alarm control panel is less than 5 years old, appears to be good condition and in serviceable condition. Based on its reported age, current condition, and expected useful life of approximately 20 to 25 years, Replacement Reserves are not recommended for fire alarm control panel replacement during the analysis term.

The fire extinguishers are reportedly inspected annually, a few of the fire extinguishers have expired inspection tags, but appear to be in serviceable condition. The inspection dates on the fire extinguisher are December, 2018, and April, 2019. Based on the expired inspection tags, repairs are recommended for updating the expired fire extinguisher inspection tags. Subsequent to our site visit, the client

provided evidence of expired fire extinguisher inspection, which is included in the appendices of this Report.

NFPA 25, the standard that sets the inspection, testing and maintenance requirements for sprinkler systems, is used fairly universally across the U.S. Some municipalities also add their own requirements. As part of the standard, sprinkler systems are to be service tested every 5 years. The 5-year system test certification was not observed on the fire riser, and provided sprinkler report did not specify the last known test. Additionally, NFPA 25 also requires that standard response sprinkler heads be tested after 50 years of service. After 50 years of service, standard response sprinkler heads are required to be tested every 10 years. Quick response sprinkler heads are required to be tested after 20 years of service. After 20 years of service, quick response sprinkler heads are required to be tested every 10 years. Based on observed and reported conditions, Immediate Repairs are recommended for the 5-year sprinkler system test be performed if relevant documentation cannot be provided identifying the most recent tests.

The emergency exit doors and panic hardware appear to be in serviceable condition. The doors are to swing-open into the direction of emergency egress. Based on observed and reported conditions, replacement reserves are not recommended at this time.

Illuminated exit signs are located at the entry doors to the emergency exits and appear to be in serviceable condition. The exit signs are recommended for annual inspection, and inoperative lamps replaced as required as part of operations budget operations.

Expired Wet Sprinkler System Inspection

Expired Fire Extinguisher Inspection

RECOMMENDATIONS

Please see Table 1 for the recommended Immediate Repairs listed below:

- **NFPA 25 – Sprinkler System 5 Year Test**

Please see Table 1 for the recommended Short Term Repairs listed below:

- **None**

Please see Table 2 for the recommended Replacement Reserves listed below:

- **None**

3.0 REFERENCES

3.1 CONTACTS

DESCRIPTION

A number of sources were contacted during the preparation of this *Report*. The following individuals were interviewed for information concerning the Subject Property. Documentation applicable to the Subject Property was requested and reviewed when and where available and/or reasonably ascertainable. Individuals listed without phone numbers were contacted in person or by e-mail.

REFERENCES				
RESOURCE	**CONTACT**	**INFORMATION PROVIDED**	**PHONE OR WEB**	**DATE**
Property Maintenance Manager, *Glickman Kovago & Jacobs*	Mr. Doug Morris	Overall condition and maintenance, Deferred Maintenance items.	508-769-8312	
Fire sprinkler service company	Mammoth Fire Protection, Inc	Date of last inspection	978-369-1111	

3.2 SUBJECT PROPERTY DRAWINGS REVIEWED

DESCRIPTION

The following table lists the drawings provided or obtained for review. From a cursory review of the drawings, general information was gleaned regarding the Subject Property. Further review or analysis of additional drawings may be warranted during your due diligence period, as an in-depth review and analysis of the drawings is beyond this scope of work.

SUBJECT PROPERTY DRAWINGS REVIEWED				
DRAWING #	**DATE**	**DRAWING DISCIPLINE**	**ARCHITECT/ ENGINEER FIRM NAME**	**COMMENTS**
No Drawings Provided	1/8/2019			No Drawings Provided

Table 1 - Immediate and Short Term Repairs

484 Main Street		**Site Survey Date:**	1/8/2020	**Building Area:**	200,000
484 Main Street		**Report Date:**	1/16/2020	**Number of Units:**	1
Worcester, MA		**Property Type:**	Office	**Property Age:**	140
EBI Project #	**1319000663**	**Number of Buildings:**	1	**Analysis Term:**	10
		Number of Floors:	6		

SECTION NUMBER	*SECTION NAME*	*RECOMMENDED WORK*	*QUANTITY*	*UNIT COST*	*Markup for Contingency, Permits, Overhead/Profit, General Conditions, etc.*	*UNIT COST (Including Markup)*	*UNIT DESCRIPTION*	*ESTIMATED IMMEDIATE REPAIR COST*	*Short Term Repair?*	*ESTIMATED SHORT TERM REPAIR COST*	COMMENTS OR ADDITIONAL DESCRIPTION
2.0	**BUILDING SYSTEMS**										
2.1	Plumbing	Water heater catch pan installation	2	$385.70	20.0%	$462.84	each	$925.68			Catch pans were noted missing on two water heaters.
2.1	Plumbing	Evaluation of galvanized supply piping by qualified professional	1	$2,500.00	20.0%	$3,000.00	Each	$3,000.00			It is recommended that the domestic galvanized water piping be evaluated by a qualified professional to assess its current condition, identify repair needs, and provide an estimate of its remaining useful life as an Immediate Repair.
2.1	Plumbing	Evaluation of steam piping by qualified professional	1	$5,000.00	20.0%	$6,000.00		$6,000.00			Steam piping appeared to be in poor condition in the basement. Significant corrosion was observed.
2.1	Plumbing	Evaluation of sanitary piping by qualified professional	1	$5,000.00	20.0%	$6,000.00	#N/A	$6,000.00			Sanitary piping appeared to be in poor condition in the basement. Significant corrosion was observed.
2.2	HVAC	Replace R-410a air cooled condensing unit (3.0 - 4.5 tons)	2	$4,550.65	20.0%	$5,460.78	each	$10,921.57			Units are past their EUL and in poor condition
2.2	HVAC	Replace R-410a air cooled condensing unit (5.0 - 7.0 tons)	1	$5,320.68	20.0%	$6,384.81	each	$6,384.81			Unit is past its EUL and in poor condition
2.2	HVAC	Replace R-410a air-cooled condensing unit (10.0 - 14.5 tons)	1	$10,301.72	20.0%	$12,362.06	each	$12,362.06			Unit is past its EUL and in poor condition
2.2	HVAC	Replace R-410a air cooled condensing unit (15.0 - 19.5 tons)	2	$11,290.76	20.0%	$13,548.91	each	$27,097.83			Units are past their EUL and in poor condition
2.2	HVAC	Replace self contained air handler (10 ton)	6	$14,815.29	20.0%	$17,778.35	each	$106,670.07			Units are past their EUL and in poor condition
2.2	HVAC	Replace self contained air handler (12 ton)	2	$17,019.29	20.0%	$20,423.15	each	$40,846.29			Units are past their EUL and in poor condition
2.2	HVAC	Replace AHU (3000 CFM) - Built Up Indoor Unit, Single Zone, Constant Volume	1	$13,190.94	20.0%	$15,829.13	each	$15,829.13			Unit is past its EUL and in poor condition
2.2	HVAC	Replace AHU (4000 CFM) - Built Up Indoor Unit, Single Zone, Constant Volume	1	$15,477.59	20.0%	$18,573.11	each	$18,573.11			Unit is past its EUL and in poor condition
2.2	HVAC	Replace rooftop package unit (12.5-ton) - DX, Single Zone	1	$31,110.01	20.0%	$37,332.01	each	$37,332.01			Unit is past its EUL and in poor condition
2.2	HVAC	Replace rooftop package unit (15-ton) - DX, Single Zone	1	$33,975.21	20.0%	$40,770.25	each	$40,770.25			Unit is past its EUL and in poor condition
2.2	HVAC	Replace gas/oil-fired steam boiler (3770 MBH)	1	$177,689.79	20.0%	$213,227.74	Each	$213,227.74			Leak was noted on the operating boiler. Due to age and current condition, immediate repairs are recommended.
2.2	HVAC	Licensed Engineering firm to provide feasibility and cost to replace the boiler	1	$7,500.00	20.0%	$9,000.00	#N/A	$9,000.00			Immediate Repairs are recommended to engage a licensed Engineering firm to evaluate the conversion of the current oil-fired steam boiler to a natural gas steam boiler and provide feasibility and cost to replace the boiler.
2.3	Electric	Inspection of FPE electrical equipment by licensed electrical contractor	1	$5,000.00	20.0%	$6,000.00	Each	$6,000.00			EBI recommends that a licensed electrician be engaged to inspect the main Federal Pacific Electric switchboards and distribution panels and provide recommendations regarding the equipment in regards to repair/replacement. Costs for the inspection are included as an Immediate Repair item.
2.3	Electric	Inspection electrical equipment by licensed electrical contractor	1	$3,000.00	20.0%	$3,600.00	#N/A	$3,600.00			EBI observed that panels and local disconnects (identified in red in the table of the report) appear to need retorquing and tightening to ensure proper connections due to above normal temperatures. Immediate Repairs are recommended for retorquing of these panels and disconnects by a qualified electrician.
2.3	Electric	Gas-Fired Emergency Generator (60 kW)	1	$31,489.65	20.0%	$37,787.58	each		✔	$37,787.58	Unit is past its EUL and in fair to poor condition
2.4	F/L Safety	Sprinkler system 5 year test	1	$4,500.00	20.0%	$5,400.00	Each	$5,400.00			NFPA 25 - 5 year test - Site contact did not have knowledge of the last time the test was performed.
							DEFERRED MAINTENANCE:	**IMMEDIATE**		**SHORT TERM**	
								$569,941		**$37,788**	
							TOTAL:	**$607,728**			

TABLE 2 - REPLACEMENT RESERVES

484 Main Street
484 Main Street
Worcester, MA
EBI Project # **1319000663**

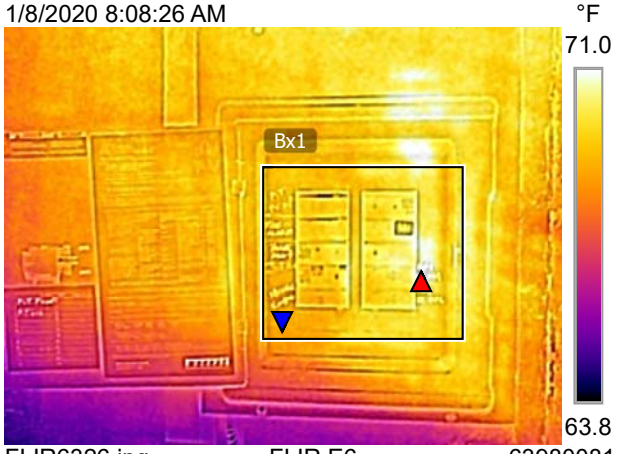
Site Survey Date: 1/8/2020
Report Date: 1/16/2020
Property Type: Office
Number of Buildings: 1
Number of Floors: 6

Building Area: 200,000
Number of Units: 1
Property Age: 140
Analysis Term: 10

SECTION NUMBER	SECTION NAME	RECOMMENDED WORK	AVERAGE EFFECTIVE USEFUL LIFE	EFFECTIVE AGE	REMAINING USEFUL LIFE	TOTAL QUANTITY OVER TERM	APPROXIMATE QUANTITY PER YEAR	UNIT COST (adjusted by location factor)	Markup for Contingency, Permits, Overhead/Profit, General Conditions, etc.	UNIT COST (Including Markup)	UNIT DESCRIPTION	ESTIMATED COST PER YEAR	Annual Costs 2020 YEAR 1	2021 YEAR 2	2022 YEAR 3	2023 YEAR 4	2024 YEAR 5	2025 YEAR 6	2026 YEAR 7	2027 YEAR 8	2028 YEAR 9	2029 YEAR 10	RECOMMENDED TOTAL OVER THE TERM
2.0	**BUILDING SYSTEMS**																							
2.1	Plumbing	Plumbing fixture replacement	20	var		1	2	$3,500.00	20.0%	$4,200.00	each	$8,400		8,400	8,400	8,400	8,400							$33,600
2.1	Plumbing	Replace instant point of use electric water heater (1-19 gal.)	15	13	2	1	3	$834.82	20.0%	$1,001.78	each	$3,005		3,005										$3,005
2.1	Plumbing	Replace instant point of use electric water heater (1-19 gal.)	15	8	7	1	1	$834.82	20.0%	$1,001.78	each	$1,002							1,002					$1,002
2.1	Plumbing	Replace residential electric water heater (50 gal.)	15	10	5	1	1	$2,119.26	20.0%	$2,543.11	each	$2,543					2,543							$2,543
2.1	Plumbing	Replace instant point of use electric water heater (20 - 29 gal.)	15	13	2	1	1	$954.17	20.0%	$1,145.00	each	$1,145		1,145										$1,145
2.1	Plumbing	Replace instant point of use electric water heater (20 - 29 gal.)	15	10	5	1	1	$954.17	20.0%	$1,145.00	each	$1,145					1,145							$1,145
2.2	HVAC	Replace R-410a air cooled condensing unit (5.0 - 7.0 tons)	16	7	9	1	1	$5,320.68	20.0%	$6,384.81	each	$6,385										6,385		$6,385
2.2	HVAC	Replace Cooling Tower (250 ton)	25	21	4	1	1	$76,245.18	20.0%	$91,494.21	each	$91,494				91,494								$91,494
2.2	HVAC	Replace Pump (5" size, 25 HP, to 1,550 GPM) In-line - End Section	25	21	4	2	2	$14,635.66	20.0%	$17,562.79	each	$35,126				35,126								$35,126
2.3	Electric	Replace electrical transformer 1000 KVA	45	var	var	2	1	$82,032.88	20.0%	$98,439.46	each	$98,439		98,439	98,439									$196,879
2.4	F/L Safety	None							20.0%															
											ANNUAL RECOMMENDATIONS, UNINFLATED			110,990	106,839	135,020	12,088		1,002		6,385		**$372,324**
											INFLATION FACTOR, IN PERCENTAGE 1.030		100.00%	103.00%	106.09%	109.27%	112.55%	115.93%	119.41%	122.99%	126.68%	130.48%	
											ANNUAL RECOMMENDATIONS, INFLATED @ 3.00% AFTER YEAR ONE			**$114,320**	**$113,346**	**$147,540**	**$13,605**		**$1,196**		**$8,088**		**$398,095**
Notes:																							**PRESENT VALUE OF RECOMMENDED TOTAL ANNUAL RESERVES PER SF PER YEAR**	**$0.19**
1.																							***INFLATED VALUE OF RECOMMENDED TOTAL ANNUAL RESERVES PER SF PER YEAR***	***$0.20***
Notes:																							**PRESENT VALUE OF RECOMMENDED TOTAL ANNUAL RESERVES PER UNIT PER YEAR**	**$37,232**
1.																							***INFLATED VALUE OF RECOMMENDED TOTAL ANNUAL RESERVES PER UNIT PER YEAR***	***$39,809***

APPENDIX A – IR SURVEY

1/8/2020 8:08:26 AM



FLIR6326.jpg FLIR E6 63980081

Measurements

Bx1	Max	71.1 °F
	Min	69.2 °F
	Average	69.9 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 8:08:26 AM

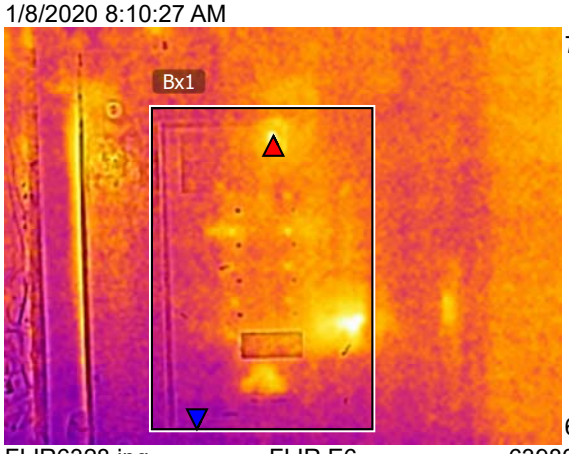
FLIR6326.jpg FLIR E6 63980081

Distribution Panel - No Tag (Basement)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:10:27 AM



FLIR6328.jpg FLIR E6 63980081

1/8/2020 8:10:27 AM

FLIR6328.jpg FLIR E6 63980081

Measurements

Bx1	Max	71.3 °F
	Min	66.7 °F
	Average	67.9 °F

Parameters

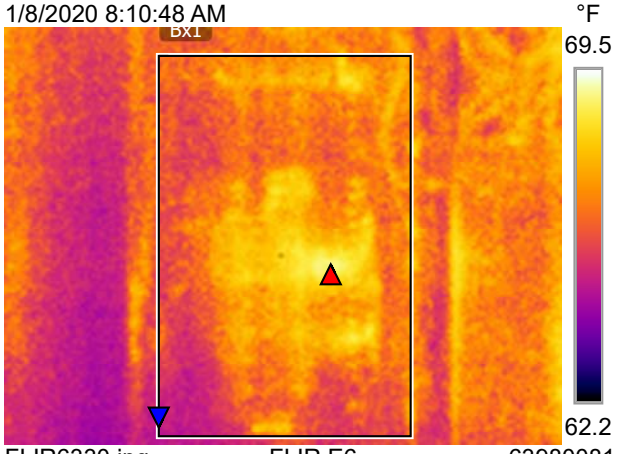
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Basement)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:10:48 AM



FLIR6330.jpg FLIR E6 63980081

1/8/2020 8:10:48 AM

FLIR6330.jpg FLIR E6 63980081

Measurements

Bx1	Max	68.7 °F
	Min	65.9 °F
	Average	66.9 °F

Parameters

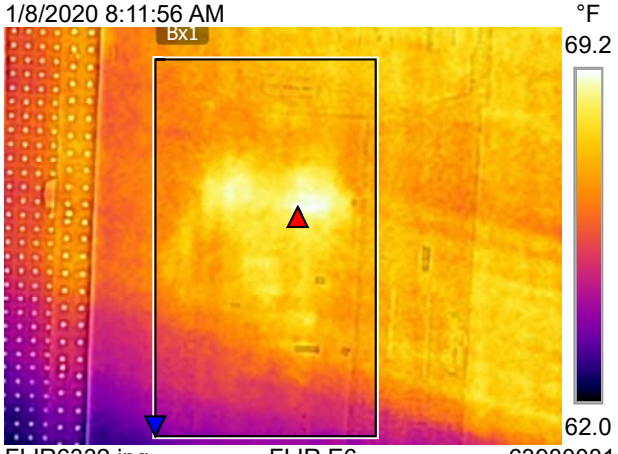
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Basement)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:11:56 AM



FLIR6332.jpg FLIR E6 63980081

1/8/2020 8:11:56 AM

FLIR6332.jpg FLIR E6 63980081

Measurements

Bx1	Max	69.5 °F
	Min	64.0 °F
	Average	67.1 °F

Parameters

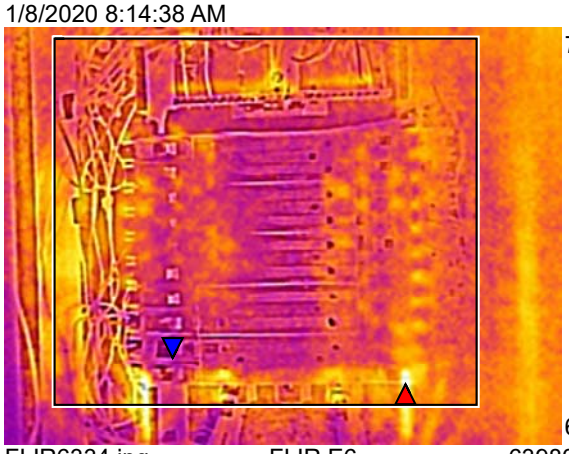
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Basement)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:14:38 AM



FLIR6334.jpg FLIR E6 63980081

1/8/2020 8:14:38 AM

FLIR6334.jpg FLIR E6 63980081

Measurements

Bx1	Max	71.5 °F
	Min	66.5 °F
	Average	67.3 °F

Parameters

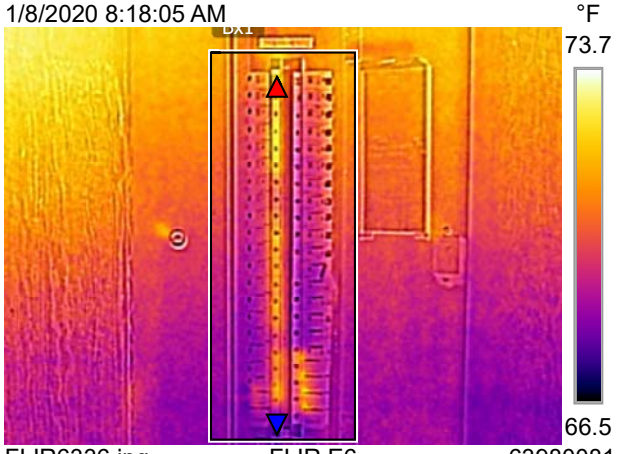
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Basement)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:18:05 AM



FLIR6336.jpg FLIR E6 63980081

1/8/2020 8:18:05 AM

FLIR6336.jpg FLIR E6 63980081

Measurements

Bx1	Max	72.1 °F
	Min	68.4 °F
	Average	70.0 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Basement)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:20:43 AM

FLIR6338.jpg FLIR E6 63980081

Measurements

Bx1	Max	75.3 °F
	Min	72.5 °F
	Average	73.7 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 8:20:43 AM

FLIR6338.jpg FLIR E6 63980081

Main Switchgear SD1 Section 1

The surface temperatures recorded at the switchgear fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:20:48 AM

FLIR6340.jpg FLIR E6 63980081

Measurements

Bx1	Max	74.3 °F
	Min	71.6 °F
	Average	72.9 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 8:20:48 AM

FLIR6340.jpg FLIR E6 63980081

Main Switchgear SD1 Section 1

The surface temperatures recorded at the switchgear fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:20:54 AM

FLIR6342.jpg FLIR E6 63980081

1/8/2020 8:20:54 AM

FLIR6342.jpg FLIR E6 63980081

Measurements

Bx1	Max	106.0 °F
	Min	71.9 °F
	Average	93.1 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Switchgear 1 - PE Xformer

The surface temperatures recorded at this transformer fall within the safe temperature range.

Tranformers are typically labeled with standard temperature rises of 80°C (176°F), 115°C (239°F), or 150°C (302°F), which is the temperature rise above ambient conditions which the transformer is rated to. The transformers in the electrical room appear to be below the typical temperature range.

1/8/2020 8:21:26 AM

FLIR6344.jpg FLIR E6 63980081

Measurements

Bx1	Max	80.8 °F
	Min	69.6 °F
	Average	73.6 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 8:21:26 AM

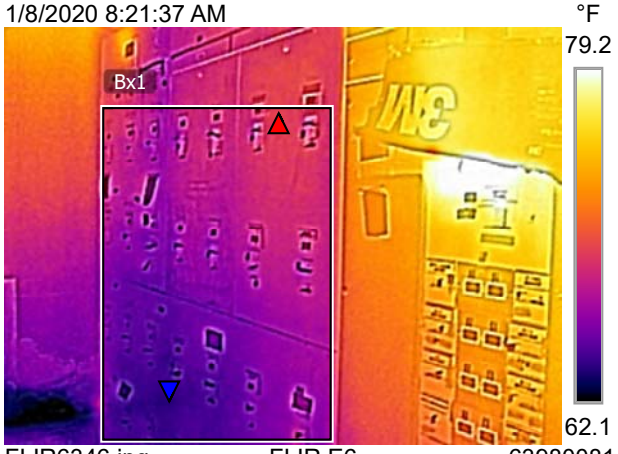
FLIR6344.jpg FLIR E6 63980081

Main Electrical Panel - D1 Section 1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:21:37 AM



FLIR6346.jpg FLIR E6 63980081

1/8/2020 8:21:37 AM

FLIR6346.jpg FLIR E6 63980081

Measurements

Bx1	Max	70.3 °F
	Min	65.8 °F
	Average	68.3 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Main Electrical Panel - D1 Section 2

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:21:47 AM

FLIR6348.jpg FLIR E6 63980081

Measurements

Bx1	Max	88.9 °F
	Min	63.6 °F
	Average	79.3 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 8:21:47 AM

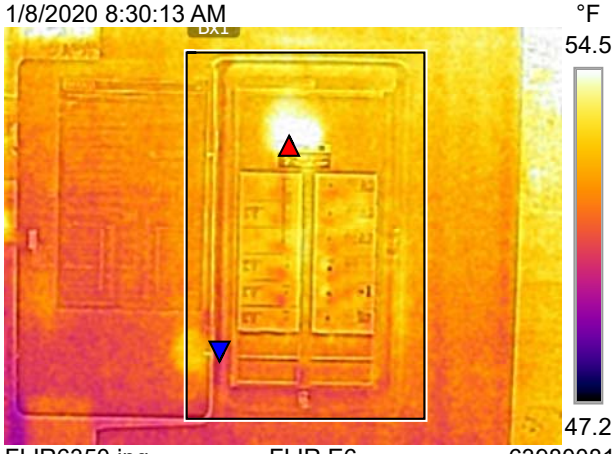
FLIR6348.jpg FLIR E6 63980081

Electrical Room 1 - Westinghouse Xformer

The surface temperatures recorded at this transformer fall within the safe temperature range.

Tranformers are typically labeled with standard temperature rises of 80°C (176°F), 115°C (239°F), or 150°C (302°F), which is the temperature rise above ambient conditions which the transformer is rated to. The transformers in the electrical room appear to be below the typical temperature range.

1/8/2020 8:30:13 AM



FLIR6350.jpg FLIR E6 63980081

1/8/2020 8:30:13 AM

FLIR6350.jpg FLIR E6 63980081

Measurements

Bx1	Max	55.6 °F
	Min	51.3 °F
	Average	52.7 °F

Parameters

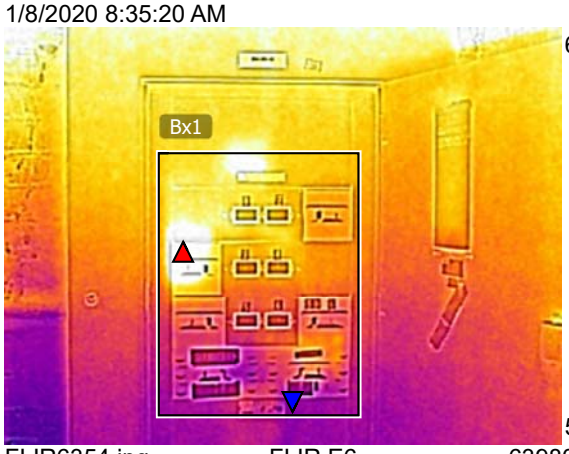
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Basement)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:35:20 AM



FLIR6354.jpg FLIR E6 63980081

1/8/2020 8:35:20 AM

FLIR6354.jpg FLIR E6 63980081

Measurements

Bx1	Max	66.2 °F
	Min	58.2 °F
	Average	61.0 °F

Parameters

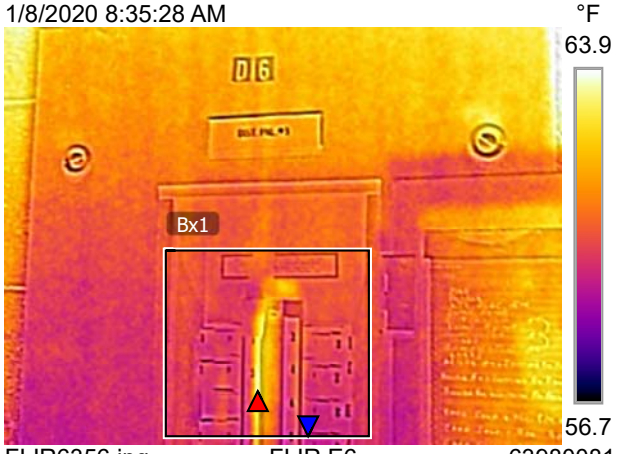
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - D5

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:35:28 AM



FLIR6356.jpg FLIR E6 63980081

1/8/2020 8:35:28 AM

FLIR6356.jpg FLIR E6 63980081

Measurements

Bx1	Max	63.5 °F
	Min	60.0 °F
	Average	60.9 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - D6

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:35:36 AM

FLIR6358.jpg FLIR E6 63980081

1/8/2020 8:35:36 AM

FLIR6358.jpg FLIR E6 63980081

Measurements

Bx1	Max	64.2 °F
	Min	59.0 °F
	Average	60.5 °F

Parameters

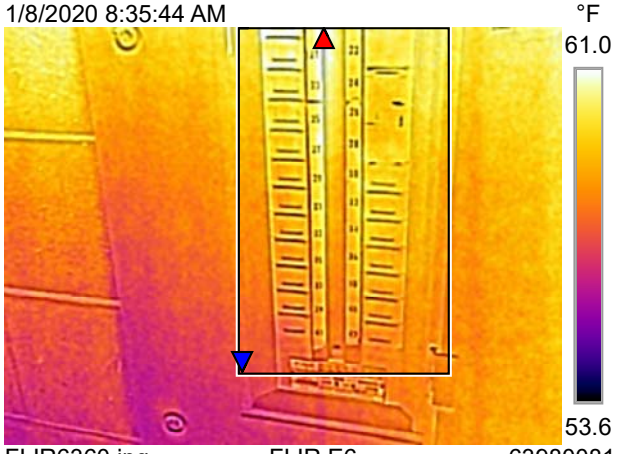
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - D6

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:35:44 AM



FLIR6360.jpg FLIR E6 63980081

1/8/2020 8:35:44 AM

FLIR6360.jpg FLIR E6 63980081

Measurements

Bx1	Max	61.3 °F
	Min	57.8 °F
	Average	59.3 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - D6

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:35:59 AM

FLIR6362.jpg FLIR E6 63980081

1/8/2020 8:35:59 AM

FLIR6362.jpg FLIR E6 63980081

Measurements

Bx1	Max	61.5 °F
	Min	52.5 °F
	Average	59.2 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Switchgear - SD4

The surface temperatures recorded at the switchgear fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:36:11 AM

FLIR6364.jpg FLIR E6 63980081

1/8/2020 8:36:11 AM

FLIR6364.jpg FLIR E6 63980081

Measurements

Bx1	Max	97.5 °F
	Min	63.7 °F
	Average	86.6 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Switchgear 2 - PE Xformer

The surface temperatures recorded at this transformer fall within the safe temperature range.

Tranformers are typically labeled with standard temperature rises of 80°C (176°F), 115°C (239°F), or 150°C (302°F), which is the temperature rise above ambient conditions which the transformer is rated to. The transformers in the electrical room appear to be below the typical temperature range.

1/8/2020 8:36:25 AM

FLIR6366.jpg FLIR E6 63980081

1/8/2020 8:36:25 AM

FLIR6366.jpg FLIR E6 63980081

Measurements

Bx1	Max	78.9 °F
	Min	64.2 °F
	Average	65.6 °F

Parameters

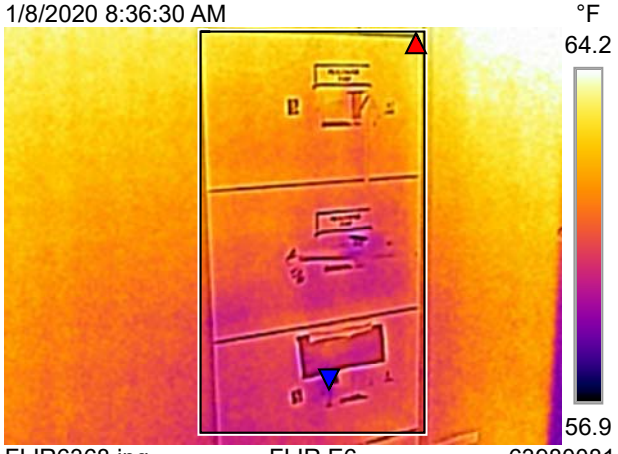
Emissivity	0.95
Refl. temp.	68 °F

Main Electrical Panel - D4 Section 1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:36:30 AM



FLIR6368.jpg FLIR E6 63980081

1/8/2020 8:36:30 AM

FLIR6368.jpg FLIR E6 63980081

Measurements

Bx1	Max	63.8 °F
	Min	59.5 °F
	Average	61.6 °F

Parameters

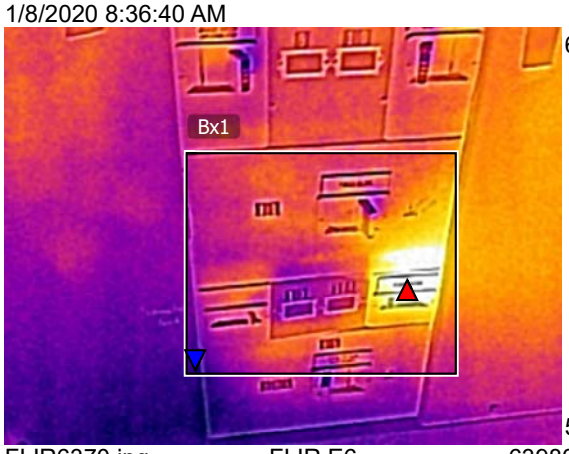
Emissivity	0.95
Refl. temp.	68 °F

Main Electrical Panel - D4 Section 2

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:36:40 AM



FLIR6370.jpg FLIR E6 63980081

1/8/2020 8:36:40 AM

FLIR6370.jpg FLIR E6 63980081

Measurements

Bx1	Max	72.5 °F
	Min	58.7 °F
	Average	61.8 °F

Parameters

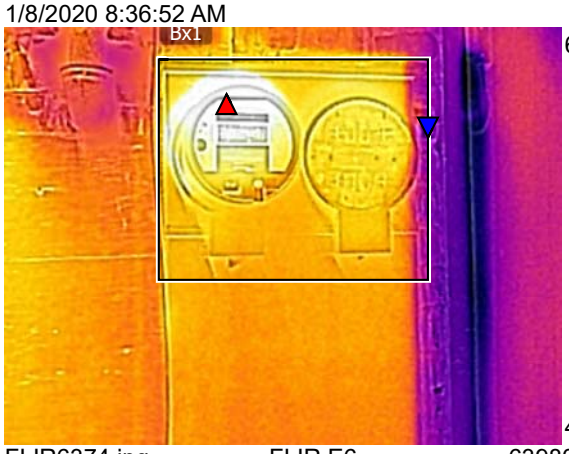
Emissivity	0.95
Refl. temp.	68 °F

Main Electrical Panel - D4 Section 3

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:36:52 AM



FLIR6374.jpg FLIR E6 63980081

1/8/2020 8:36:52 AM

FLIR6374.jpg FLIR E6 63980081

Measurements

Bx1	Max	65.2 °F
	Min	50.9 °F
	Average	58.6 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Electric Meter 2

The surface temperatures recorded at the electric meter fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:47:30 AM

FLIR6376.jpg FLIR E6 63980081

1/8/2020 8:47:30 AM

FLIR6376.jpg FLIR E6 63980081

Measurements

Bx1	Max	87.2 °F
	Min	64.6 °F
	Average	72.8 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Local Disconnects - Basement

The surface temperatures recorded at the disconnects fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:47:44 AM

FLIR6378.jpg FLIR E6 63980081

Measurements

Bx1	Max	93.5 °F
	Min	63.9 °F
	Average	71.0 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 8:47:44 AM

FLIR6378.jpg FLIR E6 63980081

Local Disconnects - Basement

The surface temperatures recorded at the electrical panel DO NOT fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:47:49 AM

FLIR6380.jpg FLIR E6 63980081

Measurements

Bx1	Max	99.3 °F
	Min	72.0 °F
	Average	78.3 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 8:47:49 AM

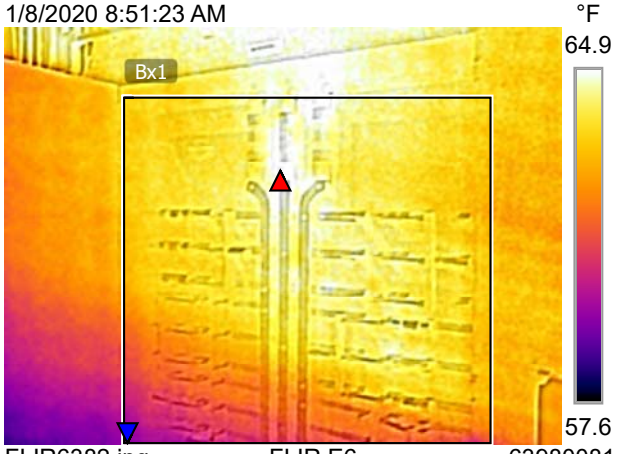
FLIR6380.jpg FLIR E6 63980081

Local Disconnects - Basement

The surface temperatures recorded at the disconnects DO NOT fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:51:23 AM



FLIR6382.jpg FLIR E6 63980081

1/8/2020 8:51:23 AM

FLIR6382.jpg FLIR E6 63980081

Measurements

Bx1	Max	65.5 °F
	Min	59.7 °F
	Average	63.7 °F

Parameters

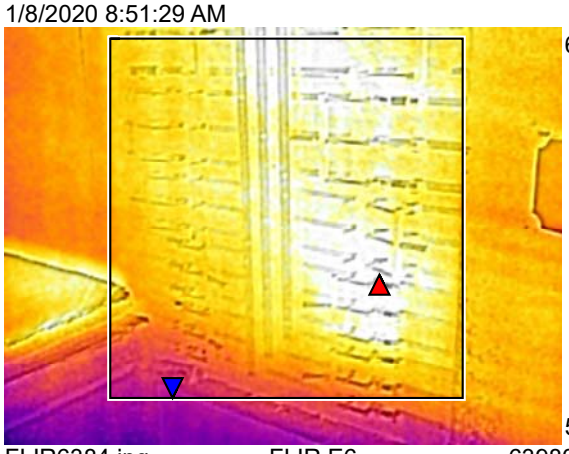
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - Boil. RM. POW. PNL. Section 1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:51:29 AM



FLIR6384.jpg FLIR E6 63980081

1/8/2020 8:51:29 AM

FLIR6384.jpg FLIR E6 63980081

Measurements

Bx1	Max	65.8 °F
	Min	58.9 °F
	Average	62.7 °F

Parameters

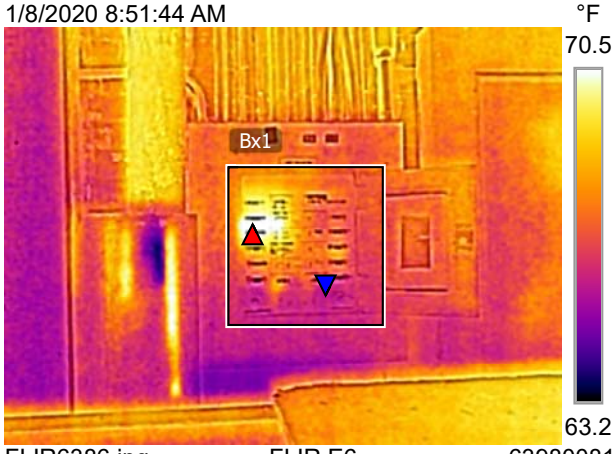
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - Boil. RM. POW. PNL. Section 2

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:51:44 AM



FLIR6386.jpg FLIR E6 63980081

1/8/2020 8:51:44 AM

FLIR6386.jpg FLIR E6 63980081

Measurements

Bx1	Max	72.5 °F
	Min	66.6 °F
	Average	67.7 °F

Parameters

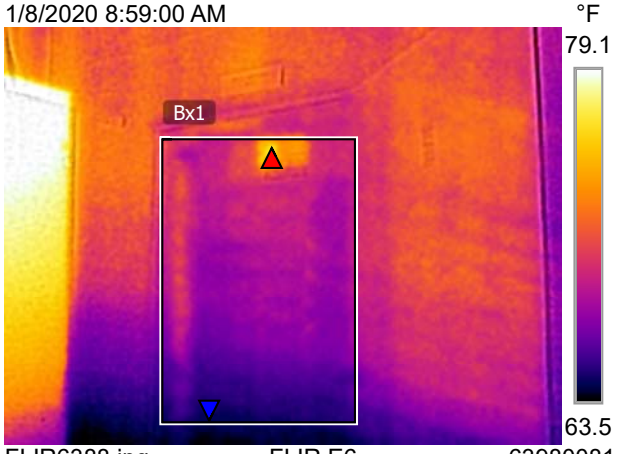
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - LIGHT.PNL.SHIP.RM D6

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:59:00 AM



FLIR6388.jpg FLIR E6 63980081

1/8/2020 8:59:00 AM

FLIR6388.jpg FLIR E6 63980081

Measurements

Bx1	Max	76.0 °F
	Min	64.3 °F
	Average	67.2 °F

Parameters

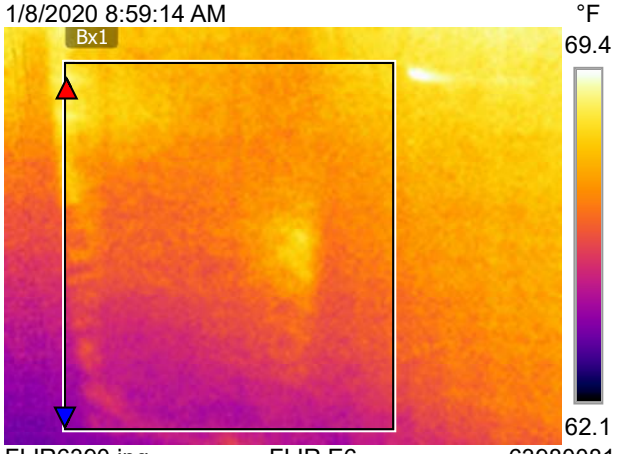
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Basement)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 8:59:14 AM



FLIR6390.jpg FLIR E6 63980081

1/8/2020 8:59:14 AM

FLIR6390.jpg FLIR E6 63980081

Measurements

Bx1	Max	68.6 °F
	Min	64.9 °F
	Average	66.7 °F

Parameters

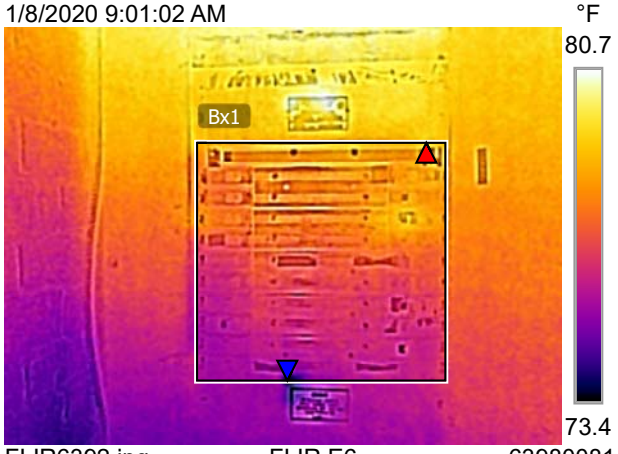
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Basement)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:01:02 AM



FLIR6392.jpg FLIR E6 63980081

1/8/2020 9:01:02 AM

FLIR6392.jpg FLIR E6 63980081

Measurements

Bx1	Max	79.0 °F
	Min	73.3 °F
	Average	77.3 °F

Parameters

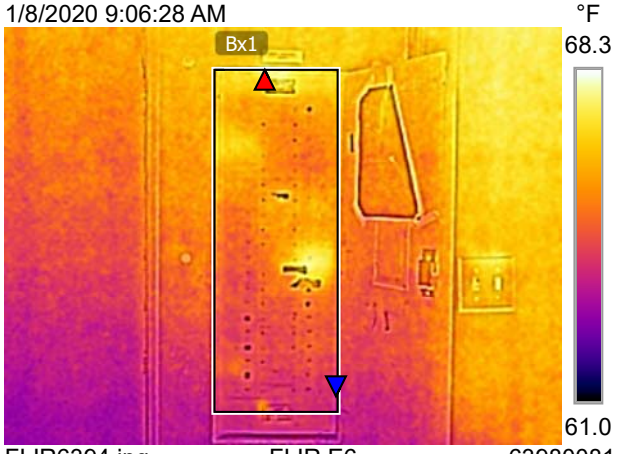
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Basement)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:06:28 AM



FLIR6394.jpg FLIR E6 63980081

Measurements

Bx1	Max	68.1 °F
	Min	64.8 °F
	Average	65.9 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 9:06:28 AM

FLIR6394.jpg FLIR E6 63980081

Distribution Panel - 2nd Floor Main Bldg South

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:24:57 AM

FLIR6398.jpg FLIR E6 63980081

Measurements

Bx1	Max	54.6 °F
	Min	49.2 °F
	Average	52.1 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 9:24:57 AM

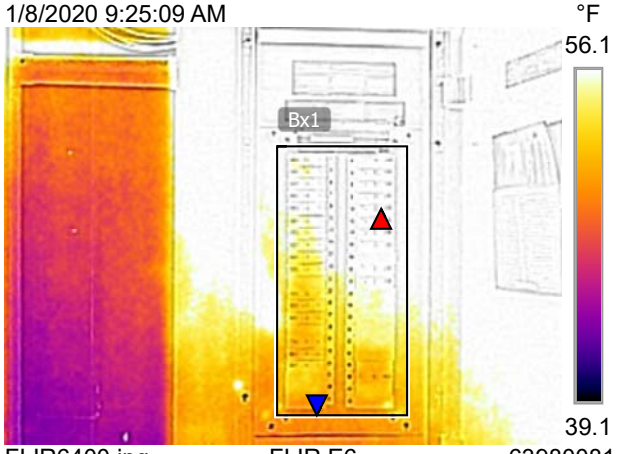
FLIR6398.jpg FLIR E6 63980081

Distribution Panel - EL3 2nd Floor

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:25:09 AM



FLIR6400.jpg FLIR E6 63980081

1/8/2020 9:25:09 AM

FLIR6400.jpg FLIR E6 63980081

Measurements

Bx1	Max	77.5 °F
	Min	54.0 °F
	Average	56.4 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (2nd Floor)

The surface temperatures recorded at the electrical panel DO NOT fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air

1/8/2020 9:25:22 AM

FLIR6402.jpg FLIR E6 63980081

1/8/2020 9:25:22 AM

FLIR6402.jpg FLIR E6 63980081

Measurements

Bx1	Max	57.8 °F
	Min	55.2 °F
	Average	56.3 °F

Parameters

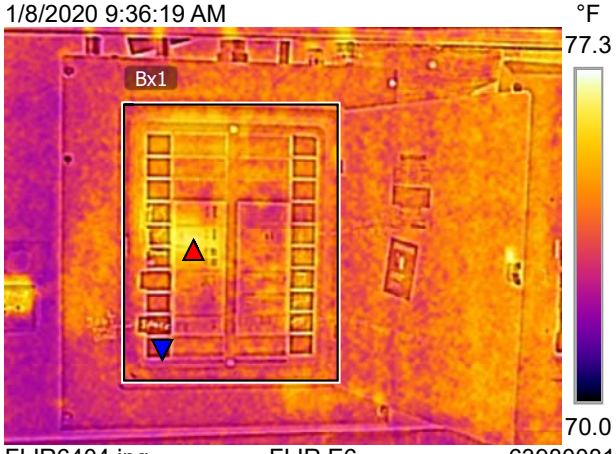
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (2nd Floor WBES)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:36:19 AM



FLIR6404.jpg FLIR E6 63980081

1/8/2020 9:36:19 AM

FLIR6404.jpg FLIR E6 63980081

Measurements

Bx1	Max	76.2 °F
	Min	73.7 °F
	Average	74.3 °F

Parameters

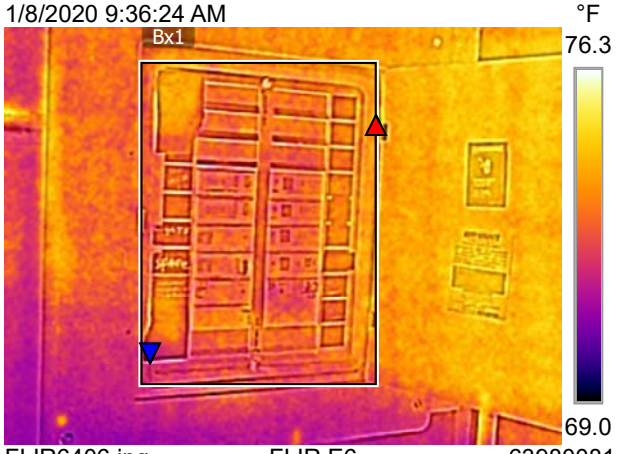
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (1st Floor)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:36:24 AM



FLIR6406.jpg FLIR E6 63980081

1/8/2020 9:36:24 AM

FLIR6406.jpg FLIR E6 63980081

Measurements

Bx1	Max	74.2 °F
	Min	72.8 °F
	Average	73.4 °F

Parameters

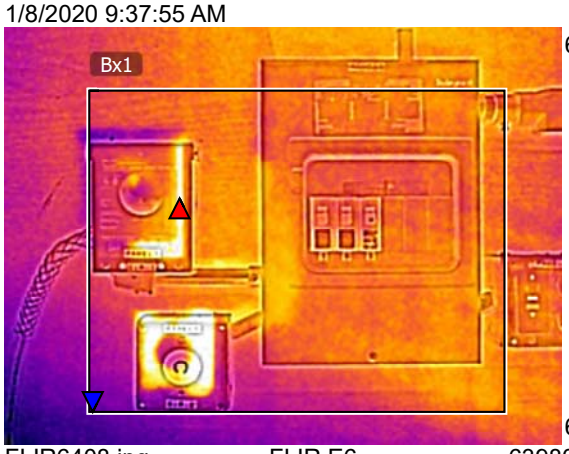
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (1st Floor)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:37:55 AM



FLIR6408.jpg FLIR E6 63980081

1/8/2020 9:37:55 AM

FLIR6408.jpg FLIR E6 63980081

Measurements

Bx1	Max	73.4 °F
	Min	63.5 °F
	Average	65.8 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (1st Floor)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA recommend immediate repairs when the temperature difference (ΔT) between a component and the ambient air exceeds 20°F and 7° between similar components adjacent to one another.

1/8/2020 9:38:23 AM

FLIR6410.jpg FLIR E6 63980081

1/8/2020 9:38:23 AM

FLIR6410.jpg FLIR E6 63980081

Measurements

Bx1	Max	65.6 °F
	Min	62.2 °F
	Average	63.6 °F

Parameters

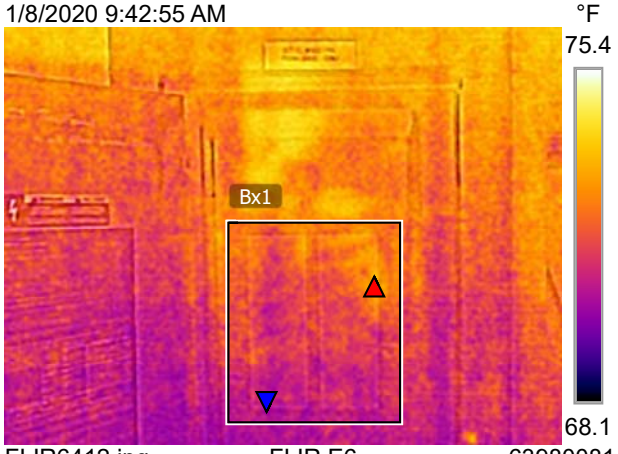
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - Light. PNL. - 1st Fl. Wom. Shoe Dept. - Rear From base. Dist. Swbrd.

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:42:55 AM



FLIR6412.jpg FLIR E6 63980081

1/8/2020 9:42:55 AM

FLIR6412.jpg FLIR E6 63980081

Measurements

Bx1	Max	72.9 °F
	Min	71.5 °F
	Average	72.1 °F

Parameters

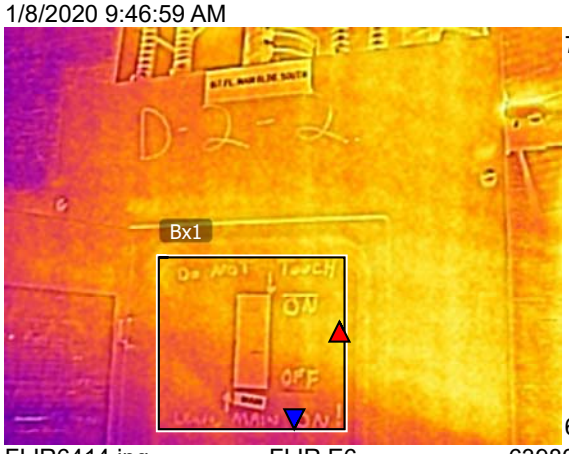
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - 1st Fl. Wind PNL

The surface temperatures recorded at the The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:46:59 AM



°F
72.0
64.7

FLIR6414.jpg FLIR E6 63980081

1/8/2020 9:46:59 AM

FLIR6414.jpg FLIR E6 63980081

Measurements

Bx1	Max	70.6 °F
	Min	68.6 °F
	Average	69.7 °F

Parameters

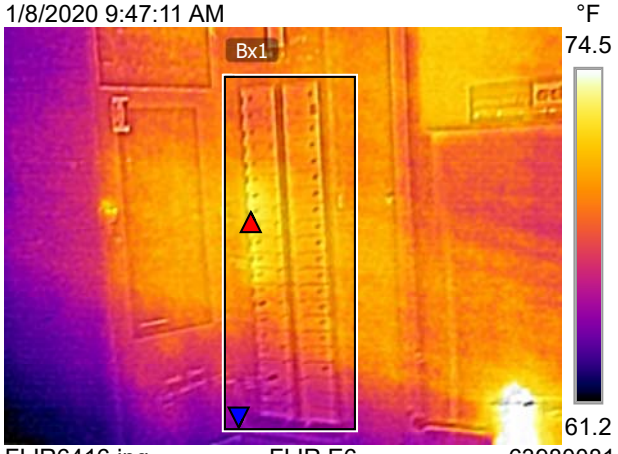
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - 1st Fl. Main Bldg. South - section 1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:47:11 AM



FLIR6416.jpg FLIR E6 63980081

Measurements

Bx1	Max	70.7 °F
	Min	64.9 °F
	Average	67.7 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 9:47:11 AM

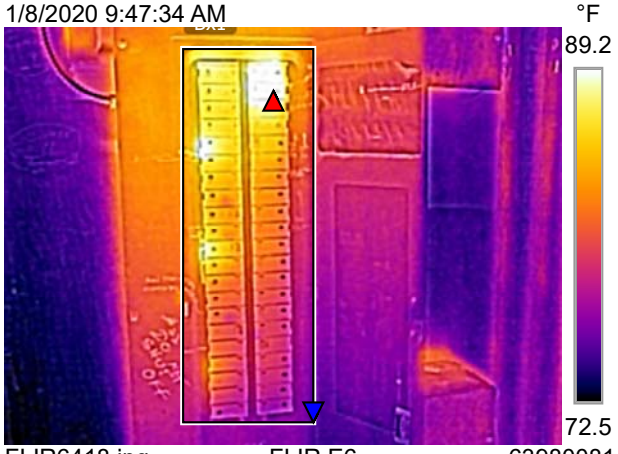
FLIR6416.jpg FLIR E6 63980081

Distribution Panel - 1st Fl. Main Bldg. South - section 2

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:47:34 AM



FLIR6418.jpg FLIR E6 63980081

1/8/2020 9:47:34 AM

FLIR6418.jpg FLIR E6 63980081

Measurements

Bx1	Max	103.7 °F
	Min	74.2 °F
	Average	79.7 °F

Parameters

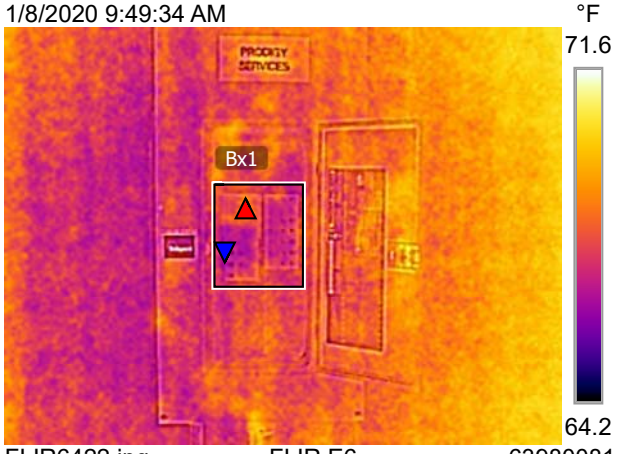
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - D-2-9

The surface temperatures recorded at the electrical panel DO NOT fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 9:49:34 AM



FLIR6422.jpg FLIR E6 63980081

1/8/2020 9:49:34 AM

FLIR6422.jpg FLIR E6 63980081

Measurements

Bx1	Max	68.9 °F
	Min	67.9 °F
	Average	68.4 °F

Parameters

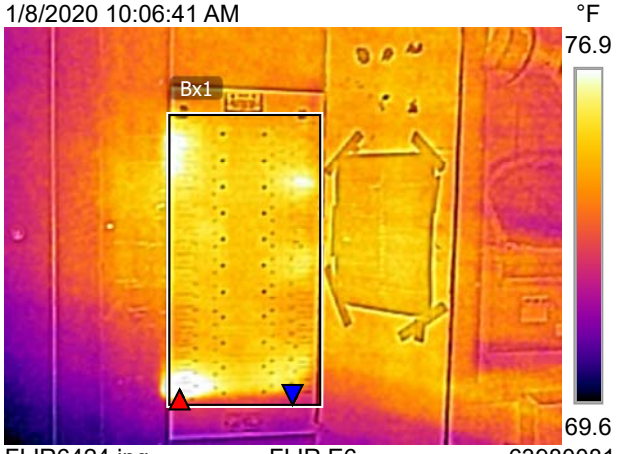
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - Prodigy Services

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:06:41 AM



FLIR6424.jpg FLIR E6 63980081

1/8/2020 10:06:41 AM

FLIR6424.jpg FLIR E6 63980081

Measurements

Bx1	Max	80.6 °F
	Min	73.0 °F
	Average	75.2 °F

Parameters

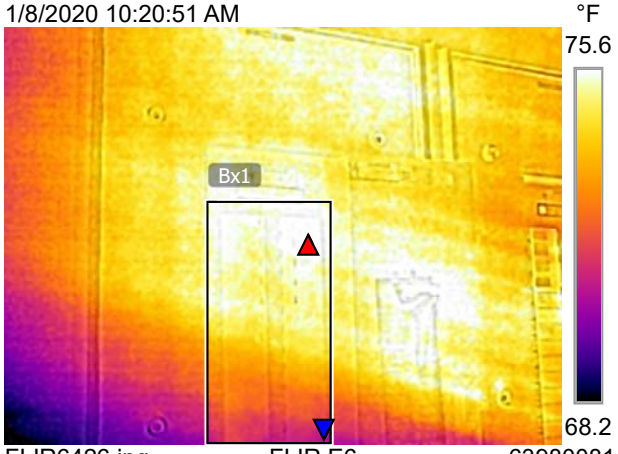
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - D3-1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:20:51 AM



FLIR6426.jpg FLIR E6 63980081

Measurements

Bx1	Max	76.8 °F
	Min	71.3 °F
	Average	74.6 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 10:20:51 AM

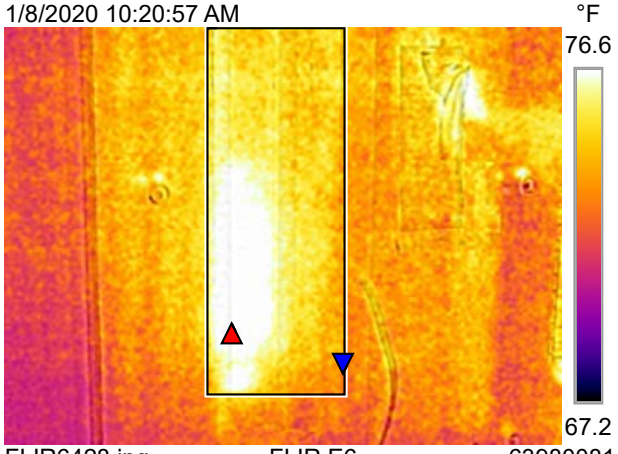
FLIR6426.jpg FLIR E6 63980081

Distribution Panel - Panel B section 1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA recommend immediate repairs when the temperature difference (ΔT) between a component and the ambient air exceeds 20°F and 7° between similar components adjacent to one another.

1/8/2020 10:20:57 AM



FLIR6428.jpg FLIR E6 63980081

1/8/2020 10:20:57 AM

FLIR6428.jpg FLIR E6 63980081

Measurements

Bx1	Max	80.2 °F
	Min	75.5 °F
	Average	76.3 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - Panel B section 2

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:21:09 AM

FLIR6430.jpg FLIR E6 63980081

Measurements

Bx1	Max	77.2 °F
	Min	75.4 °F
	Average	76.3 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 10:21:09 AM

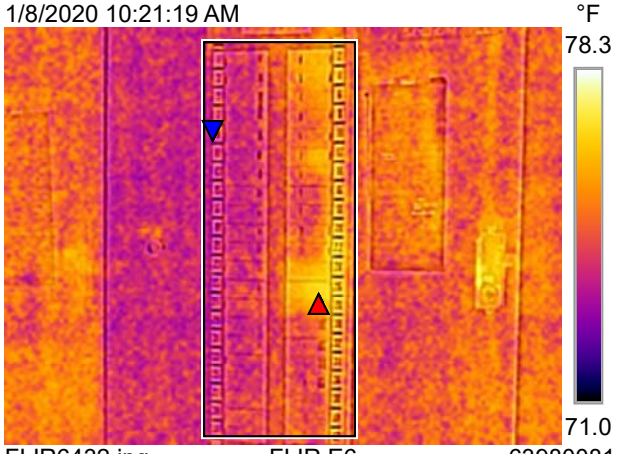
FLIR6430.jpg FLIR E6 63980081

Distribution Panel - Panel A Sec1 section 1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:21:19 AM



FLIR6432.jpg FLIR E6 63980081

1/8/2020 10:21:19 AM

FLIR6432.jpg FLIR E6 63980081

Measurements

Bx1	Max	76.3 °F
	Min	74.6 °F
	Average	75.0 °F

Parameters

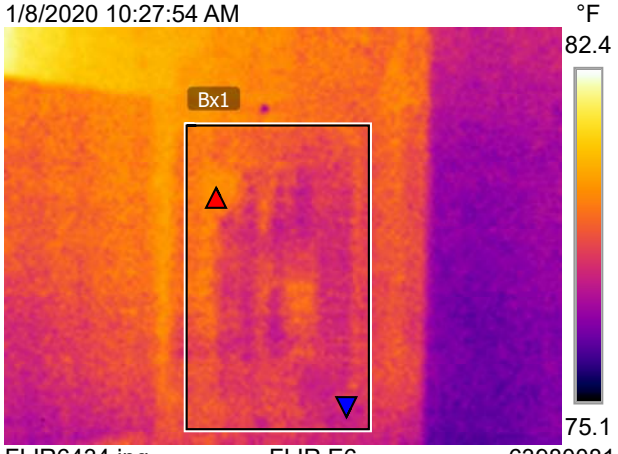
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - Panel A Sec1 section 2

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:27:54 AM



FLIR6434.jpg FLIR E6 63980081

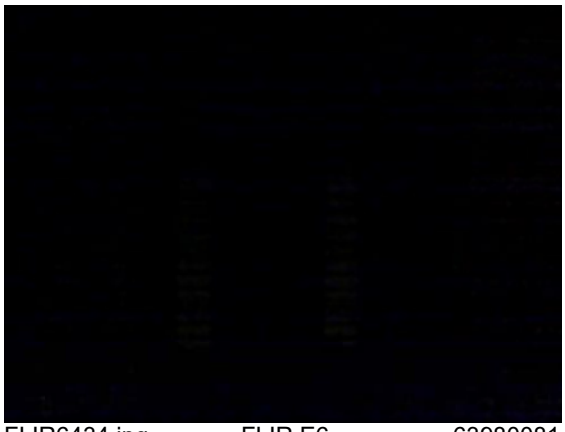
Measurements

Bx1	Max	79.3 °F
	Min	77.9 °F
	Average	78.5 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 10:27:54 AM



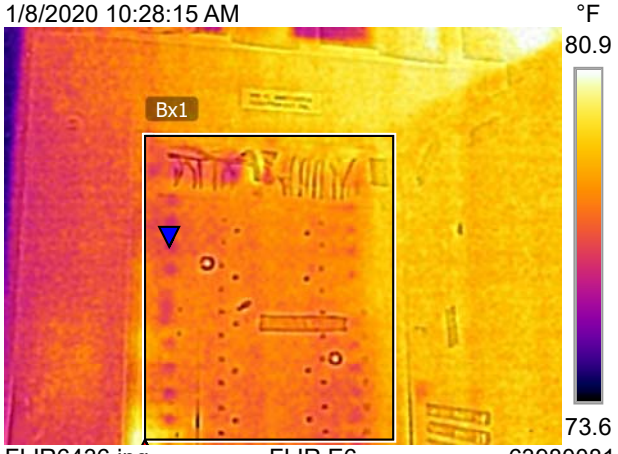
FLIR6434.jpg FLIR E6 63980081

Distribution Panel - No Tag

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:28:15 AM



FLIR6436.jpg FLIR E6 63980081

Measurements

Bx1	Max	80.2 °F
	Min	77.8 °F
	Average	78.8 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 10:28:15 AM

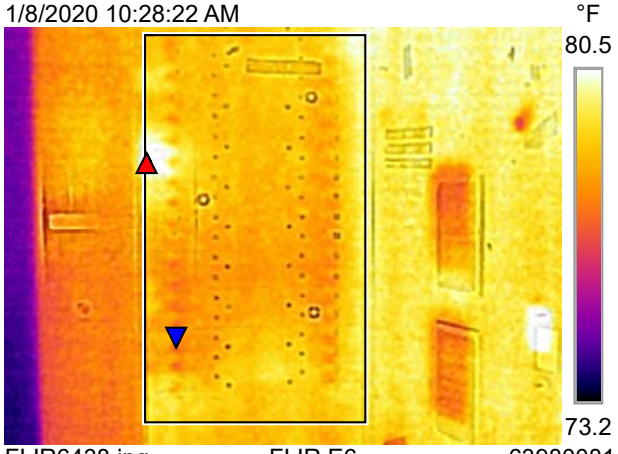
FLIR6436.jpg FLIR E6 63980081

Distribution Panel - 3rd Fl. Annex North. section 1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:28:22 AM



FLIR6438.jpg FLIR E6 63980081

Measurements

Bx1	Max	80.9 °F
	Min	78.3 °F
	Average	79.3 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 10:28:22 AM

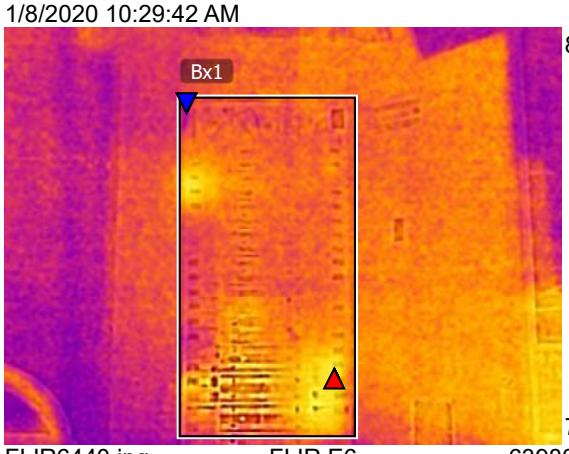
FLIR6438.jpg FLIR E6 63980081

Distribution Panel - 3rd Fl. Annex North. section 2

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:29:42 AM



FLIR6440.jpg FLIR E6 63980081

Measurements

Bx1	Max	78.5 °F
	Min	75.9 °F
	Average	76.9 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 10:29:42 AM

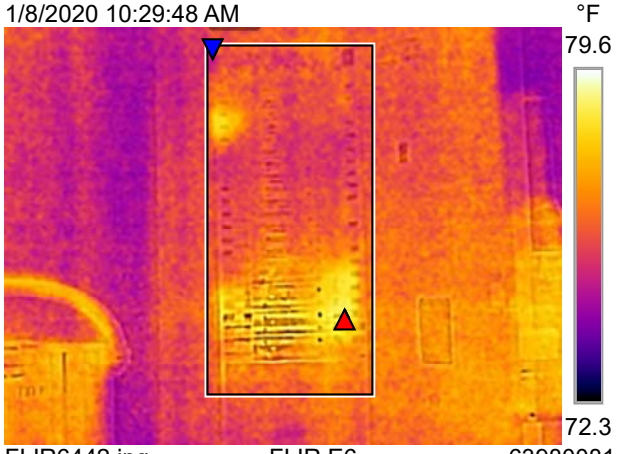
FLIR6440.jpg FLIR E6 63980081

Distribution Panel - 4th Fl. Annex North. section 1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:29:48 AM



FLIR6442.jpg FLIR E6 63980081

Measurements

Bx1	Max	78.4 °F
	Min	75.8 °F
	Average	76.5 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 10:29:48 AM

FLIR6442.jpg FLIR E6 63980081

Distribution Panel - 4th Fl. Annex North. section 2

TThe surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:33:44 AM

FLIR6444.jpg FLIR E6 63980081

Measurements

Bx1	Max	89.8 °F
	Min	74.5 °F
	Average	80.1 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 10:33:44 AM

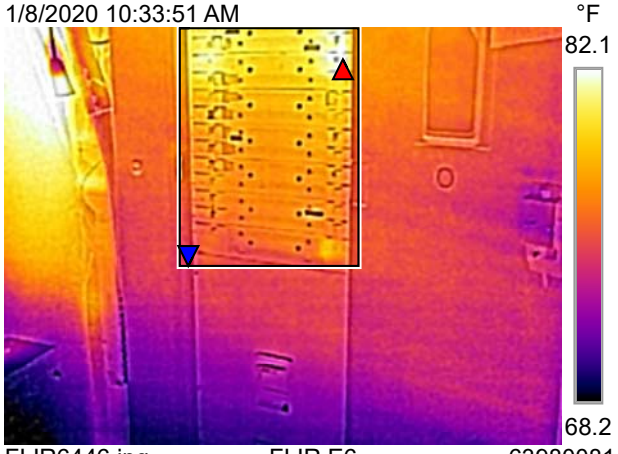
FLIR6444.jpg FLIR E6 63980081

Distribution Panel - D4-10 section 1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:33:51 AM



FLIR6446.jpg FLIR E6 63980081

1/8/2020 10:33:51 AM

FLIR6446.jpg FLIR E6 63980081

Measurements

Bx1	Max	83.4 °F
	Min	74.4 °F
	Average	76.8 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - D4-10 section 2

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:36:30 AM

FLIR6448.jpg FLIR E6 63980081

1/8/2020 10:36:30 AM

FLIR6448.jpg FLIR E6 63980081

Measurements

Bx1	Max	78.7 °F
	Min	72.3 °F
	Average	74.3 °F

Parameters

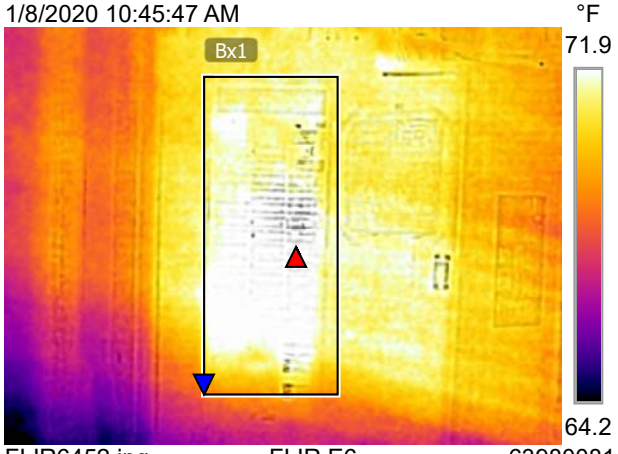
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (4th Floor)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:45:47 AM



FLIR6452.jpg FLIR E6 63980081

1/8/2020 10:45:47 AM

FLIR6452.jpg FLIR E6 63980081

Measurements

Bx1	Max	73.2 °F
	Min	69.5 °F
	Average	71.8 °F

Parameters

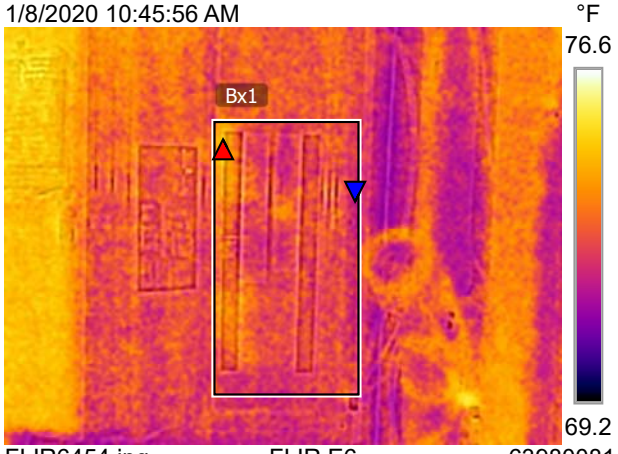
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Suite 450)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:45:56 AM



FLIR6454.jpg FLIR E6 63980081

1/8/2020 10:45:56 AM

FLIR6454.jpg FLIR E6 63980081

Measurements

Bx1	Max	74.2 °F
	Min	73.0 °F
	Average	73.4 °F

Parameters

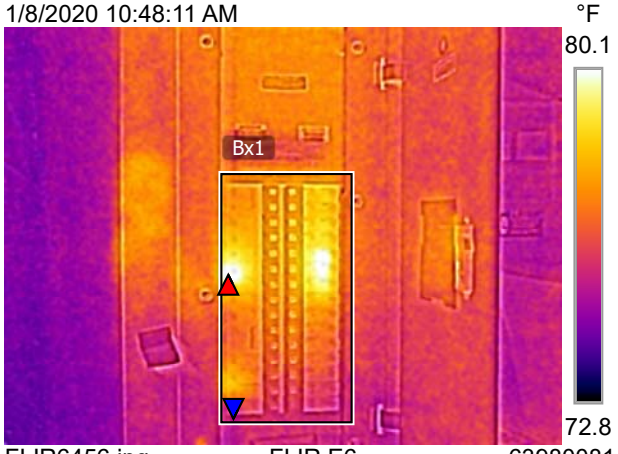
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (Suite 450)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:48:11 AM



FLIR6456.jpg FLIR E6 63980081

1/8/2020 10:48:11 AM

FLIR6456.jpg FLIR E6 63980081

Measurements

Bx1	Max	81.1 °F
	Min	75.7 °F
	Average	76.9 °F

Parameters

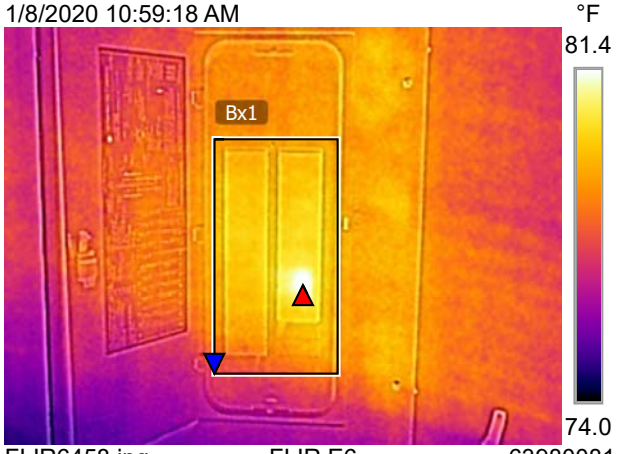
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 10:59:18 AM



FLIR6458.jpg FLIR E6 63980081

1/8/2020 10:59:18 AM

FLIR6458.jpg FLIR E6 63980081

Measurements

Bx1	Max	81.7 °F
	Min	77.7 °F
	Average	79.2 °F

Parameters

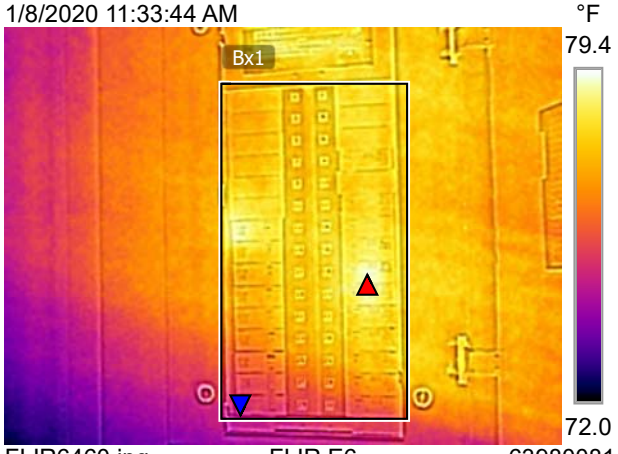
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 11:33:44 AM



FLIR6460.jpg FLIR E6 63980081

Measurements

Bx1	Max	79.2 °F
	Min	75.1 °F
	Average	77.5 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 11:33:44 AM

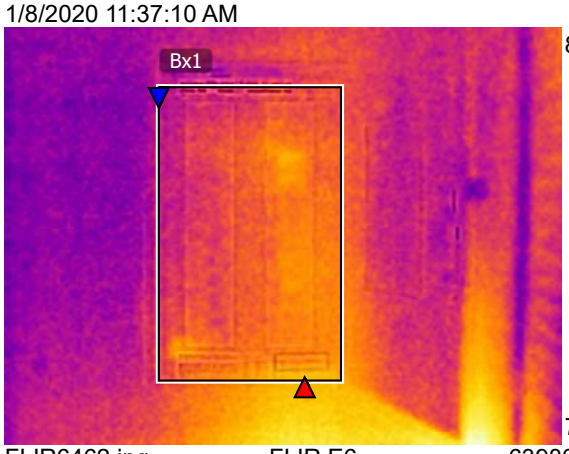
FLIR6460.jpg FLIR E6 63980081

Distribution Panel - No Tag (5th Floor)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 11:37:10 AM



FLIR6462.jpg FLIR E6 63980081

1/8/2020 11:37:10 AM

FLIR6462.jpg FLIR E6 63980081

Measurements

Bx1	Max	78.2 °F
	Min	75.9 °F
	Average	76.8 °F

Parameters

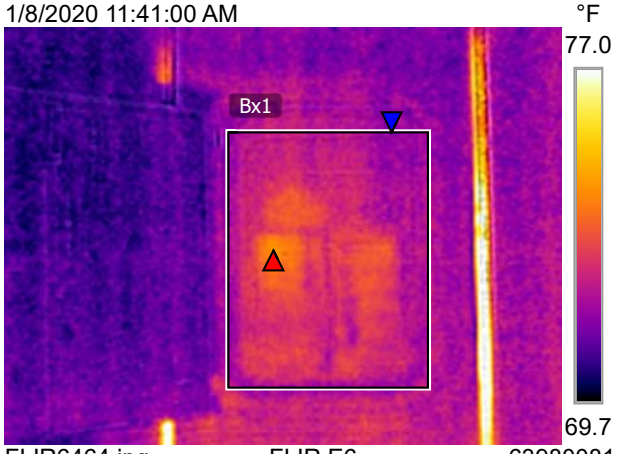
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (5th Floor)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 11:41:00 AM



FLIR6464.jpg FLIR E6 63980081

1/8/2020 11:41:00 AM

FLIR6464.jpg FLIR E6 63980081

Measurements

Bx1	Max	73.5 °F
	Min	70.9 °F
	Average	71.6 °F

Parameters

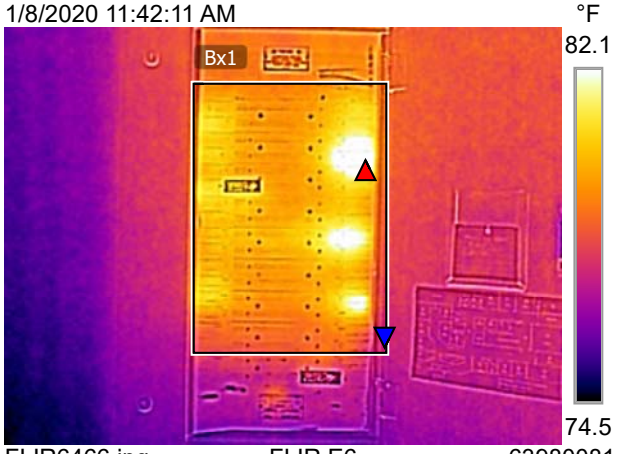
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 11:42:11 AM



FLIR6466.jpg FLIR E6 63980081

1/8/2020 11:42:11 AM

FLIR6466.jpg FLIR E6 63980081

Measurements

Bx1	Max	88.7 °F
	Min	77.0 °F
	Average	79.4 °F

Parameters

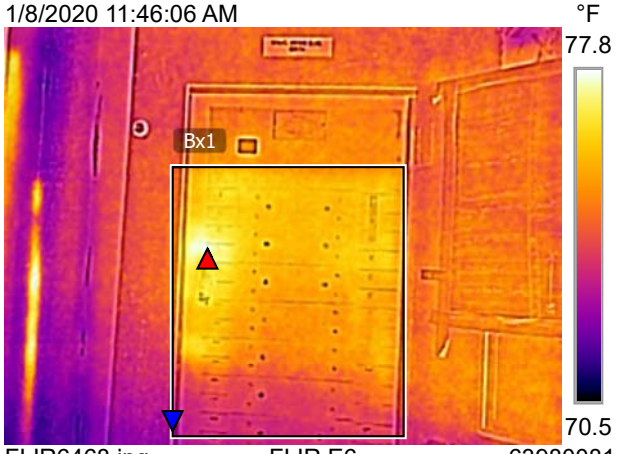
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag (5th Floor)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 11:46:06 AM



FLIR6468.jpg FLIR E6 63980081

1/8/2020 11:46:06 AM

FLIR6468.jpg FLIR E6 63980081

Measurements

Bx1	Max	77.7 °F
	Min	73.4 °F
	Average	75.1 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - 5th Fl. Bridge Bldg North

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 11:46:16 AM

FLIR6470.jpg FLIR E6 63980081

Measurements

Bx1	Max	75.8 °F
	Min	71.1 °F
	Average	73.3 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 11:46:16 AM

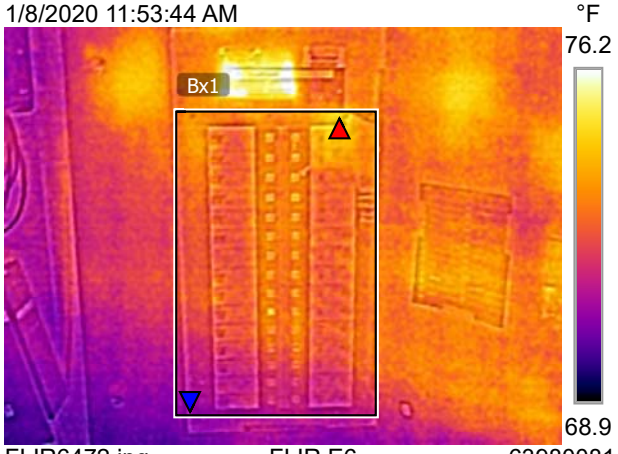
FLIR6470.jpg FLIR E6 63980081

Distribution Panel - 5th Fl. Bridge Bldg North

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 11:53:44 AM



FLIR6472.jpg FLIR E6 63980081

1/8/2020 11:53:44 AM

FLIR6472.jpg FLIR E6 63980081

Measurements

Bx1	Max	74.4 °F
	Min	71.3 °F
	Average	72.7 °F

Parameters

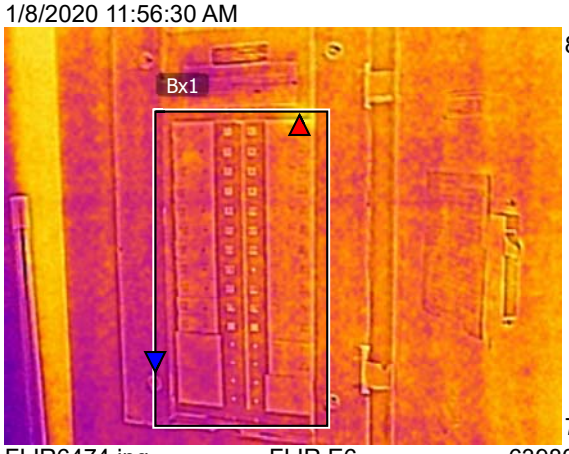
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - P1

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 11:56:30 AM



FLIR6474.jpg FLIR E6 63980081

Measurements

Bx1	Max	79.0 °F
	Min	76.9 °F
	Average	77.7 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 11:56:30 AM

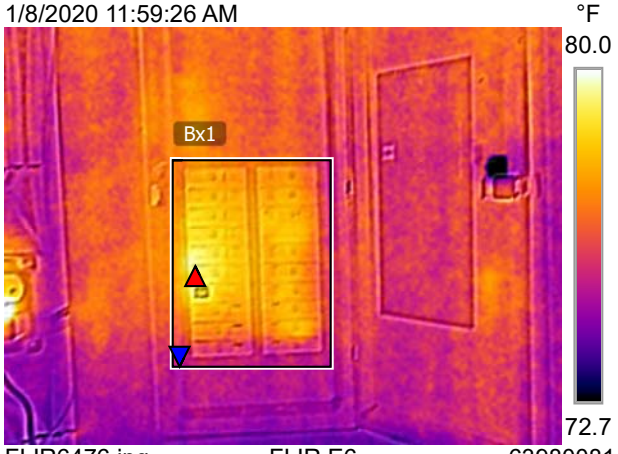
FLIR6474.jpg FLIR E6 63980081

Distribution Panel - No Tag

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 11:59:26 AM



FLIR6476.jpg FLIR E6 63980081

Measurements

Bx1	Max	79.3 °F
	Min	75.6 °F
	Average	77.0 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 11:59:26 AM

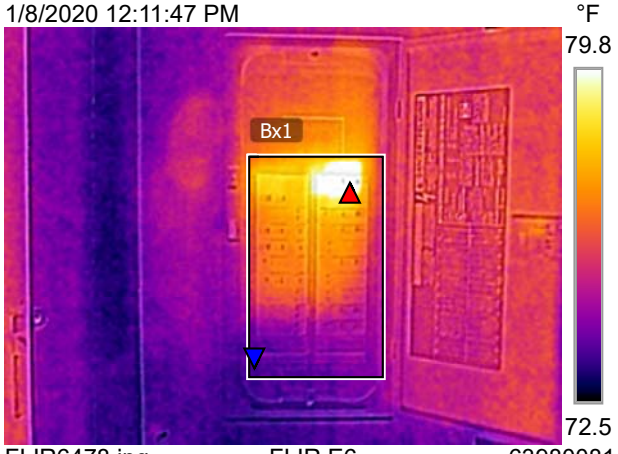
FLIR6476.jpg FLIR E6 63980081

Distribution Panel - No Tag (Suite 535)

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 12:11:47 PM



FLIR6478.jpg FLIR E6 63980081

Measurements

Bx1	Max	85.1 °F
	Min	73.5 °F
	Average	75.7 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 12:11:47 PM

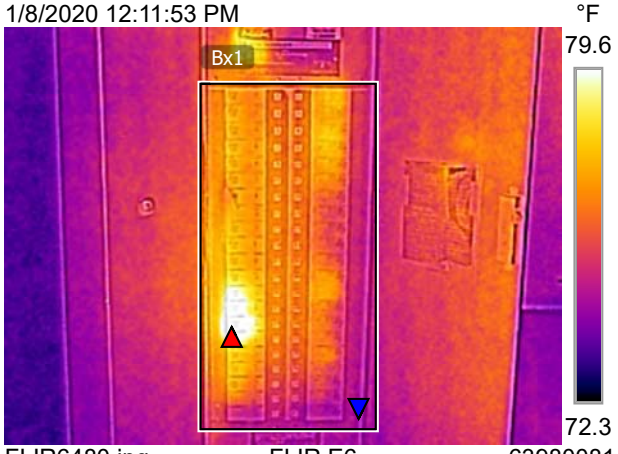
FLIR6478.jpg FLIR E6 63980081

Distribution Panel - No Tag

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 12:11:53 PM



FLIR6480.jpg FLIR E6 63980081

Measurements

Bx1	Max	87.9 °F
	Min	74.4 °F
	Average	76.1 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 12:11:53 PM

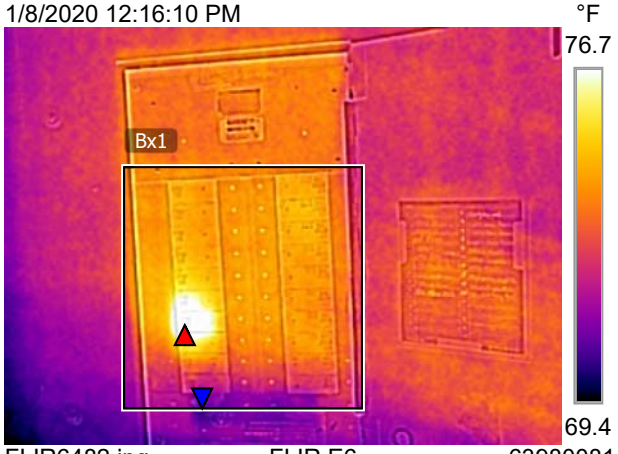
FLIR6480.jpg FLIR E6 63980081

Distribution Panel - No Tag

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 12:16:10 PM



FLIR6482.jpg FLIR E6 63980081

Measurements

Bx1	Max	84.7 °F
	Min	70.8 °F
	Average	73.5 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 12:16:10 PM

FLIR6482.jpg FLIR E6 63980081

Distribution Panel - No Tag

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 12:17:12 PM

FLIR6484.jpg FLIR E6 63980081

1/8/2020 12:17:12 PM

FLIR6484.jpg FLIR E6 63980081

Measurements

Bx1	Max	74.6 °F
	Min	71.3 °F
	Average	72.2 °F

Parameters

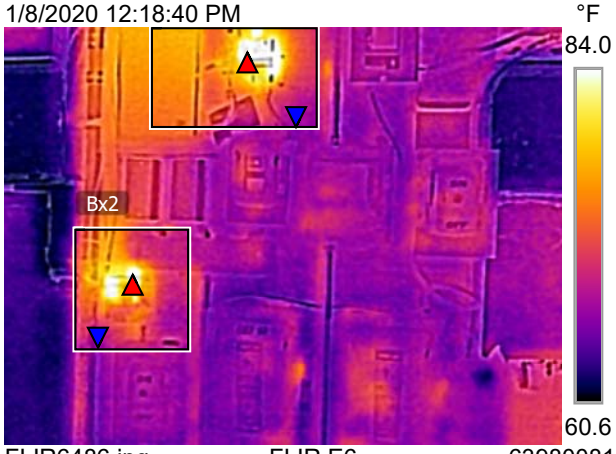
Emissivity	0.95
Refl. temp.	68 °F

Distribution Panel - No Tag

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA recommend immediate repairs when the temperature difference (ΔT) between a component and the ambient air exceeds 20°F and 7° between similar components adjacent to one another.

1/8/2020 12:18:40 PM



FLIR6486.jpg FLIR E6 63980081

Measurements

Bx1	Max	112.1 °F
	Min	63.4 °F
	Average	69.6 °F
Bx2	Max	99.7 °F
	Min	63.5 °F
	Average	67.0 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 12:18:40 PM

FLIR6486.jpg FLIR E6 63980081

Local Disconnects - 6th Floor

The surface temperatures recorded at the disconnects DO NOT fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

1/8/2020 12:40:58 PM

FLIR6488.jpg FLIR E6 63980081

Measurements

Bx1	Max	75.7 °F
	Min	73.5 °F
	Average	74.9 °F

Parameters

Emissivity	0.95
Refl. temp.	68 °F

1/8/2020 12:40:58 PM

FLIR6488.jpg FLIR E6 63980081

Distribution Panel - 4th Fl. High St. Annex

The surface temperatures recorded at the electrical panel fall within the safe temperature range defined by the InterNational Electrical Testing Association (NETA).

Guidelines from NETA provides guidelines which recommend that when the difference in temperature (ΔT) between similar components under similar loading exceeds 6-7°F, immediate repairs should be undertaken. When similar components under similar loads are not available for comparison, NETA also recommends the immediate repairs when the ΔT between an electrical component and the ambient air exceeds 20°F.

Colby FIRE PROTECTION INC.
626 Pleasant Street, Rochdale, MA 01542 • Phone/Fax: 508-892-9275

REPORT TO: GLICKMAN & KOVAGO
STREET: 1 Mercantile Street, Suite 510
CITY, STATE & ZIP: Worcester, MA 01608
BUILDING OR LOCATION: 484 Main St - Annex Building ATTN: Laura Rogan
INSPECTOR: AJG DATE: January 14, 2020

	YES	N/A	NO	COMMENTS
1. General:				
a. Is building occupied?	X			
b. Is occupancy same a as previous inspection?		X		1st Inspection
c. Are all Systems in service?	X			
d. Are all fire protection systems same as last inspection?		X		1st Inspection
e. Is hazard completly sprinkled?	X			
f. Are all new additions & building changes properly protected?	X			
g. Is all stock or storage properly below sprinkler piping?	X			
h. Was property free of fires since last inspection?(Explain on page 2)		X		1st Inspection
i. In areas protected by wet systems, does the building appear to be properly heated in all areas, including blind attics, perimeter areas & are all exterior openings protected against enterance of cold air?	X			
2. Control Valves: (See section 16)				
a. Are all sprinkler systems main control valves open?	X			
b. Are all other valves in proper position?	X			
c. Are all Control valves in good condition and sealed or supervised?	X			
3. Water Supplies: (see Section 17)				
a. Was Water flow test made and results satisfactory?	X			
4. Tanks, Pumps, Fire Dept Connections:				
a. Are fire pumps, gravity tanks, reserviors and pressure tanks in good condition & properly maintained?		X		
b. Are fire dept. connections in satisfactory condition, couplings free caps in place, & check valves tight?	X			2 1/2 Siamese
5. Wet Systems: (See Section 13)				
a. Are cold weather valves open or closed as necessary?		X		
b. Have anti-freeze systems been tested and left in satisfactory condition?		X		
c. Are alarm valves, water flow indicators and retards in satisfactory condition?	X			
6. Dry Systems: (See Section 14)				
a. Is dry valves in service and good condition?		X		
b. Is air pressure and priming water level normal?		X		
c. Is air compressor in good condition?		X		
d. Were low points drained during fall and winter inspections?		X		
e. Are quick opening devices in service?		X		
f. Has piping been checked for proper pitch within past 5 years?		X		
g. Has piping been checked for stoppage within past 10 years?		X		
h. Have dry valves been trip tested satisfactorily as required?		X		
i. Are dry valves adequately protected from freezing?		X		
j. Valve house and heater conditions satisfactory?		X		

	YES	N/A	NO	COMMENTS
7. Special Systems: (See Section 18)				
a. Were valves tested as required?		X		
b. Electric alarm test satisfactory?		X		
c. Were supervisory features tested and results satisfactory?		X		
8. Alarms:				
a. Water motor and gong test satisfactory?	X			See Page 4
b. Electric alarm test satisfactory?	X			See Page 4
c. Supervisory alarm serviced test satisfactory?				
9. Sprinklers - Piping:				
a. Are all sprinklers in good condition, not obstructed, and free of corrosion or loading?	X			
b. Are all sprinklers less than 50 years old?			X	1960
c. Are extra sprinklers readily available?	X			with wrench
d. Is condition of pipeing, drain valves, check valves, hangers, pressure gauges, open sprinklers, strainers satisfactory?	X			
e. Are all sprinklers of proper temperature rating?	X			
f. Are portable fire extiguishers in good condition?		X		
g. Is hand hose on sprinkler system satisfactory?		X		

10. Date Dry system piping last checked for stoppage.

11. Date Dry system piping last checked for proper pitch.

12. Date Dry pipe valve last trip test.

13. Wet Systems No? 2 Make and Model? 6" Shotgun Risers

14. Dry Systems No? _____ Make and Model? _____

14a. Dry pipe operating test:

	time to trip through connection		water pressure	air pressure	trip point air press	water reached test outlet		alarm operated	
With out	min.	sec.	PSI	PSI	PSI	min.	sec.	yes	no
Q.O.D.									
With									
Q.O.D.									
If no									
Explain									

15. Special Systems No? _____ Type _____

Make and Model? _____ Condition _____

16. CONTROL VALVES

	No?	Type	Open	Secure	Closed	Signs	Condition
City connection control valve?	2	6" OSY	Yes	Tamper	No	No	Good
Tank control Valves?							
Pump control Valves?							
Sectional control Valves?							
System control Valves?	2	6" BFV	Yes	Tamper	No	No	Good

17. WATER FLOW TEST

Water pressure - City 124 PSI Tank _____ PSI FirePump _____ PSI

Water Flow Test? _____ If none made - why? _____

Test pipe location

	Size	Pressure	During	After
Main Drain	2"	124 psi	116 psi	124 psi

18. Heat responsive devices type?

Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F

Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F

Auxiliary equipment: No? Type? _____ Location: _____

Test Results:

19. Explanation of any "No" answers:

9B Sprinkler heads found 1960 over 50 years old

20. Recent changes in building occupancy of fire protection equipment:

21. Adjustments or corrections made:

22. Desirable improvements:

NOTE: Backflow is a 6" Ames 2000SS
Flow switch did hang up one time
Inspectors test is in the mechanical room above risers

Colby FIRE PROTECTION INC.
626 Pleasant Street, Rochdale, MA 01542 • Phone/Fax: 508-892-9275

MULTIVALVE INSPECTION REPORT

Customer: 484 Main Street- Annex Building **Date:** 14-Jan-20

TYPE	LOCATION	CONTROLS	NORMAL POSITION	TYPE OF SUPERVISION	FLOW	CONDITION	COMMENTS
6" OSY	Basement Boiler	Before Backflow	Open	Supervisory		Good	M-078
6" OSY	Boiler	After Backflow	Open	Supervisory		Good	M-078
6" BFV	Maintenance Room	Bridge	Open	Supervisory		Good	M-076
6" BFV	Maintenance Room	Annex	Open	Supervisory		Good	M-076
6" Potter VSR	Boiler	Annex		Alarm	52 sec	Good	M-005
6" Potter VSR	Maintenance Room	Bridge		Alarm	43 sec	Good	M-074
6" Potter VSR	Maintenance Room	Annex		Alarm	65 sec	Good	M-075

Colby FIRE PROTECTION INC.
626 Pleasant Street, Rochdale, MA 01542 • Phone/Fax: 508-892-9275

REPORT TO: Glickman & Kovago
STREET: 1 Mercantile Street, Suite 510
CITY, STATE & ZIP: Worcester, MA 01608
BUILDING OR LOCATION: 484 Main Street - Front Building ATTN: Laura Rogan
INSPECTOR: AJG DATE: January 14, 2020

	YES	N/A	NO	COMMENTS
1. General:				
a. Is building occupied?	X			
b. Is occupancy same a as previous inspection?		X		1st Inspection
c. Are all Systems in service?	X			
d. Are all fire protection systems same as last inspection?		X		1st Inspection
e. Is hazard completly sprinkled?			X	See Page 3
f. Are all new additions & building changes properly protected?	X			
g. Is all stock or storage properly below sprinkler piping?	X			
h. Was property free of fires since last inspection?(Explain on page 2)		X		1st Inspection
i. In areas protected by wet systems, does the building appear to be properly heated in all areas, including blind attics, perimeter areas & are all exterior openings protected against enterance of cold air?	X			
2. Control Valves: (See section 16)				
a. Are all sprinkler systems main control valves open?	X			
b. Are all other valves in proper position?	X			
c. Are all Control valves in good condition and sealed or supervised?			X	See Page 3
3. Water Supplies: (see Section 17)				
a. Was Water flow test made and results satisfactory?	X			
4. Tanks, Pumps, Fire Dept Connections:				
a. Are fire pumps, gravity tanks, reserviors and pressure tanks in good condition & properly maintained?		X		
b. Are fire dept. connections in satisfactory condition, couplings free caps in place, & check valves tight?	X			2 1/2 Siamese
5. Wet Systems: (See Section 13)				
a. Are cold weather valves open or closed as necessary?		X		
b. Have anti-freeze systems been tested and left in satisfactory condition?		X		
c. Are alarm valves, water flow indicators and retards in satisfactory condition?	X			See Page 4
6. Dry Systems: (See Section 14)				
a. Is dry valves in service and good condition?	X			
b. Is air pressure and priming water level normal?	X			
c. Is air compressor in good condition?	X			On @ 28 Off @ 46 psi
d. Were low points drained during fall and winter inspections?				
e. Are quick opening devices in service?		X		
f. Has piping been checked for proper pitch within past 5 years?			X	Unknown
g. Has piping been checked for stoppage within past 10 years?			X	Unknown
h. Have dry valves been trip tested satisfactorily as required?	X			
i. Are dry valves adequately protected from freezing?	X			
j. Valve house and heater conditions satisfactory?	X			Basement Heat

	YES	N/A	NO	COMMENTS
7. Special Systems: (See Section 18)				
a. Were valves tested as required?		X		
b. Electric alarm test satisfactory?		X		
c. Were supervisory features tested and results satisfactory?		X		
8. Alarms:				
a. Water motor and gong test satisfactory?				
b. Electric alarm test satisfactory?	X			See Page 4
c. Supervisory alarm serviced test satisfactory?	X			See Page 4
9. Sprinklers - Piping:				
a. Are all sprinklers in good condition, not obstructed, and free of corrosion or loading? See Page 3			X	See Page 3
b. Are all sprinklers less than 50 years old?			X	and wrench
c. Are extra sprinklers readily available?	X			
d. Is condition of pipeing, drain valves, check valves, hangers, pressure gauges, open sprinklers, strainers satisfactory?	X			
e. Are all sprinklers of proper temperature rating?	X			
f. Are portable fire extiguishers in good condition?		X		
g. Is hand hose on sprinkler system satisfactory?		X		

10. Date Dry system piping last checked for stoppage. 1-14-20

11. Date Dry system piping last checked for proper pitch. Unknown

12. Date Dry pipe valve last trip test. 1-14-20 full trip

13. Wet Systems No? 2 Make and Model? 1966 6" Hodgemen Model B/6" ?? Patented 1888

14. Dry Systems No? 1 Make and Model? 2009 3" victaulic NXT S/768

14a. Dry pipe operating test:

	time to trip through connection		water pressure	air pressure	trip point air press	water reached test outlet		alarm operated	
With out	min.	sec.	PSI	PSI	PSI	min.	sec.	yes	no
Q.O.D.		28 sec		32 psi	6 psi		40	x	
With									
Q.O.D.									
If no									
Explain									

15. Special Systems No? Type

Make and Model? Condition

16. CONTROL VALVES

	No?	Type	Open	Secure	Closed	Signs	Condition
City connection control valve?	2	6" BFV	Yes	Yes	No	No	Good
Tank control Valves?							
Pump control Valves?							
Sectional control Valves?							
System control Valves?	2	6" BFV	Yes	Yes	No	No	

17. WATER FLOW TEST

Water pressure - City 140 PSI Tank PSI FirePump PSI

Water Flow Test? If none made - why?

Test pipe location

	Size	Pressure	During	After
Main Drain	2"	140 psi	130 psi	140 psi

18. Heat responsive devices type?

Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F

Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F
Valve No.....A.....B.....C.....D.....E.....F

Auxiliary equipment: No? Type? Location:

Test Results:

19. Explanation of any "No" answers:

2C Floor valves found - should be chained and locked
1E Areas found with no protection. Areas in basement that have upright and pendant with no ceiling
9A Sprinkler heads found in basement with slight corrosion and 1 upright painted
9B Heads found 1961 and older 1957 and 1950

20. Recent changes in building occupancy of fire protection equipment:

21. Adjustments or corrections made:

22. Desirable improvements:

1. Correct issues in section 19

1. South and North inspectors test is on the 4th floor space 400 in access panel
2 Backflow is a 6" Ames Colt 200
3. Air compressor is a Gast 3/4 hp riser mount

Colby FIRE PROTECTION INC.
626 Pleasant Street, Rochdale, MA 01542 • Phone/Fax: 508-892-9275

MULTIVALVE INSPECTION REPORT

Customer: 484 Main Street - Front Building **Date:** 14-Jan-20

TYPE	LOCATION	CONTROLS	NORMAL POSITION	TYPE OF SUPERVISION	FLOW	CONDITION	COMMENTS
		Main		Alarm	45 sec		M-004
		North		Alarm	50 sec		M-068
		South		Alarm	60 sec		M-067
6" BFV	Front Basement	Front Basement		Supervisory		Good	M-099
6" BFV	Basement	Southside		Supervisory		Good	M-071
6" BFV	Basement	Streetside Shutoff		Supervisory		Good	M-070
6" BFV	Basement	Building Side		Supervisory		Good	M-070
6" BFV	Basement	North		Supervisory		Good	M-072
3" BFV	Basement	Dry System		Supervisory		Good	M-073
Pressure EPS 10-2	Basement	Dry System		Alarm		Good	M-069
Pressure EPS 40-2	Basement	Dry system Low Air		Supervisory	23 psi	Good	M-098

DEPARTMENT OF PUBLIC WORKS
PWSID 2348000
18 East Worcester Street
Worcester Massachusetts 01604
Phone: (508) 799-1493 Fax: (508) 453-2889

Letter of Compliance

Letter Date: 8/12/2019

RE: Backflow Prevention Assembly Test

Denholm Condo Trust
C/O 1 Mercantile Street
Suite 510
Worcester, MA 01608

Dear Property Manager Steve Greene:

A Backflow Device Test(s) was conducted on the premises of the referenced property. These tests were completed in accordance with the Cross Connection Section (310 CMR 22.22) of the Commonwealth of Massachusetts Drinking Water Regulations (REGULATIONS).

Please review the included report outlining the test results found.

Compliant Notice: **No Failed Test(s) were found for devices listed on attachment.**

Please retain this letter for your records.

Our mission to assure all our residents safe drinking water free of any possible cross connection is important. We want to assure our customers that the very last user on our water line has water that is just as safe as the very first user and that nothing has entered the system in between. Thank you for understanding the importance our Cross Connection Control Program and protecting our drinking water. If you have any questions please, contact our office at (508) 799-1493.

Sincerely,

Worcester Water Department

DEPARTMENT OF PUBLIC WORKS
PWSID 2348000
18 East Worcester Street
Worcester Massachusetts 01604
Phone: (508) 799-1493 Fax: (508) 453-2889

Backflow Prevention Assembly Test — Letter of Compliance

Denholm Condo Trust
C/O 1 Mercantile Street
Suite 510
Worcester, MA 01608

Devices Due for Testing:

Manufacturer	Model Number	Size	Serial Number	Test Due Date
Watts	009M2QT	1.00	A3801	2/1/2020
Watts	LF009M2QT	1.00	017358	2/1/2020
Watts	LF009M2QT	2.00	019835	2/1/2020

DEPARTMENT OF PUBLIC WORKS
PWSID 2348000
18 East Worcester Street
Worcester Massachusetts 01604
Phone: (508) 799-1493 Fax: (508) 453-2889

Backflow Prevention Test and Maintenance Form

Facility Information

Facility Name: Denholm Condo Trust
Address: 484 Main Street
City: Worcester St: MA Zip: 01608
Phone: 508-753-5208

Reduced Pressure Backflow

Mfr/Mod/Size Watts LF009M2QT 2.00
SN: 019835
Loc: 25 High St Bldg - Containment at Meter - located Chase Ct

Test Information

Test Date: 8/9/2019 Tester: Borowski, Michael Test Kit SN: 06170241 Test Type: Scheduled

Reduced Pressure Assembly

Double Check Assembly

	Check Valve #1		Check Valve #2		Relief Valve		PVB / SVB		AVB	
Initial Test	Held At (psid)	8	Held At (psid)		Opened At	2.4	**Air Inlet**		**Air Inlet**	
	Closed Tight	☑	Closed Tight	☑	Did Not Open	☐	Opened At / Did Not Open	☐	Closes when water flows	☐
	Leaked	☐	Leaked	☐			**Check Valve**		Opens when no water flows	☐
	Shut Off V #2	Closed Tight ☑	Leaked ☐				Held At / Leaked	☐	Height above outlets (in.)	
Repair	Cleaned	☐	Cleaned	☐	Cleaned	☐	Cleaned	☐	Physical Condition:	
	Replaced	☐	Replaced	☐	Replaced	☐	Replaced	☐		
Give Detail Here										
Final Test	Held At (psid)		Held At (psid)		Opened At		**Air Inlet**		**Air Gap**	
	Closed Tight	☐	Closed Tight	☐			Opened At		Pass	☐
	Shut Off Valve #2		Closed Tight	☐			**Check Valve** Held At		Fail	☐

Comments

Test Result **Passed**

Tester Information

Tester Name: Borowski, Michael
Phone: 508-799-1493
Certification No: 32136
Signature: Michael S Borowski

I certify that all information on this test is true and correct

Facility Representative

Name, Position:
Doug Morris
Signature: Doug M.

DEPARTMENT OF PUBLIC WORKS
PWSID 2348000
18 East Worcester Street
Worcester Massachusetts 01604
Phone: (508) 799-1493 Fax: (508) 453-2889

Backflow Prevention Test and Maintenance Form

Facility Information

Facility Name: Denholm Condo Trust
Address: 484 Main Street
City: Worcester St: MA Zip: 01608
Phone: 508-753-5208

Reduced Pressure Backflow

Mfr/Mod/Size Watts 009M2QT 1.00
SN: A3801
Loc: 25 High St Bldg - H - located Chase Ct

Test Information

Test Date: 8/9/2019 Tester: Borowski, Michael Test Kit SN: 06170241 Test Type: Scheduled

Reduced Pressure Assembly

Double Check Assembly

	Check Valve #1		Check Valve #2		Relief Valve		PVB / SVB		AVB	
Initial Test	Held At (psid)	8	Held At (psid)		Opened At	2.6	**Air Inlet**		**Air Inlet**	
	Closed Tight	☑	Closed Tight	☑	Did Not Open	☐	Opened At / Did Not Open	☐	Closes when water flows	☐
	Leaked	☐	Leaked	☐			**Check Valve**		Opens when no water flows	☐
	Shut Off V #2	Closed Tight ☑	Leaked ☐				Held At / Leaked	☐	Height above outlets (in.)	
Repair	Cleaned	☐	Cleaned	☐	Cleaned	☐	Cleaned	☐	Physical Condition:	
	Replaced	☐	Replaced	☐	Replaced	☐	Replaced	☐		
Give Detail Here										
Final Test	Held At (psid)		Held At (psid)		Opened At		**Air Inlet**		**Air Gap**	
	Closed Tight	☐	Closed Tight	☐			Opened At		Pass	☐
	Shut Off Valve #2		Closed Tight	☐			**Check Valve** Held At		Fail	☐

Comments

Test Result **Passed**

Tester Information

Tester Name: Borowski, Michael
Phone: 508-799-1493
Certification No: 32136
Signature: Michael S Borowski

I certify that all information on this test is true and correct

Facility Representative

Name, Position:
Doug Morris
Signature: Doug M.

DEPARTMENT OF PUBLIC WORKS
PWSID 2348000
18 East Worcester Street
Worcester Massachusetts 01604
Phone: (508) 799-1493 Fax: (508) 453-2889

Backflow Prevention Test and Maintenance Form

Facility Information

Facility Name: Denholm Condo Trust
Address: 484 Main Street
City: Worcester St: MA Zip: 01608
Phone: 508-753-5208

Reduced Pressure Backflow

Mfr/Mod/Size Watts LF009M2QT 1.00
SN: 017358
Loc: 484 Main St - Containment at Meter - at Main St side

Test Information

Test Date: 8/9/2019 Tester: Borowski, Michael Test Kit SN: 06170241 Test Type: Scheduled

Reduced Pressure Assembly

Double Check Assembly

	Check Valve #1		Check Valve #2		Relief Valve		PVB / SVB		AVB	
Initial Test	Held At (psid)	8	Held At (psid)		Opened At	2.6	**Air Inlet**		**Air Inlet**	
	Closed Tight	☑	Closed Tight	☑	Did Not Open	☐	Opened At / Did Not Open	☐	Closes when water flows	☐
	Leaked	☐	Leaked	☐			**Check Valve**		Opens when no water flows	☐
	Shut Off V #2	Closed Tight ☑	Leaked ☐				Held At / Leaked	☐	Height above outlets (in.)	
Repair	Cleaned	☐	Cleaned	☐	Cleaned	☐	Cleaned	☐	Physical Condition:	
	Replaced	☐	Replaced	☐	Replaced	☐	Replaced	☐		
Give Detail Here										
Final Test	Held At (psid)		Held At (psid)		Opened At		**Air Inlet**		**Air Gap**	
	Closed Tight	☐	Closed Tight	☐			Opened At		Pass	☐
	Shut Off Valve #2		Closed Tight	☐			**Check Valve** Held At		Fail	☐

Comments

Test Result **Passed**

Tester Information

Tester Name: Borowski, Michael
Phone: 508-799-1493
Certification No: 32136
Signature: Michael S Borowski

I certify that all information on this test is true and correct

Facility Representative

Name, Position:
Doug Morris
Signature: Doug M.

APPENDIX B - PROFESSIONAL QUALIFICATIONS

EBI Consulting
environmental | engineering | due diligence

Martin Stowell
Energy Engineer
21 B Street
Burlington, MA 01803
Phone: (781) 273-2500

SUMMARY OF EXPERIENCE

Mr. Stowell has 9 years of experience in the energy field, with the majority of those years focused on building efficiency. His responsibilities have included project management, data analysis, energy calculations, incentive procurement, commissioning MEP systems for new construction, and MEP assessments. He has a strong background in energy auditing for ASHRAE I, II, III reports, energy modeling using excel and eQuest, and developing energy savings calculations for customized energy conservation measures.

EBI CONSULTING- Burlington, MA
Energy Engineer – *July 2017 – Present*

RELEVANT PROJECT EXPERIENCE

- **Rockhill Management – Energy Engineer**
  101 Federal Street, Boston, MA - ASHRAE Level II audit of roughly 1,000,000 square feet of office high rise.
- **Hudson Alpha Institute for Biotechnology - Commissioning Agent**
  Huntsville, AL Campus - Acted as a commissioning agent.
- **Columbia University – Commissioning Agent**
  The Forum - Acted as a lead commissioning agent responsible.
- **U.S Department of Veterans Affairs – Commissioning Agent**
  VAMC Providence ICU - Acted as the lead commissioning agent.
- **Charles River Laboratories – Commissioning Agent**
  Devon Park Facility - Acted as the lead commissioning agent.
- **Massachusetts Army National Guard - Senior Energy Engineer**
  ASHRAE Level II Audits for three National Guard facilities in Massachusetts
- **City of North Adams, MA – Senior Energy Engineer**
  ASHRAE level II audits in all City owned buildings
  Developed turnkey energy conservation measures to achieve 20% energy reduction in 5 years.
- **Boston Children's Museum – Energy Engineer**
  ASHRAE Level II Energy Audit
- **Lincoln Sudbury High School – Energy Engineer**
  ASHRAE Level II Energy Audit and Energy Efficiency Measure Implementation. - DDC system design. Developed sequence of operations, energy calculations, and obtained incentive funding totaling 50% of the project cost.

EDUCATION

Bachelor of Science, Mechanical Engineering – Worcester Polytechnic Institute
Master of Science, Energy Systems – Northeastern University

EBI Consulting
environmental | engineering | due diligence

Martin Stowell
Energy Engineer
21 B Street
Burlington, MA 01803
Phone: (781) 273-2500

PROFESSIONAL AFFILIATIONS

Association of Energy Engineers – Certified Energy Manager

SKILLS & EXPERTISE

Energy Auditing
Building Energy Modeling
Energy Savings Calculations

EBI Consulting
environmental | engineering | due diligence

William "Andy" Reed
Project Manager
21 B Street
Burlington, MA 01803
Phone: (781) 273-2500

SUMMARY OF EXPERIENCE

Mr. Reed has over fourteen years commissioning experience for various institutional, commercial, and government clients in all types of buildings, from standard to mission critical. He has over 30 years of experience in the HVAC industry, including seven as a test, adjust and balance engineer for a large company in the southeast. Overall, Andy has fifteen years of field experience in the testing, adjusting and balancing of HVAC systems. Andy has an extensive background in the areas of commissioning and retro-commissioning of various venues, including Central Energy Plants, laboratories, healthcare, educational, research, office, manufacturing facilities and data centers, Andy has also been active in retro-commissioning and energy conservation auditing for numerous projects and also serves in the role of project manager.

EBI CONSULTING – Burlington, MA
Project Manager - *November 2013 – Present*

RELEVANT PROJECT EXPERIENCE

- **U.S. Department of Veterans Affairs – Field Manager / Mechanical Engineer / Project Manager**
  VISN 1 Retro-commissioning of 4 VA Medical Centers
  VISN 7 Retro-commissioning/Energy Program of 5 VA Medical Centers
  VISN 7 Execution of Deferred Maintenance repairs and long-term energy conservation measure projects at 3 VA Medical Centers
  VISN 7 Continuous Commissioning – of 3 VA Medical Centers
  VISN 7 Multiple Site Energy Star Certification
  VISN 8 Retro-commissioning of 4 VA Medical Centers
  VISN 17 Retro-commissioning of 4 VA Medical Centers
  VISN 19 Retro-commissioning of 4 VA Medical Centers
  VISN 22 Retro-commissioning of 4 VA Medical Centers
  Charleston VAMC Nursing Home Commissioning – New Building Commissioning
  Augusta VAMC SPD Facility Commissioning – New Building Commissioning
  Birmingham VAMC Ambulatory Care Expansion Commissioning – New Building Commissioning
  Decatur VAMC Building 11B Surgical Suite Renovation Commissioning – New Building Commissioning
  Tuscaloosa VAMC Building 83, 90, 93 ECM Commissioning – New Building Commissioning
  Columbia VAMC Building 100 A Commissioning – New Building Commissioning
  Tuscaloosa VAMC Building 61 NCHU Improvement Commissioning – New Building Commissioning
  Charleston VAMC OR Suite Air Flow Issues Deferred Maintenance
  Providence VAMC Expansion of Building 35 Commissioning – New Building Commissioning
  Providence VAMC Outpatient Medical Clinic Wing 3B Renovation Commissioning – New Building Commissioning
- **U.S. Army Corps of Engineers – TAB Inspection**
  Dover Air Force Base Armed Forces Medical Examiner Commissioning
- **National Oceanic & Atmospheric Administration (NOAA) – Mechanical Engineer**
  Commissioning and Engineering Services, Weather Forecast Office (WFO) Data Centers
- **Center for Disease Control and Prevention – Mechanical Engineer**
  CDC Building 106 Commissioning – New Building Commissioning
- **Columbia University – Project Manager**
  Columbia University Bowtie University Forum – New Building Commissioning

William "Andy" Reed
Project Manager
21 B Street
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- **University of Georgia, Athens, GA. – Mechanical Engineer**
  Animal Health Research Center 73,000 sf BSL-3AG and BSL-3 Biocontainment Facility– New Building Commissioning
- **University of South Alabama – Mechanical Engineer**
  Mitchell Cancer Institute Commissioning – New Building Commissioning
- **Novartis Institutes for Biomedical Research – Project Manager**
  New Construction Commissioning
- **ADTRAN – Mechanical Engineer**
  ADTRAN East and South Tower Corporate Datacenters – New Building Commissioning
- **Georgia Air National Guard – Mechanical Engineer**
  Air Support Operations Squadron LEED Commissioning – New Building Commissioning
- **Georgia Southern University – Mechanical Engineer and TAB Lead Engineer**
  Commissioning for Landrum & Lakeside Dining Facilities – New Building Commissioning
  Commissioning for Alumni and Welcome Center – New Building Commissioning
  Commissioning for Recreation Activity Center (RAC) – New Building Commissioning
  Commissioning for Continuing Education Center and Performing Arts Center – New Building Commissioning
  Commissioning for Hendricks Hall Research Building – New Building Commissioning
  Commissioning for Science and Chemistry Building – New Building Commissioning
  TAB (Lead Engineer) for Science/Nursing Building
  TAB (Lead Engineer) for Information Technology Building
- **Wallace State University – Mechanical Engineer**
  Commissioning for Health Sciences Building – New Building Commissioning
- **Georgia Institute of Technology – Mechanical Engineer**
  Commissioning for Environmental Science Building & Klaus Advanced Computing Building – New Building Commissioning
- **Georgia State University – Mechanical Engineer**
  Commissioning for Recreation Center – New Building Commissioning
- **University of West Georgia – Project Manager**
  Retro-commissioning for Aycock Hall
  North Carolina State University - Mechanical Engineer – New Building Commissioning
  Commissioning for Cates and Yarbrough Steam Plant – New Building Commissioning
  Measurement and Verification for Cates and Yarbrough Steam Plant – New Building Commissioning
  Measurement and Verification for Phytotron Laboratory – New Building Commissioning
  Phase 2 work for College of Engineering – New Building Commissioning
- **Mississippi State University – Mechanical Engineer**
  Retro-commissioning for Pace Speed Lab
- **Florida State University – Mechanical Engineer**
  Retro-commissioning for Stadium Academic Building
- **University of Florida – Mechanical Engineer**
  Commissioning of the new Shands Cancer Hospital HVAC systems – New Building Commissioning
- **Fort Stewart Georgia – Project Manager**
  Commissioning Command Control Headquarters – New Building Commissioning

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Project Manager
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- **Georgia Air National Guard, Robins AFB – Mechanical Engineer**
  Commissioning Army JSTAR Support – New Building Commissioning
- **Fort Stewart Georgia – Mechanical Engineer**
  Retro-commissioning of Winn Army Hospital
- **Emory University – Mechanical Engineer**
  Retro-commissioning/M&V for School of Medicine
  Retro-commissioning/M&V for Math & Science Building
  Retro-commissioning/M&V for Emerson Hall
  Retro-commissioning/M&V for multiple facilities (6 Buildings)
- **Target – Project Manager**
  Commissioning of 38 Target retail stores - New Building Commissioning

EDUCATION

Construction Management, University of Georgia
DDC Controls, University of Wisconsin-Madison
Johnson Controls DDC 40 Hour Training Course
Automated Logic Controls 40 Hour Training Course
TAC 20 Hour Training Course
Lonworks DDC Training Course
OSHA, 30 Hour

PROFESSIONAL AFFILIATIONS

TAB Supervisor Certification, Associated Air Balancing Council (Not Active)

SKILLS & EXPERTISE

Commissioning
Test, Adjust and Balance
Controls
HVAC Systems

EBI Consulting
environmental | engineering | due diligence

Martin Stowell
Energy Engineer
21 B Street
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Phone: (781) 273-2500

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RELEVANT PROJECT EXPERIENCE

- **Taurus Investment Holdings, LLC. – Mechanical Engineer**
  200 Baker Avenue, Concord, MA – MEP/LS assessment of roughly 400,000 of office space.
- **Goldman Sachs Commercia Mortgage Capital LP– Mechanical Engineer**
  Various Sites – Refrigeration Study of various sized refrigeration facilities.
- **Rockhill Management – Energy Engineer**
  101 Federal Street, Boston, MA - ASHRAE Level II audit of roughly 1,000,000 square feet of office high rise.
- **Hudson Alpha Institute for Biotechnology - Commissioning Agent**
  Huntsville, AL Campus - Acted as a commissioning agent.
- **Columbia University – Commissioning Agent**
  The Forum - Acted as a lead commissioning agent responsible.
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  VAMC Providence ICU - Acted as the lead commissioning agent.
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  Devon Park Facility - Acted as the lead commissioning agent.
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Building Energy Modeling
Energy Savings Calculations
MEP Assessments