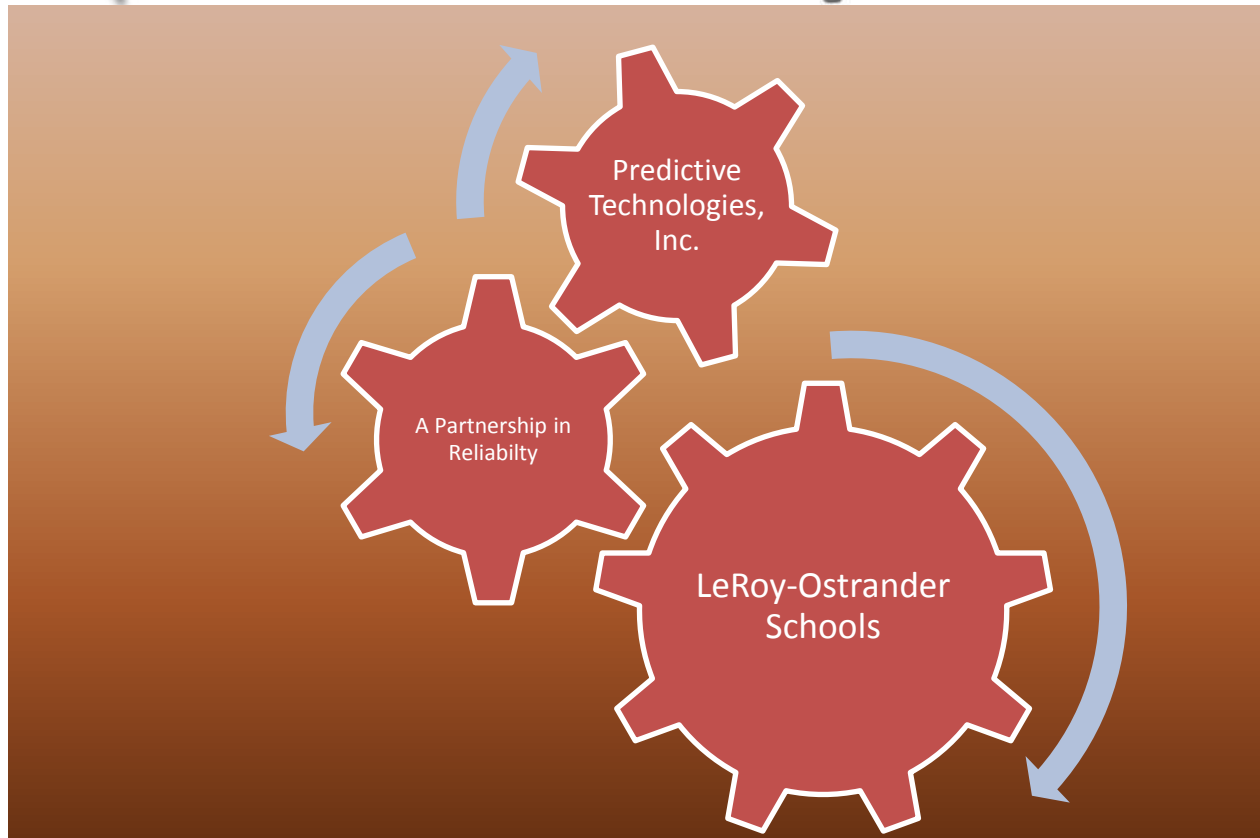




LeRoy-Ostrander Public School
Educational Excellence, For Life



**Predictive
Technologies Inc**
... A Partnership in Reliability



LeRoy Schools: Mechanical Reliability Study

LeRoy-Ostrander Public Schools
406 W Main ST
LeRoy, MN 55951

Gregg Schwartz
Sr. Reliability Engineer
ISO Category: Level III

Eric Espe
NDT: Quality Assurance Manager
Level I: IR/VIB/PT/PA
Level II UT/VT/MT/ET

Taylor Schwartz
Reliability Engineer
Level I: IR/VIB/VT/HVAC

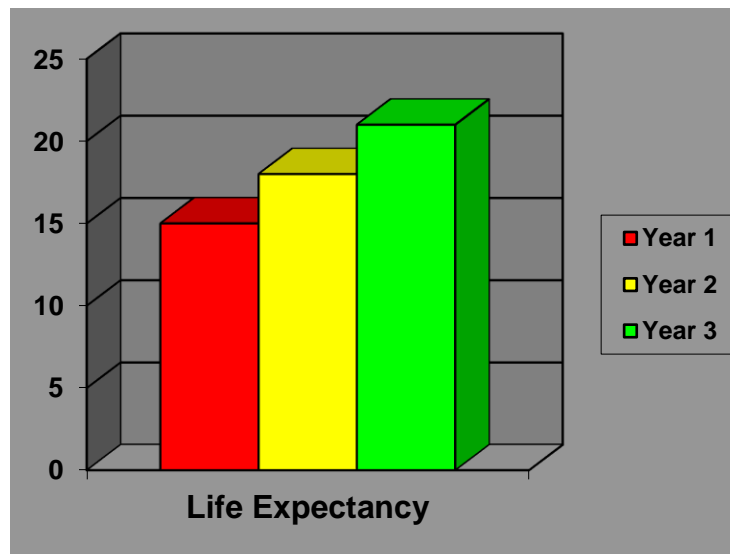
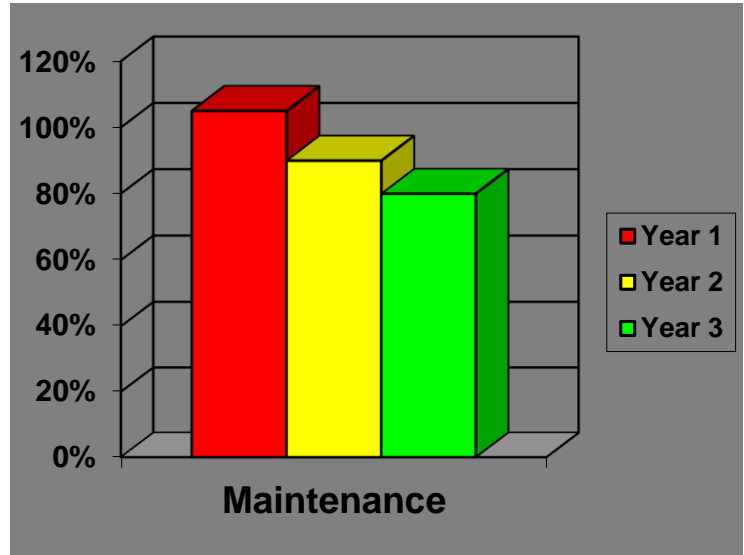
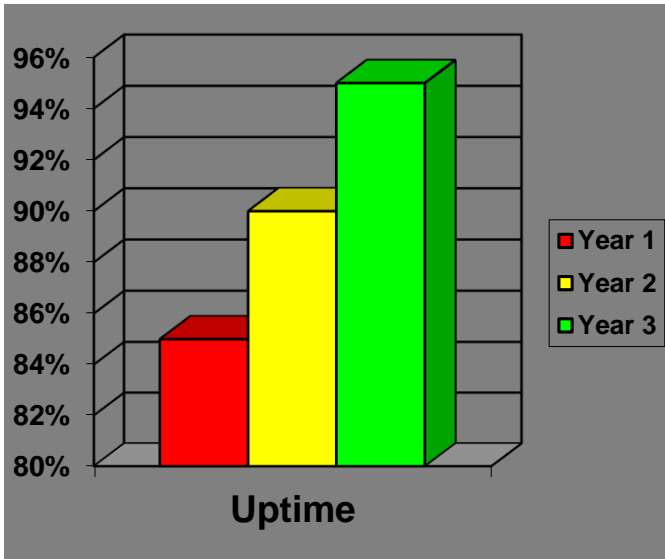
March 16th, 2017

Mechanical Equipment Assessment Analysis

- Danger** - The predictive diagnostics survey indicates an immediate risk of catastrophic failure. It is suggested that attention should be given at next available downtime or schedule an immediate outage to avoid secondary damage.
- Alarm** - The predictive diagnostics survey indicates that there are conditions in which the machine is at eventual risk of catastrophic failure. Plans should be made at next convenient downtime to perform repairs. Until this time monitor closely with predictive diagnostics surveys.
- Alert** - The predictive diagnostics survey indicates only a developing problem. This should be noted and monitored closely with future surveys. This will ensure the progression of these problems are monitored and trended.
- Acceptable** - The predictive diagnostics survey showed little or no forcing or defect frequencies with the machine. It is suggested that this machine be monitored with future surveys to ensure maintaining equipment acceptance specifications.

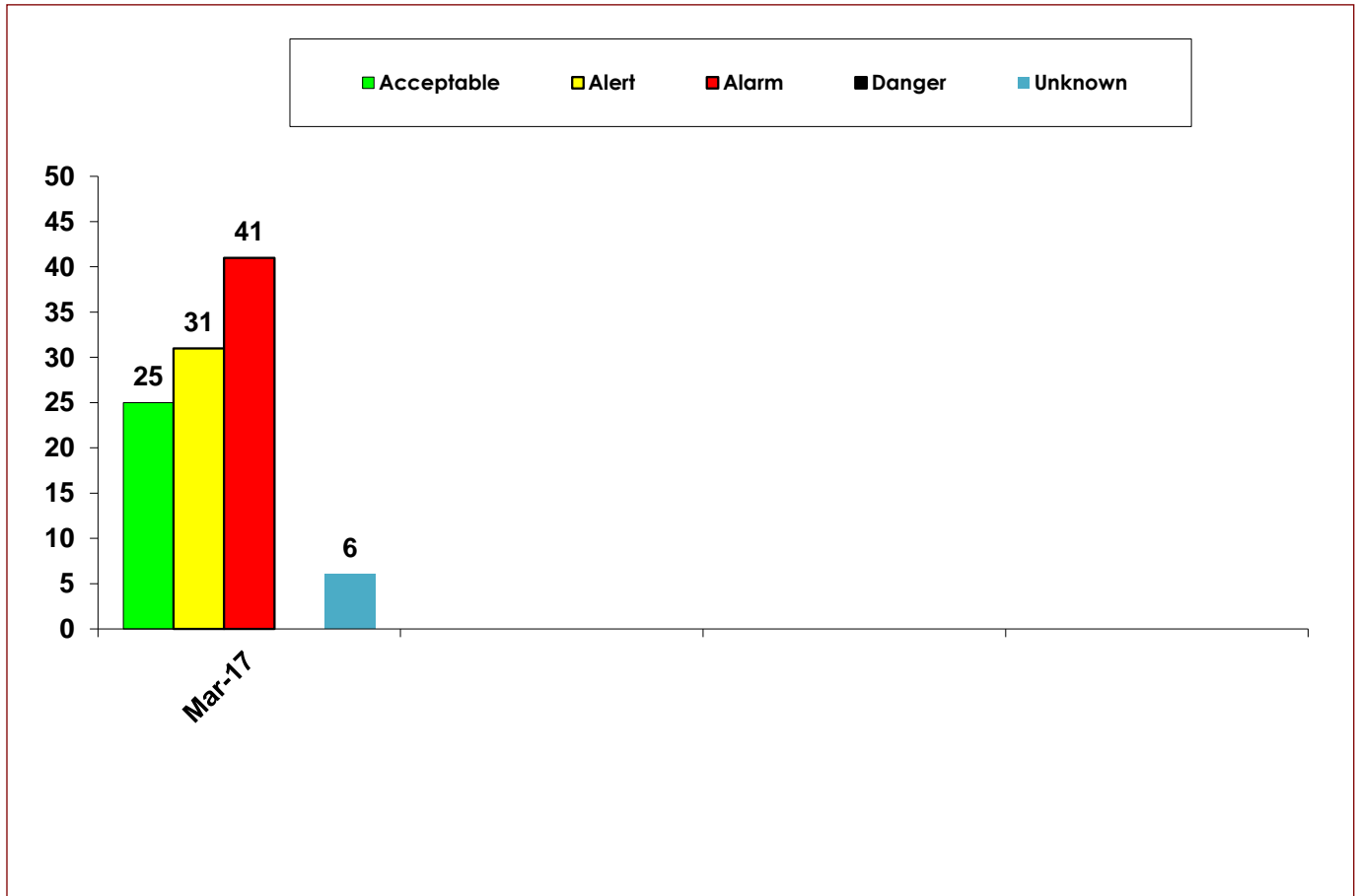
Predictive Justification Measures

- Increased Uptime: Using industry standard or internal knowledge
- Increased Energy Savings: See P/PM, October 1993; Reliability
- Increased Life Expectancy: ASHRAE 1995
- Decreased Maintenance Costs: OEM pricing and internal labor costs



Predictive Technologies, Inc. (PTI) implements results centered maintenance philosophies, which increases up time, reduces operating costs, while increasing reliability and life expectancy of your assets and environments.

Machine Condition Summary



Machine Current Condition (Groups/Individual): Tested

Mechanical Equipment Assessment & Recommendation

Recommendations: Not necessarily in order of importance, but seemly most effective mitigation.

1. **Mechanical Equipment Assessment: Alert:** Overall evaluation of the school the mechanical equipment is operational or if recommissioned can be made to be operational. From our inspection noted there is a lack of scheduled preventive, predictive and proactive maintenance. Implementation of scheduled reliability &/or condition based maintenance could provide a solution to most of these problems. Although the age of the school of certain sections may be of concern, it is still felt that this equipment still has a useful life. A plan may be put in place for the older equipment to be updated or replacement parts be purchased. It must be noted that not all units were opened up for thorough evaluation and assumptions were made when looking at similar units. This applies to UV's, & UH,s. All RTU's, EF's, & MUA's (except shop) were tested and at least visually inspected.
2. **Unit Ventilators (UV): Qty. 26 - Alarm:** Overall all unit ventilators are operational and can add adequate outdoor air as needed to reduce CO2 levels. All UV's have updated controls and can modulate heating valves, OA, and RA dampers. With this said, recommissioning is needed to recalibrate (Dampers and heating valves), lubricate (Brgs) and clean (Coils, filters and Integrally of the UV's). Preventative Maintenance should be implemented on a semi-annual schedule.
 - **Spare Parts:** A detailed spare parts inventory should be researched, documented, and implemented. Due to the age of the some of UV's coils (1950's-1960's) it may be beneficial to have one spare on hand due to time lapse or ordering to receiving. It also may be beneficial to keep on hand one blower motor, heating valve and damper motor.
 - **Updating of UV's:** A spare parts cost & energy analysis should be performed for comparison purposes for updating / repairing UV's. This could be done if pricing of spare parts seems excessive.
3. **Unit Heaters (UH): Qty. 20 - Alert:** Overall roughly 50% are controlled by the BAS, meaning they have the ability for night setback. Roughly the other 50% are electrically, pneumatically controlled and/or self-contained.
 - **Pneumatic:** Pneumatically controlled units have the ability for night setback, if they undergo a recommission and have a night setback thermostat installed. This system wasn't investigated thoroughly due to time & budget constraints.
 - **Electric:** Electrically controlled units can be connected to the BAS or may have individual timers installed. This depends on cost effectiveness.
4. **Rooftop Units (RTU): Qty. 4 - Alert:** Overall all RTU's are operational with both the Htg/Clg systems. All RTU's need a recommission to ensure proper controlling.
 - **Htg/Clg:** All units are operational. Each burner had a combustion analysis performed assuring they are at least close to normal parameters. Minor adjustments to gas/air pressures some parts are needed to bring back to normal operation.
 - **Vibration:** All vibration readings of the RTU's & AHU's motors / fans are close to normal tolerances. The exception being the Big Gym RAF detailed later.

Mechanical Equipment Assessment & Recommendation

1. **Exhaust Fans (EF): Qty. 15 - Alarm:** Overall all EF's need a maintenance schedule for lubrication and belt changes. Most EF's were found operational, but some were found to have broken belts with the motor still operating and some were found not operating. Schedule needs to be set semi-annually to perform maintenance for lubrication and belts.
 - **Elementary South EF:** Located in the teachers' lounge closet. EF was found not in operation and was not being supplied any power. Unit needs to be troubleshoot to put back in operation. This will help the stagnant air that was in this side of the building. If noise is a concern, then upgrading to a rooftop exhaust fan may be an option.
2. **Air Handling Units (AHU): Qty 5 - Alert:** Overall all electrical/mechanical operations of the units were acceptable and operational. Cleaning coils, replacing filters, lubrication, and vibration analysis should be scheduled on a semi-annual basis. All AHU's need a recommission of the units.
3. **Make Up Air (MUA): Qty: 4 – Alert:** Overall all electrical/mechanical operations of the units were acceptable and operational. Recommissioning & scheduled maintenance for lubrication, cleaning and calibrations are needed semi-annual.
 - **CNA/Welding Shop:** Our understanding is these units do not operate very often and weren't checked for operation. Due to access to the units, they were not tested. The appearance of the unit, which was in good physical condition appeared capable of operation, but is not confirmed. Due to budget / time constraints a full evaluation wasn't performed.
 - **Kitchen and Pool Locker Room:** The assessment of these units was in good operating condition and started normally.
1. **Boiler #1 & #2:** Acceptable: Although a combustion analysis or other forms of testing weren't performed on the boilers. It is assumed due to the age and physical condition, they are to be acceptable. Semi-annual maintenance is to be performed to start and end the season. If further information is needed contact your boiler contractor.
2. **Building Automation System (BAS): Alert:** This BAS was installed approximately 2011 (???) and is running version 6.1. The BAS is fully controlling most the mechanical systems throughout the school. It was found that calibrations need to be performed to match the actual setting versus what is read on the BAS. Example: On a OA damper at 60% command on the BAS, the damper was only opened to 10%.
 - **Update:** System is currently running version 6.1 software and could potentially be updated to a newer version. Complaints were noted about current version being slow on the BAS, updated version or internet could potentially speed the process.

Mechanical Equipment Assessment & Recommendation

Building Automation System (BAS): Continued

- **Controlled Systems:** Overall the assessment noted the UV's, AHU's and a select number of UH's being controlled by the BAS.
- **Uncontrolled Systems:** Overall all the RTU's, MAU's, EF's, Split A/C systems and most UH's were not controlled by the BAS. Pool graphic resides on the BAS, but not controlled. (TBD)
- **Improvements:** Uncontrolled systems should either be added to the BAS or have individual night setback programmable thermostats/timers. This should be evaluated on a case by case in each given area. Access to cabling may be a problem, but if a project was developed then this could just be implemented.

3. **Piping System: Alert:** PTI performed a limited number of Ultrasonic Thickness Tests (UTT) samples throughout the boiler room, media center, UH's and AHU's. It was determined that piping in certain areas had small pin hole type pitting. According to lifetime corrosion rates the calculations were showing the lowest minimum life expectancy at one area at 2 years. From the limited number of samples, it would appear the most at risk areas are where the piping is threaded. These areas may have a wall thickness (initially) of 0.125" and threads are cut 0.060" leaving these area vulnerable. It is highly recommended annually that sections of the school be scanned thoroughly using UTT to ensure the risk is mitigated. This would give a clearer picture. Monitor these established areas and correct the at risk sections.

4. **Heating System: Alert:** Overall the systems listed below are within tolerance, but more information & testing would be needed about the heat exchangers.

- **Circulating Pumps: Qty. 15, Acceptable:** Several of these pumps have been replaced and the remaining according to the vibration analysis were in acceptable condition. The cost to replace / upgrade could be figured into a budget and wouldn't be of great consequence.
- **Heat Exchangers: Qty. 5, Unknown:** The condition of the original HX aren't known and unless tested with Eddy Current (Internal Piping wall scans) the condition is unknown. It can be assumed that since two have been replaced possibly due to leaking that the other two may not be far behind. To know for sure interviewing the installing contractor or performing ET is the best option.
- **Steam Traps: Qty. 70, Unknown:** An annual program using Ultrasonics and Infrared need to be employed to verify the efficient operation of the traps. See Example Report.

5. **Air Conditioning: Qty. 6 - Acceptable:** All A/C systems seem to be operating properly. Although the media centered may be slightly low on refrigerant.

6. **Walk in Cooler/Freezer: Qty. 2 - Acceptable:** All systems seem to be operating properly.

7. **Building Enveloping: Alert:** Scanning of the exterior of the building was showing signs of inefficiencies at windows, side walls and areas of the roof to improve. Further scans need to be performed for further details. Just a brief overview was performed to serve as an example.

RTU District Office

MAKE: Trane

MODEL NUMBER: YCD49C3LOBE

SERIAL NUMBER: M48100454D

Filters: 16x20x4 (2)

Number of Circuits: 2

Comments: **Date:** 3/7/2017: PTI inspected all bearings, electrical connections and motors. Secure wiring, replace baffles, clean burners, tighten compressor feet, clean coil and recommission.
Condition: **ALERT**



Combustion Reading's 2017	Stage 2
O2 %	8.0
Co2 %	7.2
Co Ppm	00
FLUE Temp	572.6
INLT Temp	7.2
EFF	73.6
X Air	64.6
Co/Co2	7.2
PRS InH2O	-0.14
Burners Clean/Dirty	Dirty
Gas Pressure	0.13

RTU Biology

MAKE: Trane

Filters: 16x20x4

Number of Circuits: 2

Date: 3/16/2017: **Comments:** PTI inspected all bearings, electrical connections and motor. Recommission, clean unit, install disconnect switch and programmable thermostat. Condition: **ALERT**



Combustion Reading's 2017	Stage 2
O2 %	10.5
Co2 %	6.1
Co Ppm	72
FLUE Temp	255.3
EFF	82.5
X Air	95.3
PRS InH2O	0.00
Burners Clean/Dirty	Dirty
Gas Pressure	3.45

RTU High School Office

MAKE: Trane

MODEL NUMBER: GCS16-060-120-3Y

SERIAL NUMBER: 5601D05913

Filters: 16x20x4 (8)

Number of Circuits: 2

Date: 2/1/2017: **Comments:** PTI inspected all bearings, electrical connections and Motors. Secure wiring, clean unit and recommission. Condition: **ALERT**



Combustion Reading's 2017	Stage 2
O2 %	12.4
Co2 %	4.9
Co Ppm	31
FLUE Temp	222.9
EFF	82.3
X Air	143
PRS InH2O	-0.22
Burner Clean/Dirty	Dirty
Gas Pressure	3.57

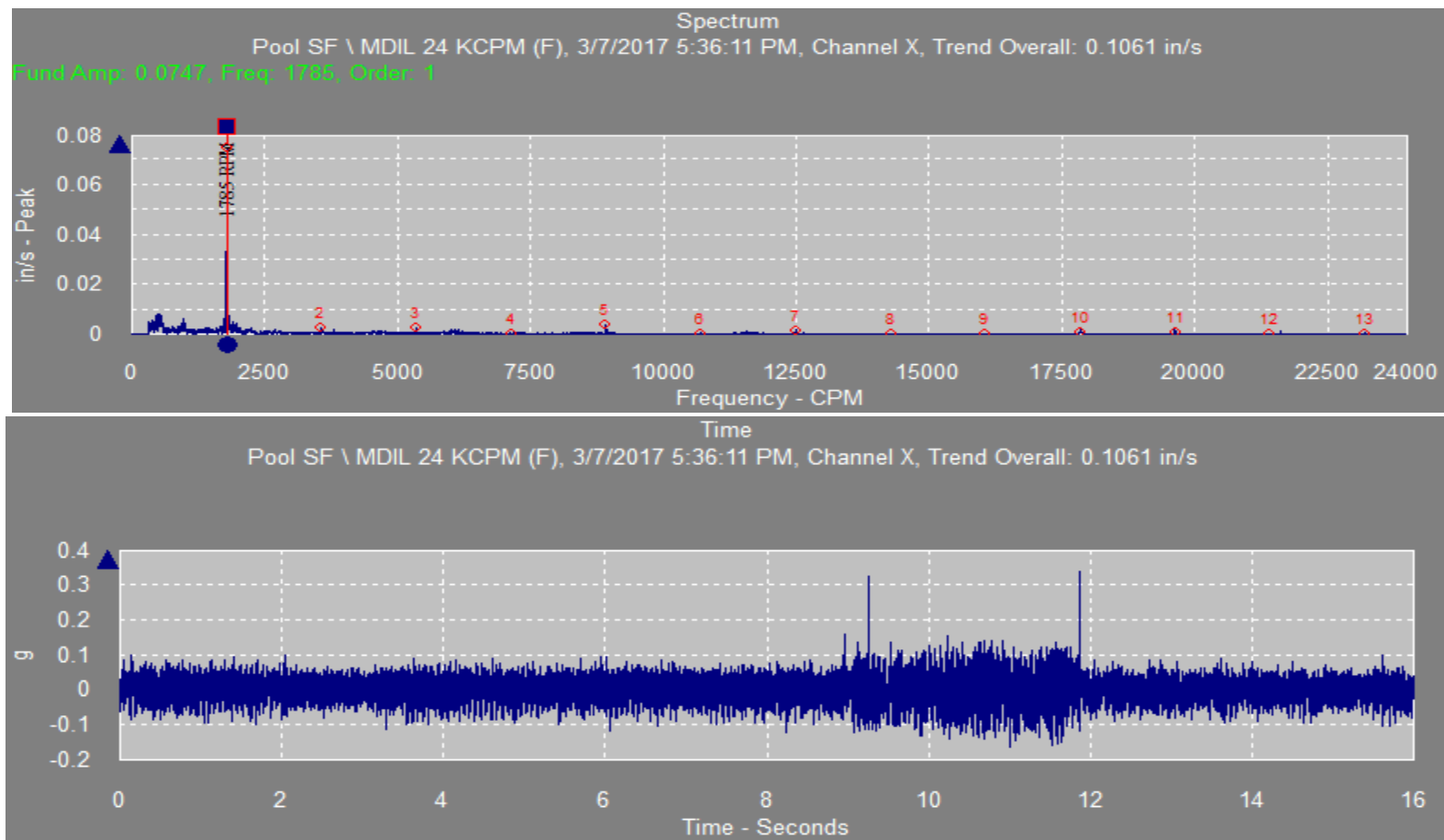
RTU: Pool

Make: Trane

Filters: 16x20x4 (6) (Dirty need replacement)

Number of Circuits: 2

Date: 3/16/2017: **Comments:** PTI inspected all bearings, electrical connections and Motors. Vibration data was acceptable. Condition: Acceptable



MUA Kitchen

MAKE: Trane

MODEL NUMBER: GRCA30PDBBON2CL305NOL

SERIAL NUMBER: A97L46867

Filters: 16x20x4 (6) (Need one filter 16x24x4))

Number of Circuits: 2

Date: 3/16/2017

Comments: PTI inspected all bearings, electrical connections, belts and motors. Repair insulation, readjust gas pressure, clean unit and recommission.
Condition: **ALERT**

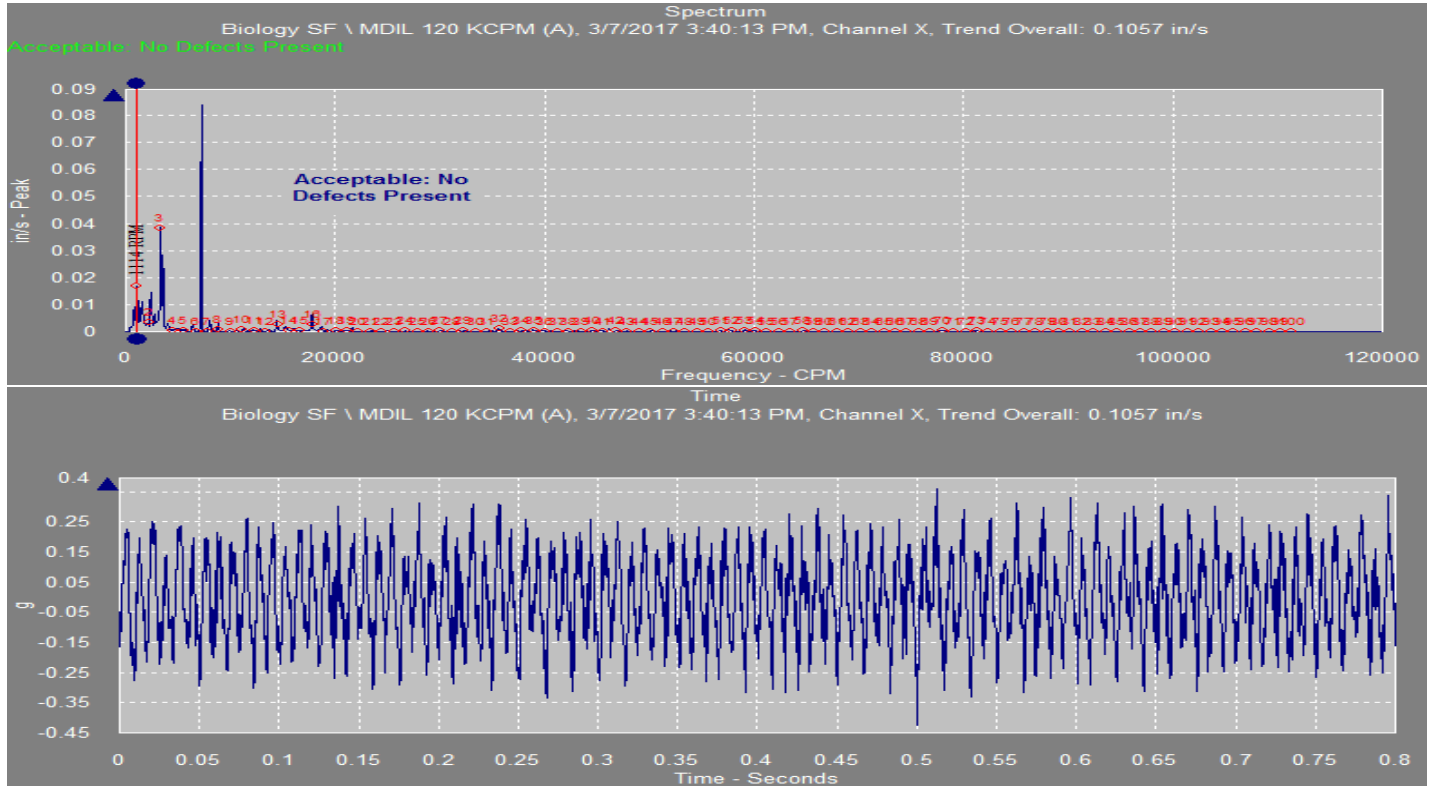


Combustion Reading's 2017	Stage 2
O2 %	8.1
Co2 %	7.2
Co Ppm	179
FLUE Temp	390.1
EFF	79.5
X Air	65.9
PRS InH2O	-0.21
Burner Clean/Dirty	Dirty
Gas Pressure	4.17

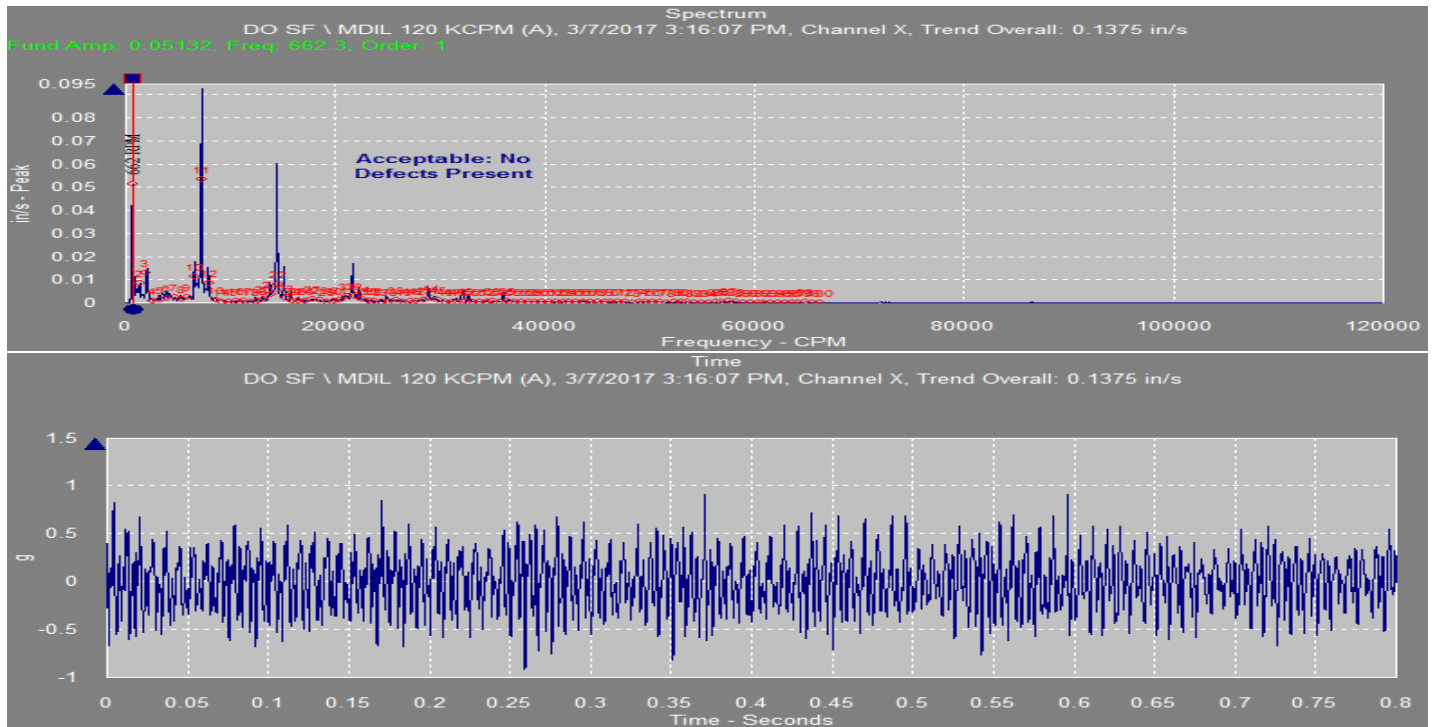
Vibration Analysis: Spectra

Rooftop Units

Biology

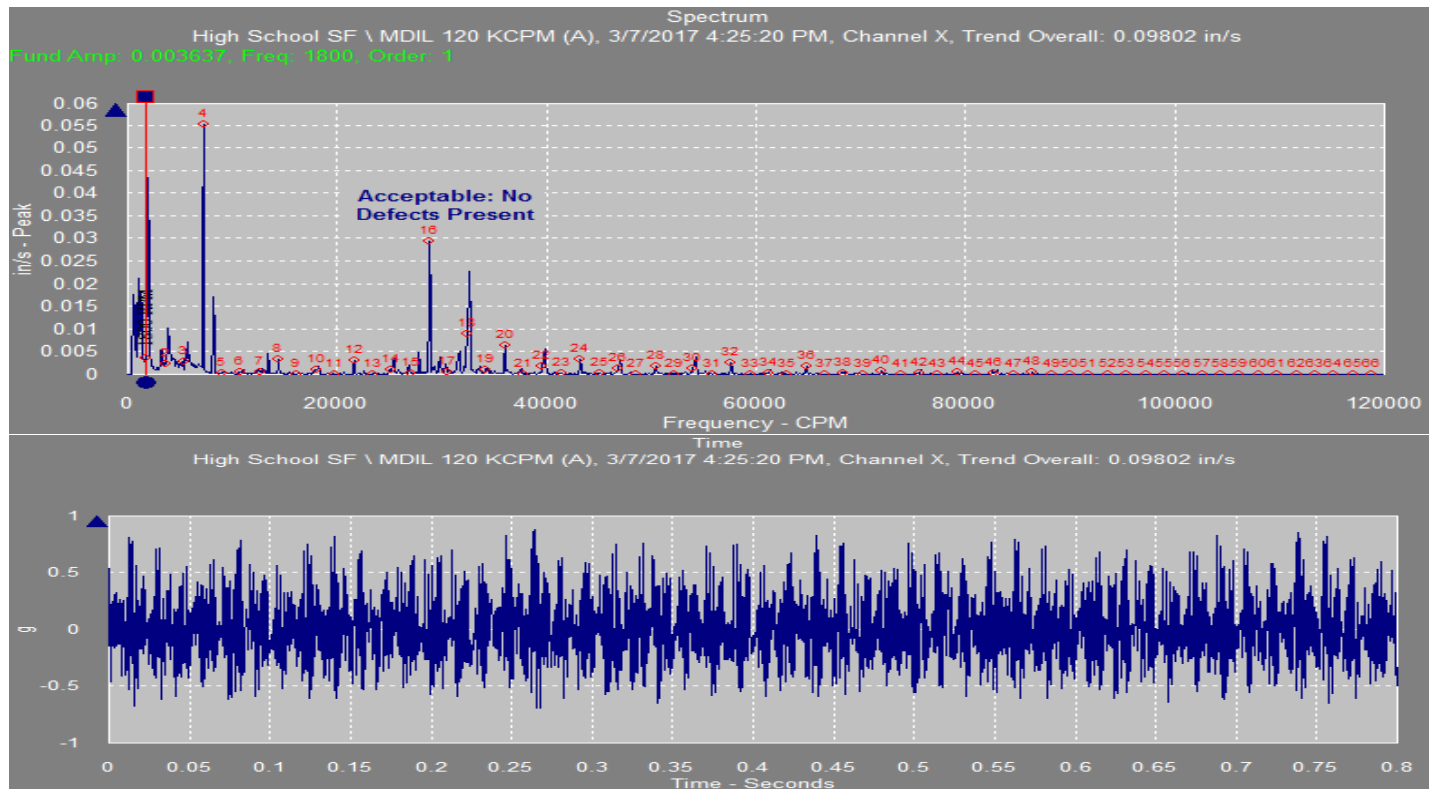


District Office

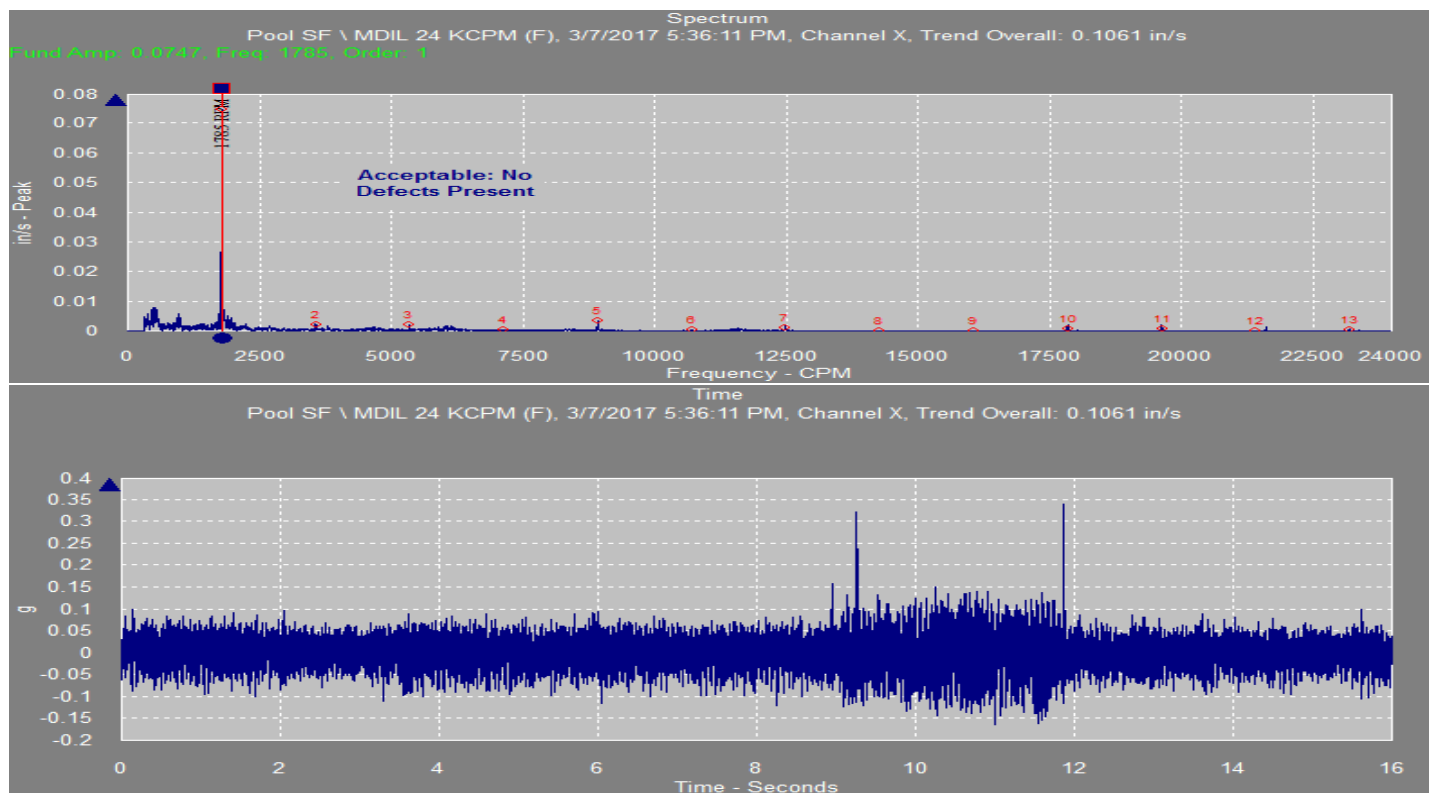


Vibration Analysis: Spectra

High School Office



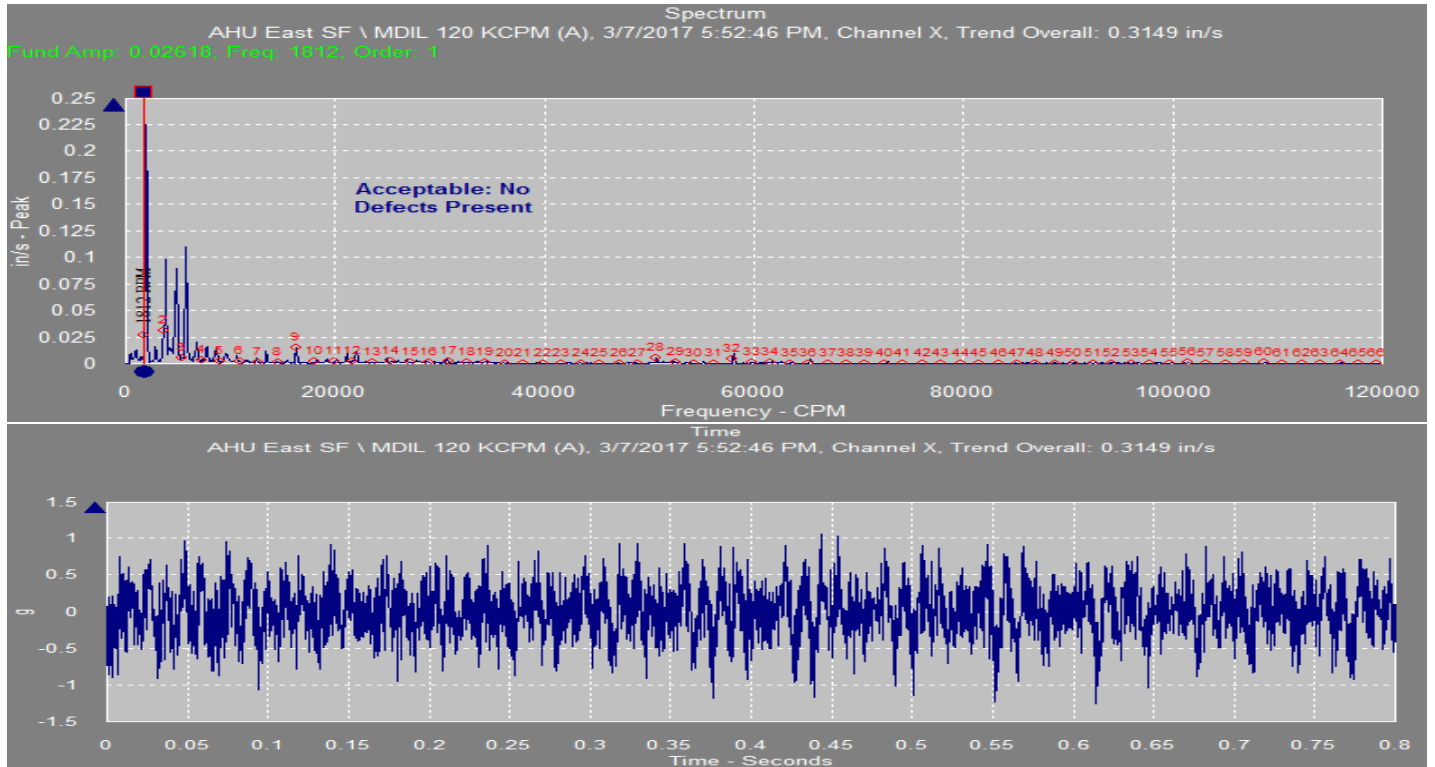
Pool



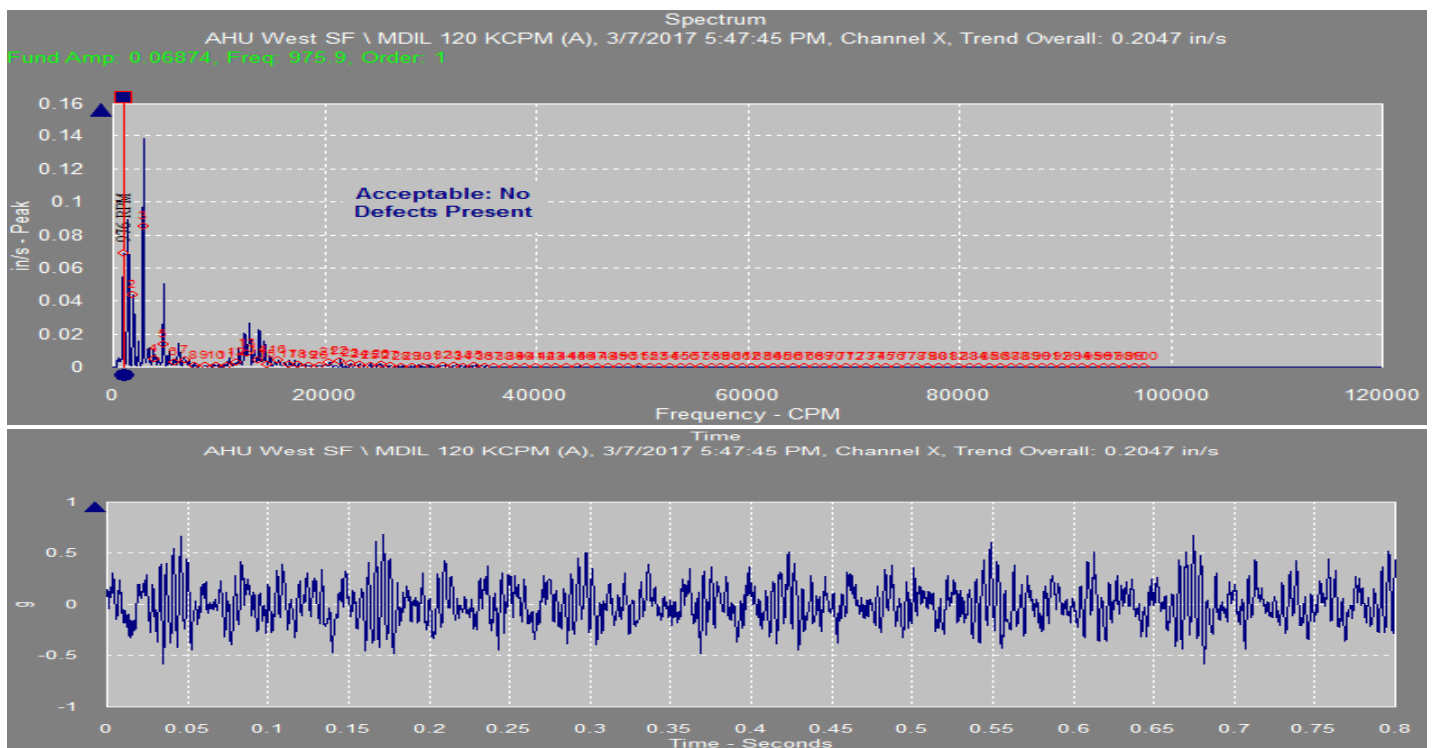
Vibration Analysis: Spectra

Air Handling Units

Commons

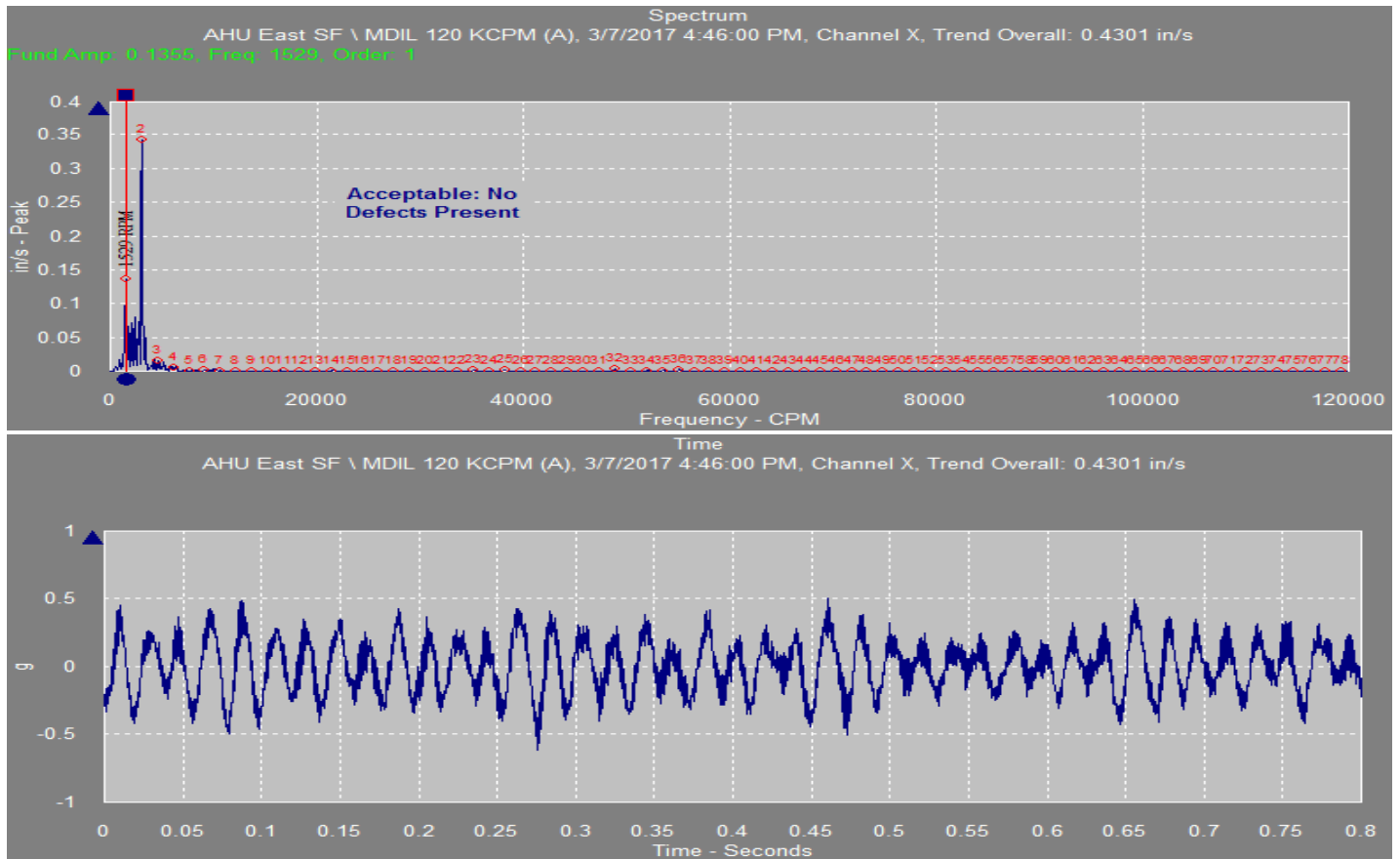


Small Gym

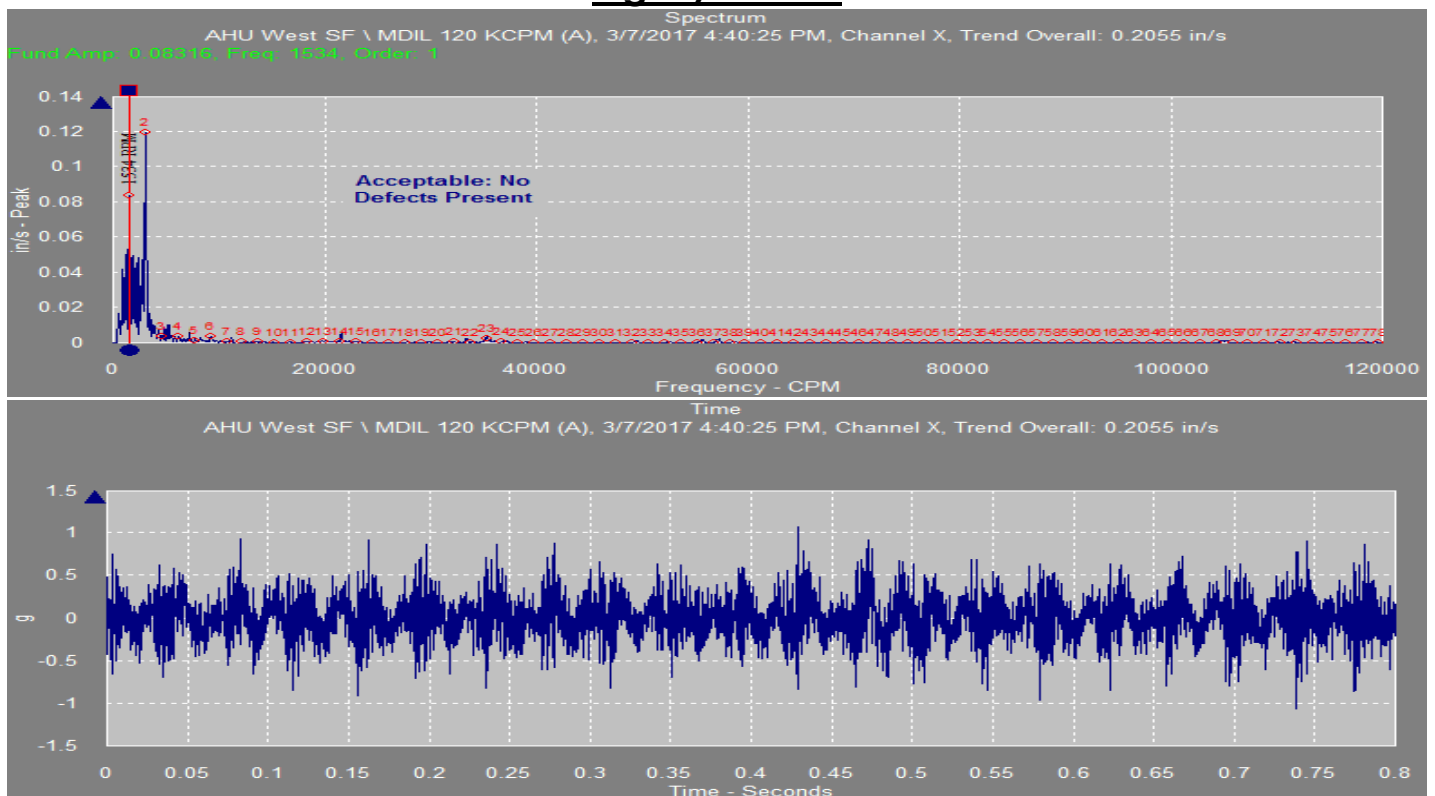


Vibration Analysis: Spectra

Big Gym East

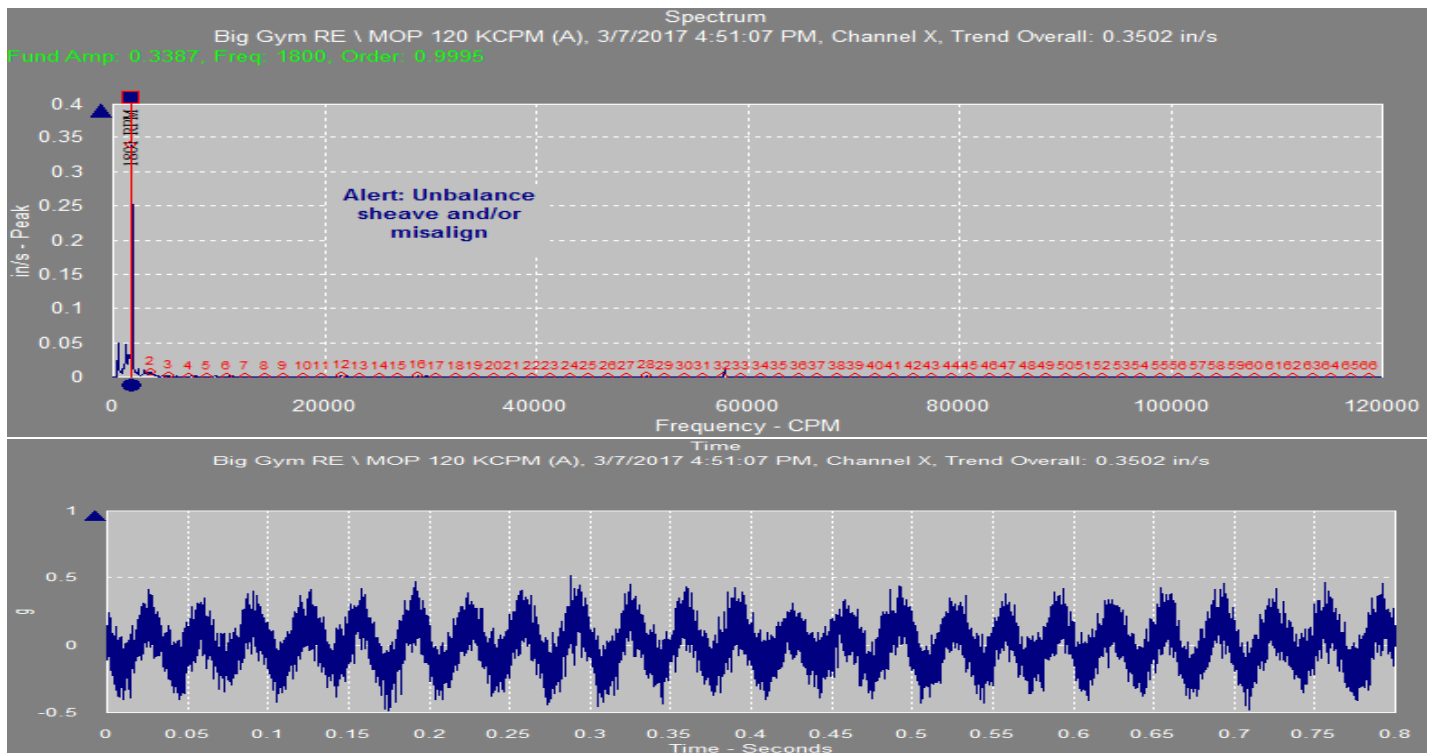


Big Gym West



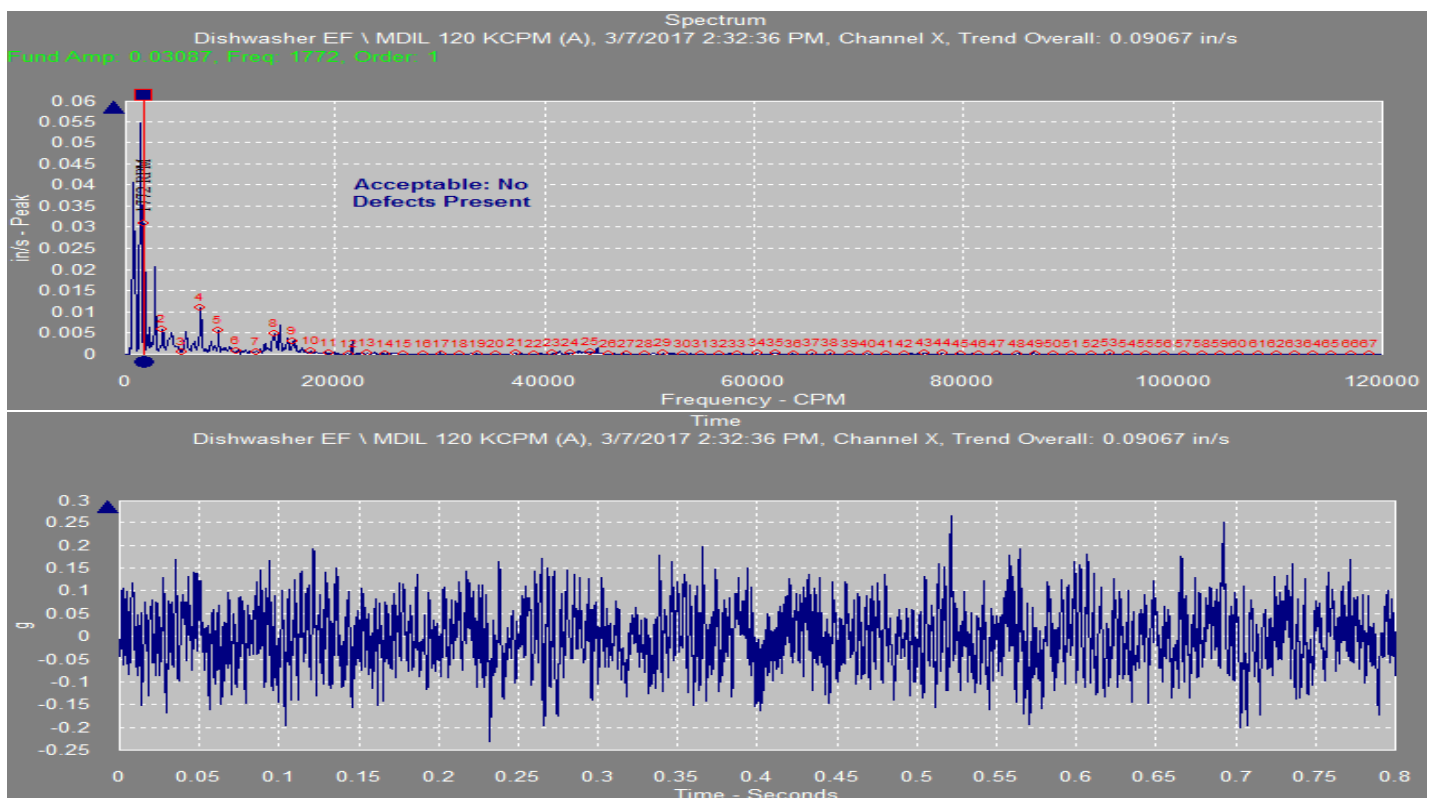
Vibration Analysis: Spectra

Big Gym Return



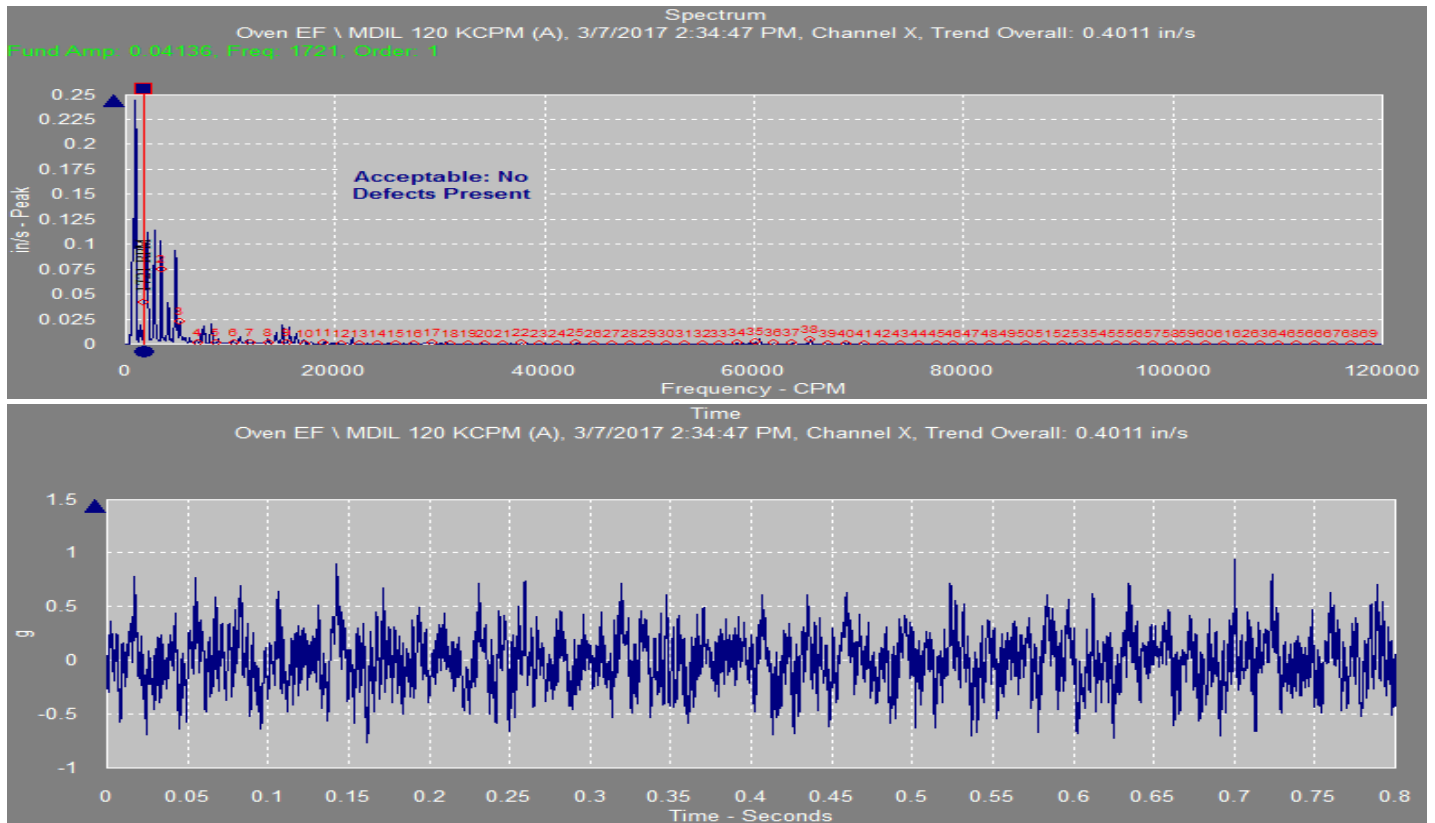
Exhaust Fans

Dishwasher

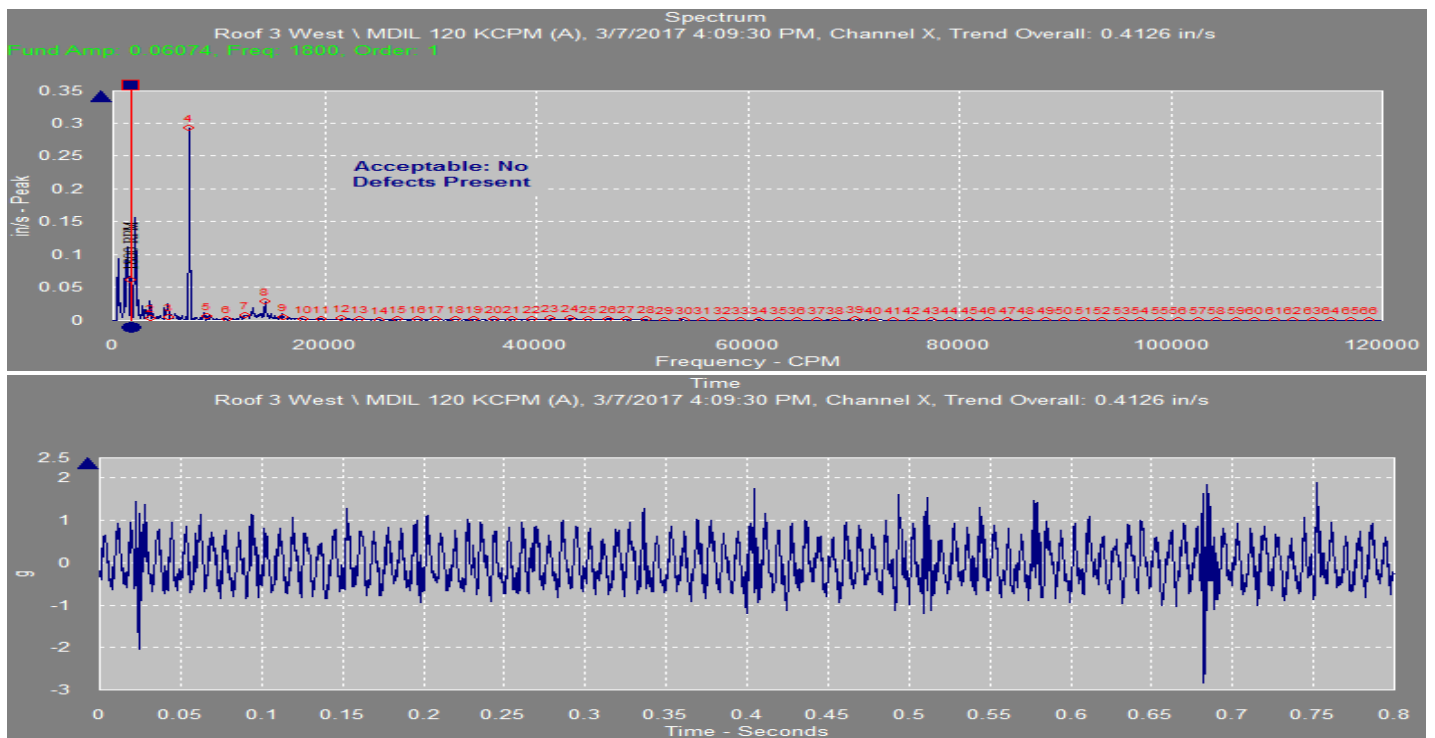


Vibration Analysis: Spectra

Oven

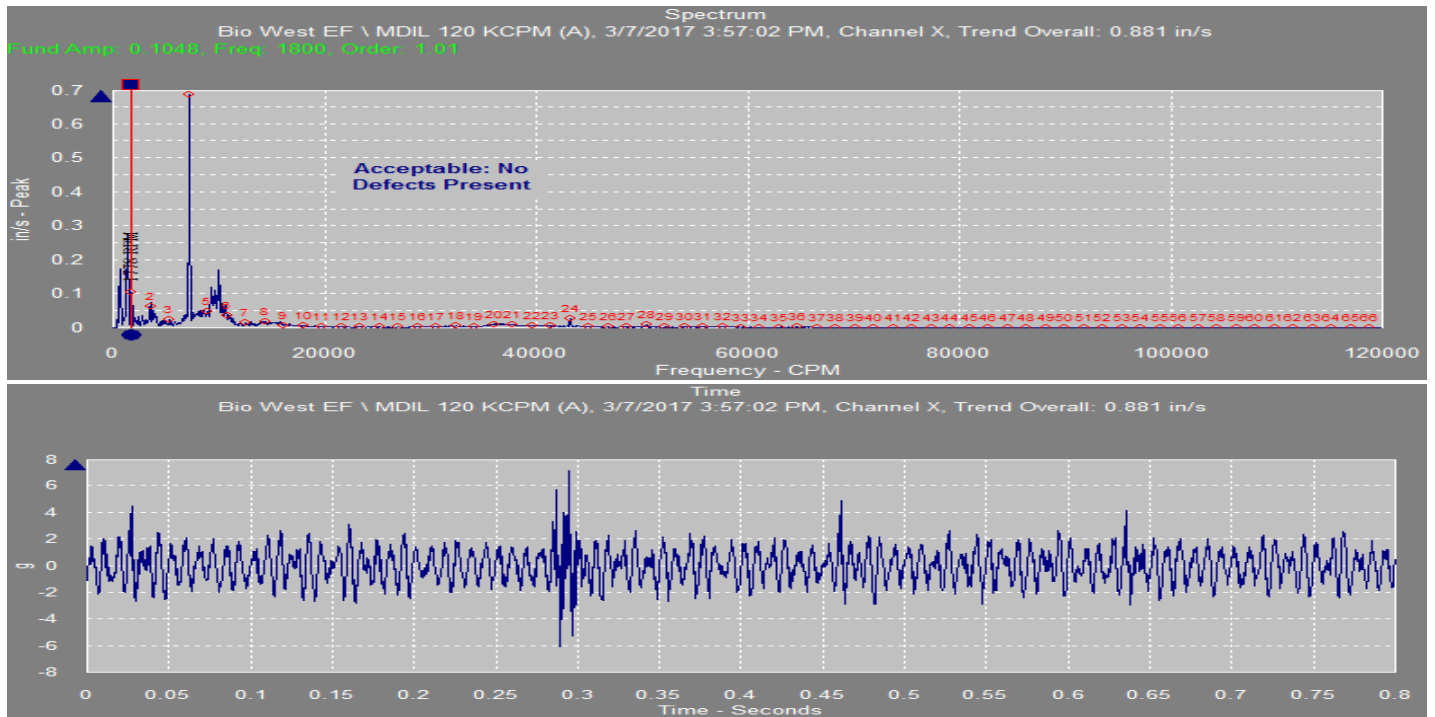


Roof 3 West



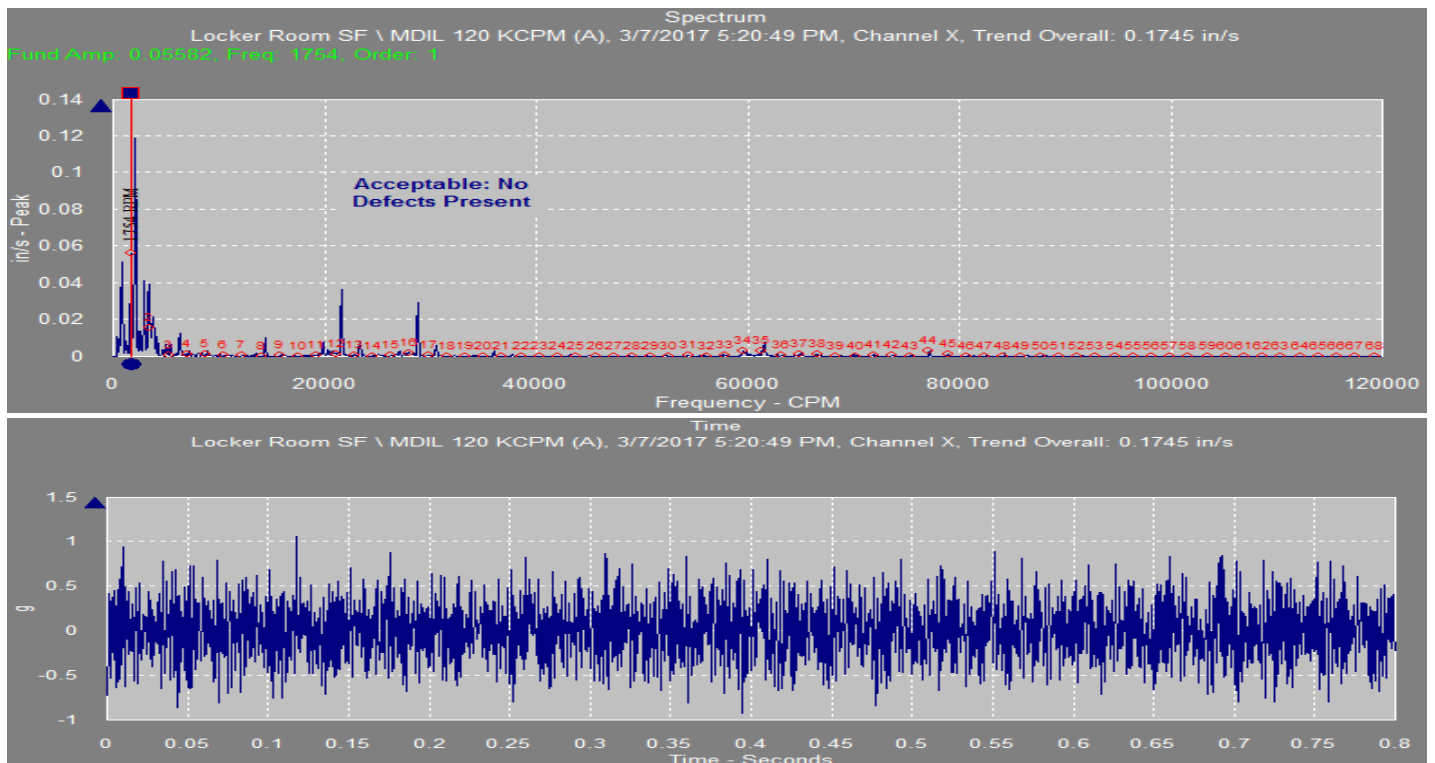
Vibration Analysis: Spectra

Biology West



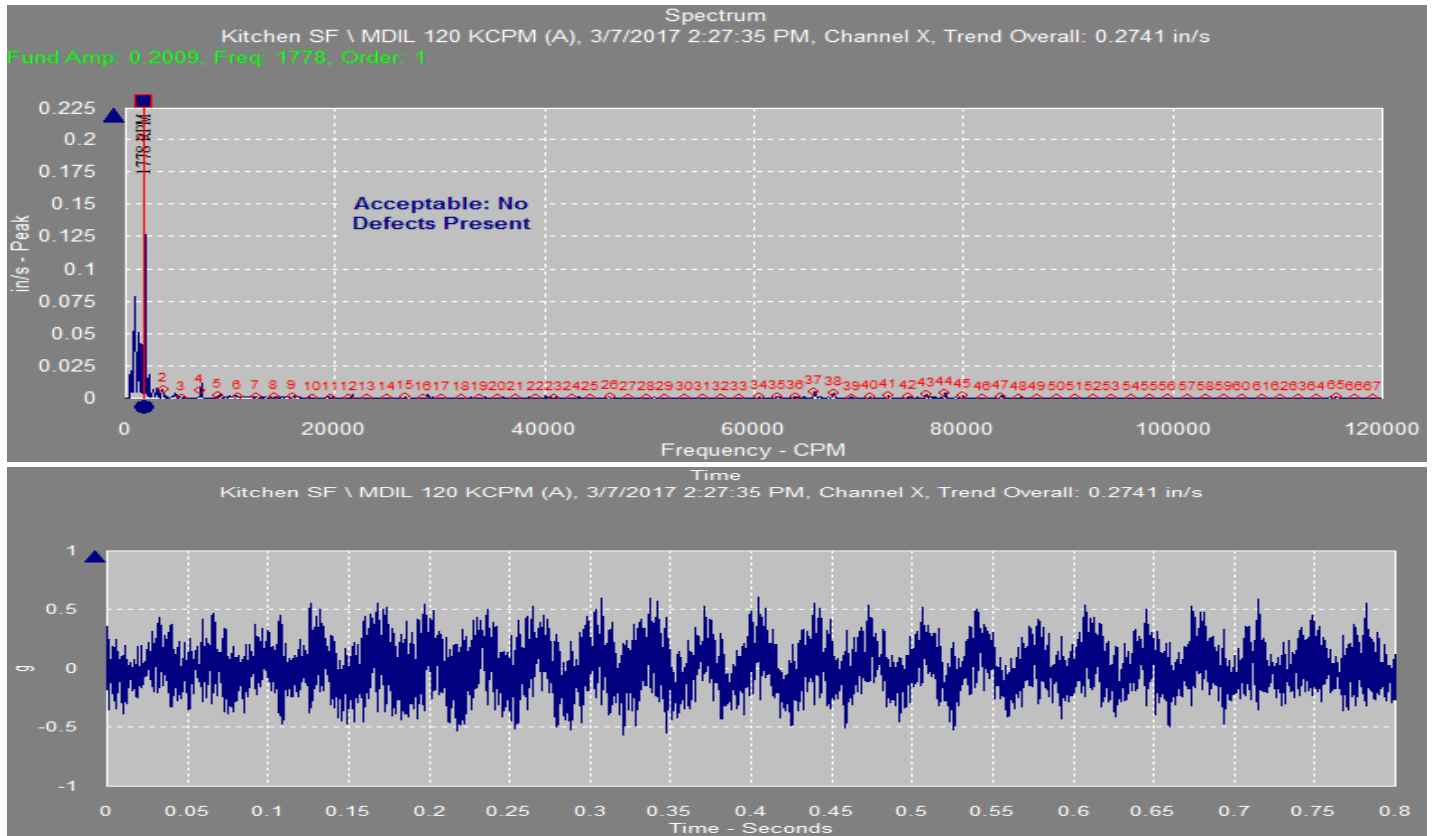
Make Up Air Units

Pool Locker Rooms

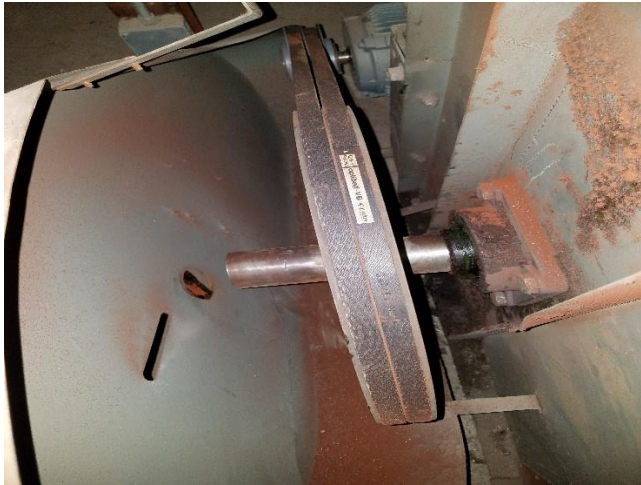


Vibration Analysis: Spectra

Kitchen



Mechanical Equipment Assessment: Pictures



Gym West AHU: Rust from shaft rubbing on guard



Elementary Rm 3: Exposed Line Voltage



Pool RTU: Dirty Filters



Elementary Rm 3: Dirty Filter on Unit Ventilator



Elementary Rm 3: Unit Ventilator Dirty Coil



Elementary Rm 3: Unit Ventilator Plugged Vent

Mechanical Equipment Assessment: Pictures



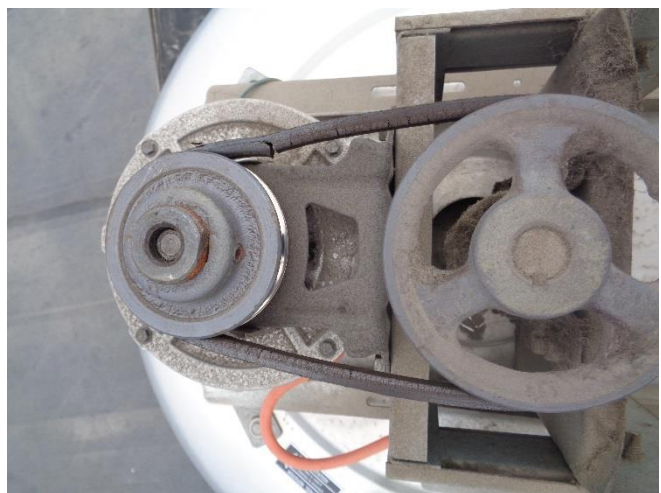
Elementary: North Hall Unit Heater Damaged Coil



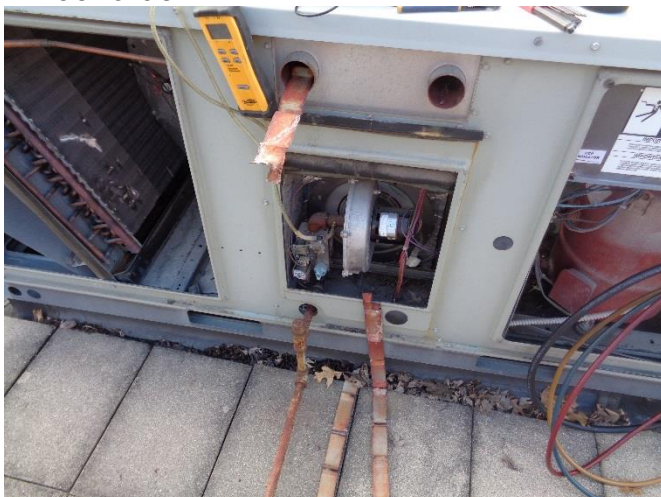
Computer Lab: Unit Ventilator with No Filters



East Biology: EF motor operating without a belt



Roof: Cracked belts on EF 3 West



RTU DO: Broken baffles



RTU DO: Loose wiring that needs to be secured.

Mechanical Equipment Assessment: Pictures



MUA Kitchen: filter that is too small for unit



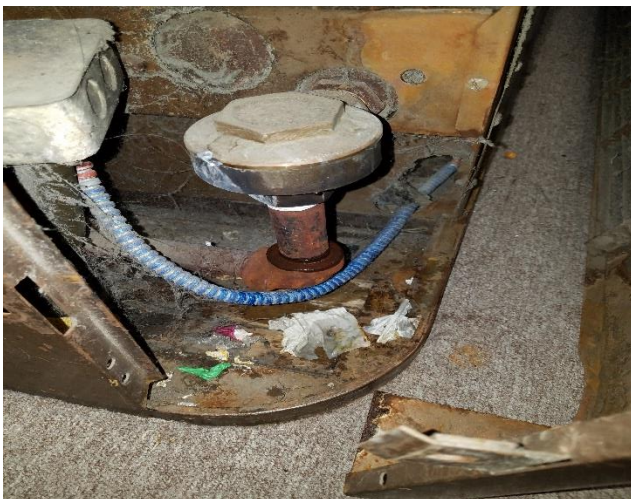
District Office Main Entrance Unit Heater Filter



MUA Kitchen: Panel insulation coming off



Boiler Room: Pneumatic night setback off by 12hrs



1-102 UV: Steam trap Leak



MC: OA damper 10% open and Motor at 30%

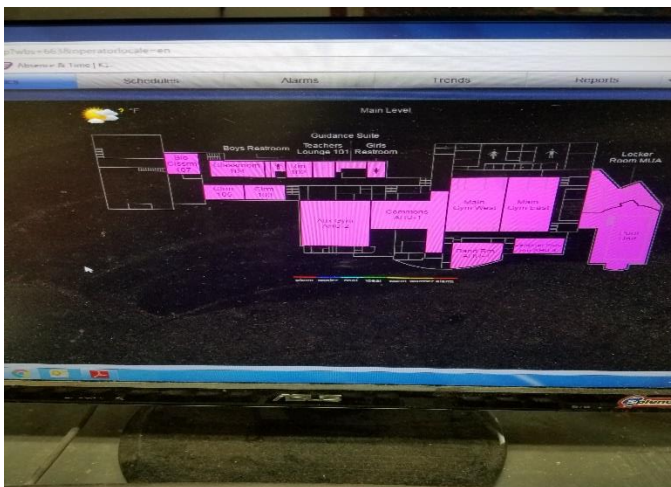
Mechanical Equipment Assessment: Pictures



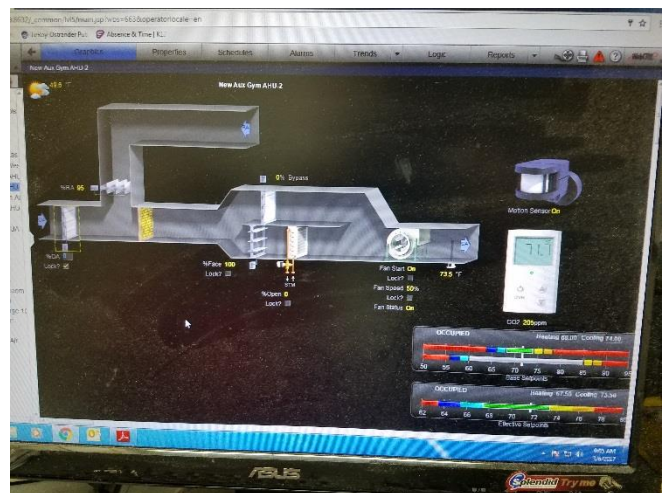
Elementary: Rm 3 Valve leaking



Gymnasium: CO2 Sensor



Building Automation System



BAS Unit operation



MUA Kitchen: Vibration Data Collecting



MUA Kitchen: Combustion Analysis

LeRoy, MN: Summarized Results: Mechanical & IAQ Assessment (2017)																
Section		Date of Survey	Equipment Tested	Current Age	Air Conditioning (Y/N)	Outdoor Air Capable (Y/N)	Steam or Hot Water	Type of Heater #1	Type of Heater #2	Pneumatic or Electric	OA Dampers Operational (Y/N)	T-Stat Operational	Heating Valve Operational	Night Set Back Capable (Y/N)	Steam Trap Working (Y/N)	Average Temp
Elementary																
E0	Ground Level	3/6/2017	Unit Ventilator	1958	No	Yes	Hot Water	UV	-	Electric	Yes	BAS	Yes	Yes	N/A	73
E1	Ground Level	3/6/2017	Unit Ventilator	1958	No	Yes	Hot Water	UV	-	Electric	Yes	BAS	Yes	Yes	N/A	73
E2	Ground Level	3/6/2017	Unit Ventilator	1958	No	Yes	Hot Water	UV	-	Electric	Yes	BAS	Yes	Yes	N/A	73
E3	Ground Level	3/6/2017	Unit Ventilator	1958	No	Yes	Hot Water	UV	-	Electric	Yes	BAS	Yes	Yes	N/A	73
E4	Ground Level	3/6/2017	Unit Ventilator	1958	No	Yes	Hot Water	UV	-	Electric	Yes	BAS	Yes	Yes	N/A	73
E5	Ground Level	3/6/2017	Unit Ventilator	1958	No	Yes	Hot Water	UV	-	Electric	Yes	BAS	Yes	Yes	N/A	73
E6	Ground Level	3/6/2017	Unit Ventilator	1958	No	Yes	Hot Water	UV	-	Electric	Yes	BAS	Yes	Yes	N/A	73
E7	Ground Level	3/6/2017	Unit Ventilator	1958	No	Yes	Hot Water	UV	-	Electric	Yes	BAS	Yes	Yes	N/A	73
E8	Ground Level	3/6/2017	Unit Ventilator	1958	No	Yes	Hot Water	UV	-	Electric	Yes	BAS	Yes	Yes	N/A	73
E9	Ground Level	3/6/2017	Unit Ventilator	1958	No	Yes	Hot Water	UV	-	Electric	Yes	BAS	Yes	Yes	N/A	73
E10 & E11	Ground Level	3/6/2017	Furnace	1986	No	Yes	Nat gas	UH	-	Electric	No	BAS	Yes	No	N/A	71
North Hallway	Ground Level	3/6/2017	Unit Heater	1958	No	No	-	UH	-	Electric	No	BAS	Yes	-	N/A	70
South Hallway	Ground Level	3/6/2017	Unit Heater	1958	No	No	-	UH	-	Electric	No	BAS	Yes	-	N/A	71
Teachers Lounge	Ground Level	3/6/2017	Baseboard Heating	1958	No	-	-	BB	-	Electric	-	-	-	-	-	72
Laminator Room	Ground Level	3/6/2017	Baseboard Heating	1958	No	-	-	BB	-	Electric	-	-	-	-	-	73
Bathrooms	Ground Level	3/6/2017	Unit Heater	1958	No	-	-	UH	-	-	-	-	-	-	-	-
Entry Way	Ground Level	3/6/2017	Unit Heater	1958	No	No	Hot Water	UH	-	-	-	-	-	-	-	-
Teachers Lounge	Ground Level	3/6/2017	Exhaust Fan	Unknown	No	-	-	BB	-	Electric	-	-	-	-	-	72
High School																
Student Lounge	LL-01	3/6/2017	Baseboard Heating: Not In Operation, Rooms maintained by Air handler	1938	No	Yes	-	RTU	-	Electric	-	-	-	-	-	72
ITV	LL-02	3/6/2017	Baseboard Heating: Not In Operation, Rooms maintained by Air handler	1938	No	Yes	-	RTU	-	Electric	-	-	-	-	-	73
Computer Lab	LL-03	3/6/2017	Unit Ventilator	1938	No	Yes	Steam	UV	-	Electric	Yes: Calibrate	BAS	Yes	Yes	Yes	72
Electrical Room	Lower Level	3/6/2017	No Heating	1938	No	No	-	-	-	-	-	-	-	-	-	-
South Entrance #4	Ground Level	3/6/2017	Baseboard Heating	1938	No	No	-	-	-	-	-	-	-	-	-	-
Media Center	Lower Level	3/6/2017	Unit Ventilator	1938	Yes	Yes	Steam	UV	-	Electric	Yes: Calibrate	BAS	Yes	Yes	-	70
Stairwell #12	Lower Level	3/6/2017	Unit Heater	1998	No	No	-	-	-	-	-	-	-	-	-	-
Ms. Stoop	LL - Art Room	3/6/2017	Unit Ventilator	1998	No	Yes	-	-	-	-	-	-	-	-	-	-
CNA Room	LL - 6B	3/6/2017	Make Up Air: Not Tested	1998	No	Yes	Gas	MUA	-	Electric	-	-	-	No	-	-
Welding Shop	LL - 5B	3/6/2017	Make Up Air: Not Tested	1998	No	Yes	Gas	MUA	-	Electric	-	-	-	No	-	-
Welding Shop	LL - 5B	3/7/2017	Exhaust Fans	1998	No	No	Gas	EF	-	Electric	-	-	-	No	-	-
Ms. Timm	LL - 5A	3/6/2017	Unit Ventilator	1998	No	Yes	-	-	-	-	-	-	-	-	-	-
Hallway	1st Floor	3/6/2017	Baseboard Heating	1938	-	-	-	-	-	-	-	-	-	-	-	-

LeRoy, MN: Summarized Results: Mechanical & IAQ Assessment (2017)																
Section		Date of Survey	Equipment Tested	Current Age	Air Conditioning (Y/N)	Outdoor Air Capable (Y/N)	Steam or Hot Water	Type of Heater #1	Type of Heater #2	Pneumatic or Electric	OA Dampers Operational (Y/N)	T-Stat Operational	Heating Valve Operational	Night Set Back Capable (Y/N)	Steam Trap Working (Y/N)	Average Temp
High School Offices	1st Floor	3/6/2017	Baseboard Heating	1938	Yes	Yes	-	BB	-	Electric	-	-	-	-	-	74
Boys Bathroom	1st Floor	3/6/2017	Baseboard Heating	1938	No		-	BB	-	Electric	-	-	-	-	-	72
Women's Bathroom	1st Floor	3/6/2017	Baseboard Heating	1938												
PE Office	1st Floor	3/6/2017	Baseboard Heating	1938	No	Yes	-	BB	-	Electric	-	-	-	-	-	72
Guidance Morrow	1-100	3/6/2017	Baseboard Heating	1938	No	No	Steam	BB		Electric	N/A	BAS	-	Yes	Test	80
East Guidance Morrow	1-100	3/6/2017	Unit Ventilator	1938	No	No	Steam	BB		Electric	N/A	BAS	-	Yes	Test	77
Teachers Lounge	1-101	3/6/2017	Baseboard Heating	1938	No	Yes	-	BB	-	Electric	-	-	-	-	-	72
Mrs. Twait	1-102	3/6/2017	Baseboard Heating and Unit Ventilator	1938	No	Yes	Steam	UV	BB	Electric	N/A	BAS	Yes- Sticking	Yes	Test	80
Mrs. Olson	1-103	3/6/2017	Unit Ventilator	1950	No	No	Steam	UV		Electric	N/A	BAS	-	Yes	Test	77
Mrs. Olson	1-103	3/6/2017	Split System A/C	2000	Yes	No	-	-	-	Electric	N/A	Remote	No	No	-	72
Mrs. Hubka	1-104	3/6/2017	Unit Ventilator	1950	No	No	Steam	UV	-	Electric	N/A	BAS	-	Yes	Test	77
Mrs. Scaglione	1-105	3/6/2017	Baseboard Heating and Unit Ventilator	1950	No	Yes	Steam	UV	BB	Electric	N/A	BAS	Yes- Sticking	Yes	Test	72
Mrs. Brahm	1-107	3/6/2017	Unit Ventilator	1998	No	Yes	Steam	UV	BB	Electric						
Men's Bathroom	2nd Floor	3/6/2017	Unit Heater	1950	No	No	Steam	UH	-	-	BAS	N/A	Yes	No	Test	70
Women's Bathroom	2nd Floor	3/6/2017	Unit Heater	1950	No	No	Steam	UH	-	-	BAS	N/A	Yes	No	Test	71
Library Room	2nd Floor	3/6/2017	Baseboard Heating and Unit Ventilator	1950	No	Yes	Steam	UV	BB	Electric	N/A	BAS	Yes	Yes	Test	72
Mrs. Rosedahl	2-202	3/6/2017	Baseboard Heating and Unit Ventilator	1950	No	Yes	Steam	UV	BB	Electric	N/A	BAS	Yes	Yes	Test	72
Mrs. Belshan	2-203	3/6/2017	Baseboard Heating and Unit Ventilator	1950	No	Yes	Steam	UV	BB	Electric	N/A	BAS	Yes	Yes	Test	72
Mrs. Johnson	2-204	3/6/2017	Two Unit Ventilators	1950	No	No	Steam	UV	UV	Electric	N/A	BAS	-	Yes	Test	77
Mrs. Nehl	2-205	3/6/2017	Baseboard Heating and Unit Ventilator	1950	No	Yes	Steam	UV	BB	Electric	N/A	BAS	Yes	Yes	Test	72
Mr. Schmidt	3-301	3/6/2017	Baseboard Heating and Unit Ventilator	1950	No	Yes	Steam	UV	BB	Electric	N/A	BAS	Yes	Yes	Test	72
Mrs. Olson	3-302	3/6/2017	Unit Ventilator	1950	No	Yes	-	UV	-	Electric	Yes	Yes	Yes	Yes	N/A	72
Boiler Room																
Boiler Room	Lower Level	3/6/2017	Boiler #1 Kewanee	1996	No	-	-	-	-	Electric	-	-	-	-	-	-
Boiler Room	Lower Level	3/6/2017	Boiler #2 Aldrich	2016	No	-	-	-	-	Electric	-	-	-	-	-	-
Boiler Room	Lower Level	3/6/2017	DHW Heat Exchanger	Newer	No	-	-	-	-		-	-	-	-	-	-
Boiler Room	Lower Level	3/6/2017	DHW Auxillary Heater	2014	No	-	-	-	-		-	-	-	-	-	-
Boiler Room	Lower Level	3/6/2017	Air Compressor / Dryer	1998	No	-	-	-	-	Pneumatic	-	-	-	-	-	-
Boiler Room	Lower Level	3/6/2017	Pumps: 13 Units	Varies	No	-	-	-	-		-	-	-	-	-	-
Gymnasium and Pool																
Men's Locker Room	Ground Level	3/7/2017	Unit Heater & Baseboard Heating	1958	No	Yes	-	BB	-	Electric	-	-	-	-	-	74
Women's Locker Room	Ground Level	3/7/2017	Unit Heater & Baseboard Heating	1958	-	-	-	-	-	-	-	-	-	-	-	-
Weight Room	Ground Level	3/7/2017	Baseboard Heating	1958	No	Yes	-	BB	-	Electric	-	-	-	-	-	74

LeRoy, MN: Summarized Results: Mechanical & IAQ Assessment (2017)																
Section		Date of Survey	Equipment Tested	Current Age	Air Conditioning (Y/N)	Outdoor Air Capable (Y/N)	Steam or Hot Water	Type of Heater #1	Type of Heater #2	Pneumatic or Electric	OA Dampers Operational (Y/N)	T-Stat Operational	Heating Valve Operational	Night Set Back Capable (Y/N)	Steam Trap Working (Y/N)	Average Temp
Big Gymnasium	Ground Level	3/7/2017	Unit Heater	1990	-	-	-	-	-	-	-	-	-	-	-	-
Pool Mechanical Room	Ground Level	3/7/2017	Unit Heater	2010?	No	No	Hot Water	UH	-	Pneumatic	No	Yes	Manual	No	None	73
Commons and District Offices																
North Entrance #17	Ground Level	3/7/2017	Unit Heater	1958	No	No	Hot Water	UH	-	Pneumatic	No	Yes	Manual	No	None	72
NE Hallway	Ground Level	3/7/2017	Unit Heater	1958	-	-	-	-	-	-	-	-	-	-	-	-
North Lunch Entrance	Ground Level	3/7/2017	Unit Heater	1958	No	No	Hot Water	UH	-	Pneumatic	No	Yes	Manual	No	None	72
East Main Entrance #22	Ground Level	3/7/2017	Unit Heater	1998	No	No	Hot Water	UH	-	Pneumatic	No	Yes	Manual	No	None	75
South Main Entrance	Ground Level	3/7/2017	Unit Heater	1998	No	No	Hot Water	UH	-	Pneumatic	No	Yes	Manual	No	None	74
South Main Entrance	Ground Level	3/7/2017	Baseboard Heating	1998	No	No	Hot Water	UH	-	Pneumatic	No	Yes	Manual	No	None	74
Super Intendent Office	Ground Level	3/7/2017	Baseboard Heating	1998	Yes											
West District Office	Ground Level	3/7/2017	Baseboard Heating	1998	Yes											
Rooftop Units																
District Offices	Roof	3/7/2017	RTU	1998	Yes	Yes	Natural Gas	Gas	-	Electric	Yes	Single T-Stat	Yes	No	N/A	-
Biology Lab	Roof	3/7/2017	RTU	1998	Yes	Yes	Natural Gas	Gas	-	Electric	Yes	Single T-Stat	Yes	No	N/A	-
High School Offices	Roof	3/7/2017	RTU	1998	Yes	Yes	Natural Gas	Gas	-	Electric	Yes	Single T-Stat	Yes	No	N/A	-
Pool	Roof	3/7/2017	RTU	1998	Humidity Controlled	Yes	Natural Gas	Gas	-	Electric	Yes	Single T-Stat	Yes	No	N/A	-
Air Handling Units																
East AHU #1	Roof	3/7/2017	Air Handling Unit	1990?	No	Yes	Steam	AHU	-	E/P	Yes	BAS	Yes	Yes	Test	-
West AHU #2	Roof	3/7/2017	Air Handling Unit	1990?	No	Yes	Steam	AHU	-	E/P	Yes	BAS	Yes	Yes	Test	-
Return Fan	Roof	3/7/2017	Air Handling Unit	1990?	No	Yes	Steam	AHU	-	E/P	Yes	BAS	Yes	Yes	Test	-
East AHU #1	Little Gym	3/7/2017	Air Handling Unit	1998	No	Yes	Steam	AHU	-	E/P	Yes	BAS	Yes	Yes	Test	-
West AHU #2	Little Gym	3/7/2017	Air Handling Unit	1998	No	Yes	Steam	AHU	-	E/P	Yes	BAS	Yes	Yes	Test	-
Make Up Air Units																
CNA Room	LL-6B	3/7/2017	Make Up Air and Radiant Heaters	1998	No	Yes	Natural Gas	Gas	-	-	Yes	Yes	Yes	No	-	-
Welding Shop	LL-5B	3/7/2017	Make Up Air and Radiant Heaters	1998	No	Yes	Natural Gas	Gas	-	-	Yes	Yes	Yes	No	-	-
Pool Locker Rooms	Pool	3/7/2017	Make Up Air	1998	No	Yes	Natural Gas	Gas	-	-	Yes	Yes	Yes	No	-	-
Kitchen	Roof	3/7/2017	Make Up Air	1998	No	Yes	Natural Gas	Gas	-	-	Yes	Yes	Yes	No	-	-
Exhaust Fans																
Rooftop EF's	Roof	3/7/2017	12 Exhaust Fan's	Varies	-	-	-	-	-	Electric	-	-	-	No	-	-
Welding Shop	LL-5B	3/7/2017	Tractor exhaust fan and two welding exhausts	1988	-	-	-	-	-	Electric	-	-	-	No	-	-
Refrigeration																
Walk in Cooler	Roof	3/7/2017	Refrigeration	1998	-	-	-	-	-	-	-	-	-	N/A	-	
Walk in Freezer	Roof	3/7/2017	Refrigeration	1998	-	-	-	-	-	-	-	-	-	N/A	-	