

Asset Collection and Preventative Maintenance Initiative

Washington University in St. Louis Facilities Planning and Management





Campus History

- Founded in 1853
- 116 Buildings
- 6.3 million Gross Square Feet





- Students come from more than 100 countries and all 50 states + the District of Columbia, Guam, Puerto Rico and the Northern Mariana Islands.
- 90% of undergraduates are from out of state and nearly 65% come from more than 500 miles away.



Purpose and Vision

Maintenance Operations recognized a need to reform asset management and preventative maintenance on the Danforth campus. A more robust PM program will help mechanics and managers:

- Track time and money spent on individual pieces of equipment.
- Keep records of spare parts.
- Decrease unplanned outages.
- Increase asset life.
- Provide valuable data for capital renewal projects.



Asset Collection and PM Process





What is an Asset?

- **Asset** Item or equipment which meets one or more of the following criteria:
 - 1. Is regularly maintained in order to preserve the function for which it was acquired
 - 2. Is within the scope of regulatory requirement to track maintenance history
 - 3. Is repaired rather than replaced when it fails
- **Asset Tag** A QR code and 7 digit number label that is permanently affixed to an asset. The asset number is linked to a Maximo asset, and can therefore communicate information about the asset using a hand held scanning device.

Asset Examples

- Hot water pumps
- Non Residential Exhaust Fans
- Emergency Generators
- Fan coil units

Not Assets

- Toilets
- Furniture
- Replacement parts, including motors
- VAV boxes



What is an Asset?

An asset should only be tagged if it is an active asset, and assets should be tagged in accordance with their position in the hierarchical structure and by type of asset. Asset Tagging typically applies to Level 6 assets as shown in the graphic that follows:





Asset Collection Plan

- Collection will be completed on designated days by the asset team.
 - The team is made of mechanics from the zone being collected to provide building knowledge, zone experience, and build an ownership among the mechanics.
- The team will work in a single building until that building is fully collected.
- Assets are collected in the field using ArcGIS Collector on a smart phone.





Asset Collection Process – What the Mechanics Do

The process to collect an asset should follow these steps. Details on each step will be shown.

- 1. Properly attach the tag to the asset.
- 2. Create new point in ArcGIS Collector and place the point in the appropriate x,y location.
- 3. Scan tag QR code for asset number.
- 4. Take pictures of asset including the name plate.
- 5. Complete the required information fields.
 - 1. Asset number
 - 2. Building Number
 - 3. Floor
 - 4. Type, subtype, class
 - 5. Description



1. Properly attach the tag to the asset

Asset tags shall be located so as to be readily identifiable and accessible to personnel using handheld devices to collect asset tag information. Make it easy to find!

<u>Guidelines</u> for tagging locations are as follows:

- Assets which cannot be tagged should be reported with a reason listed for the inability to tag.
- Do not visibly tag assets that are in an environment where tagging is not permitted. Examples include Graham Chapel and Holmes Lounge. These spaces should be evaluated to determine the best alternative tagging solution.
- Typically, if a tag cannot be directly affixed to an asset, it shall be positioned in such a way that the relationship between the location and the asset is intuitively obvious.

ASSET	TAG LOCATION
Air Conditioner	On housing
Air Dryer	On housing
Air Handlers (AHUs)	At AHU nameplate or exterior near maintenance access door
Backflow Preventer	On housing
Boilers	On housing near name plate
Cable (Safety Cables)	On main anchor
Chillers	On housing near controller.
Compressors	At nameplate or on compressor casing
Condensing Units	At nameplate (preferably not on removable insulation)
Cooling Towers	At control panel
Distribution Panel (Electrical)	On top front of panel cover
Exhaust Fans	On fan housing flange or near control switch
Fan Coil Unit	On housing. Near center in closets and top right for units in suites
Generators	At nameplate
Heat Exchangers	At nameplate (preferably not on removable insulation)
Heaters	At nameplate
Humidifiers (Self-Generating)	At nameplate
Loading Dock Lift	At nameplate
Meter	On housing
Monitoring System (Safety Equip)	On housing
Motor (Greater than 35 HP)	At motor nameplate
Power Supply (UPS)	On housing
Pumps	At nameplate or pump casing/pump support base, NOT on removable coupling guard. Use
	zip tie for small pumps.
Roof Top Units (RTUs)	At RTU nameplate
Separator	On housing
Switchgear	At nameplate, or on main cabinet, top left if facing breakers
Solar Collector	On collector
Tanks	At tank nameplate
Transformers	On housing near name plate
Variable Frequency Drives (VFDs)	On cabinet near nameplate
Ventilator (ERU)	On housing



Proper Tag Placement









Poor Tag Placement









Asset collection creates a high amount of risk for human error. Before any data can be used it needs to be reviewed. This is critical to preventing delays later in the process and to use for further training.

Reviewing the data looks for some key elements:

- Clear and visible pictures of nameplates.
- Descriptions that follow the standard.
- Accurate room and floor locations.
- Appropriate type and subtypes assigned.



Asset descriptions are created following a consistent methodology.

The asset description is intended to provide sufficient information to:

- Clearly identify the type of asset
- Assist in comparing asset to similar assets

In order to consistently and accurately meet this intent, the following naming convention will be used when creating a new asset record:

Asset Subtype(Type if there is no Subtype), Descriptor, Service Description (If specific)

Example of asset naming for a Chilled Water Pump #1 in George McMillen Lab:

Chilled Water Pump CHWP-1 for AHU-01



 The asset "Type", "Subtype", and "Class" are used to accurately define what an asset is and how it will be maintained.

ASSET TYPE	ASSET SUBTYPE	ASSET CLASS
Air Compressor	Scroll	
Air Compressor	Coil	
Air Compressor	Reciprocating	
Air Conditioner	Evaporator	
Air Conditioner	Computer Room A/C	
Air Conditioner	Window Air Conditioner	
Air Conditioner	Mini Split A/C	Ductless
Air Dryer		
Air Handling Unit	ERU	Direct Drive
Air Handling Unit	AHU with Direct Expansion	Belt Drive
Air Handling Unit	Roof Top Unit	
Air Handling Unit	Dedicated Outdoor Air System	
Air Handling Unit	Make-up Air Unit	
Automatic Transfer Switch	Bypass	
Boiler	Steam	
Boiler	Heating Hot Water	
Chilled Beam		
Chiller	Heat Recovery Chiller	
Condensing Unit	Heat Pump	
Condensing Unit	Air Cooled Fluid Cooler	
Cooling Tower	Air Cooled Condenser	
Distribution Panel	Motor Control Center	
Domestic Water Heater		Gas
Domestic Water Heater		Electric
Door	Rolling	
Door	Fire	
Door	Wood Exterior	
Electrical Panel	Lighting Panel Boards	
Electrical Panel	Motor Control Center	
Elevator	Passenger	Hydraulic
Elevator	Freight	Traction
Elevator	Dock Lift	
Elevator	Chair Lift	
Fan	Exhaust Fan	Belt Drive
Fan	Lab Exhaust Fan/Fume Hood	Direct Drive
Fan	Return Fan	
Fan	Supply Fan	



- The review stage is also an opportunity to batch edit the assets.
- Using GIS we can edit the same attribute for any amount of assets, such as building name and number.





Data Enrichment by Prometheus Group

- Maintenance has partnered with Prometheus Group to use their Master Data as a Service product.
- ML & AI based application where records are standardized, cleansed & enriched.
- Web-scraped information is extracted from the web & applied to each corresponding record.
- Technical manufacturer & vendor information is organized & applied as enriched data to each record.





Data Enrichment by Prometheus Group

Asset # 1003607 HEATING WATER PUMP HWP-3



BELL & GOSSETT MODEL: E-1510 PART NUMBER: U11/2B-91/8-BF/SB PUMP: CENTRIFUGAL TYPE: END SUCTION SUCTION PRESSURE: 175 PSI FLOW RATING: 50 GPM HEAD RANGE: 9 FT POWER RATING: 7.5 HP SPEED RATING: 1750 RPM



Upload assets into Maximo

- The data from GIS and Prometheus are merged and uploaded into Maximo.
- We use FME to load this data into Maximo. Currently we load this data into the asset tables. Spec table data will be loaded in the future.
- Red zone assets were uploaded with information manually extracted from pictures.
 - Typically, just manufacturer, model number and serial number.



Create and Schedule PMs

• The formula for a PM

Location/asset/route + Job Plan(s) + Schedule + Counter = PM

A large lesson learned throughout the red zone pilot was that consistency and standardization is important. Creating the PM's the same way helps the manager, and the mechanics understand all the details that make up a PM.

More importantly is that standardization and consistency will help end users find information and provide useful feedback.

The next slides will detail how the different aspects of a PM have been standardized



Preventative Maintenance

The PM ID will be in the following format: building #, Type/Subtype, descriptor/next number X/route number XX (e.g., 01, 14)

Example: 335ERU3B (Individual Asset) Example: 321EF01 (With Route)

The PM Description for an asset will be in the following format: (Building Name)(Class)(descriptor/Group)(MO State ID)*

*The MO state ID is only required for applicable assets

Example: PARK AHU-5 EAST PENTHOUSE Example: THOMAS ELIOT HWST 1 MO 68044

<u>The PM Description for assets on a route will be in the following format:</u> Building name, Class, Type/Other unique identifier. (Unique identifiers are used to help group assets based on the needs of the zone.)

Example: DANFORTH FAN COIL UNITS BELT DRIVE



Routes

A Route will be created to group together assets of the same class, with the same required job plan, to be maintenance at the same time. The purpose of the route is to consolidate paperwork and maximize mechanic efficiency while performing repetitive tasks. A route should only be used if an individual job plan takes less than two hours and there are more than five assets.

The route plan ID will be in the following format: building number, Type, route number X Example: 176EF1

The route description will be in the following format: Building name, Type description, Class description Example: PARK EXHAUST FANS BELT DRIVE

Route: 176EF1 PARK EXHAUST FANS BELT DRIVE Site: DANFORTH									
						<u>Attachments</u> Ø			
					Route St	tops Inherit Status Changes? 🔽			
ute Stops 🔻 <u>Filter</u> > Q	õ 🕆 4 4	● Work Order Tasks					Ŧ		
te Stops ▼ <u>Filter</u> → へ Sequence Location	ã ↑ ↓ < Asset	Work Order Tasks 1 - 5 of 5 Asset/Location Description	Job Plan	Insp	ection Form Name		포		
te Stops 7 Filter > Q Sequence Location	6 ↑ ↓ < Asset 1003231	Work Order Tasks I - 5 of 5 Asset/Location Description PARK EF-15 EAST PENTHOUSE	Job Plan	Insp	ection Form Name		ت ا		
Sequence Location	6 ↑ ↓ ♦ Asset . . . 1003231 > 1003232 . .	Work Order Tasks Vork Order Tasks Asset/Location Description PARK EF-15 EAST PENTHOUSE PARK EF-1 EAST PENTHOUSE	Job Plan	Insp >	ection Form Name		ي ت ش		
Sequence Location	Asset > 1003231 > 1003232 > 1004023	 Work Order Tasks Vork Order Tasks Asset/Location Description PARK EF-15 EAST PENTHOUSE PARK EF-1 EAST PENTHOUSE PARK EF-1-7 WEST PENTHOUSE 	Job Plan	Insp >	ection Form Name Name		<u>ب</u> ش ش		
ute Stops ▼ <u>Filter</u> → Q Sequence Location	Asset	 Work Order Tasks 1 - 5 of 5 Asset/Location Description > PARK EF-15 EAST PENTHOUSE > PARK EF-1 EAST PENTHOUSE > PARK EF-1-7 WEST PENTHOUSE > PARK EF-25 WEST PENTHOUSE 	Job Plan	Insp > >	ection Form Name Name				



Master PM

Master PMs are used to create consistency for PMs of the same class. A master PM will determine the frequency and job plans to be applied to an individual PM. Any changes to the Master PM will be pushed to the child PMs unless otherwise specified.

The Master PM ID will be in the following format:

Class, Group XX (This is to match the job plan ID Class, Group XX from above) Example: EF01

The Master PM description will be in the following format: Class, Group Example: EXHAUST FAN BELT DRIVE

A master PM gives us the ability to quickly create and edit standard PMs for similar equipment.



Job Plans

Job plans will be created in accordance to the asset classes and abbreviations. The naming will be used to identify the class and plan of the job plan. Class refers to similar assets that receive the same type but utilize different means or parts. The plan refers to the level of detail included in the job plans. A job plan with a higher plan level will include more tasks and require more time. Type and Class are dictated a time of collection.

Job Plan	New Description
AHU01-1	AIR HANDLING UNIT CLASS 1 PLAN 1 - BELT DRIVE AHU
AHU01-2	AIR HANDLING UNIT CLASS 1 PLAN 2 - BELT DRIVE AHU
AHU01-3	AIR HANDLING UNIT CLASS 1 PLAN 3 - BELT DRIVE AHU
AHU01-4	AIR HANDLING UNIT CLASS 1 PLAN 4 - BELT DRIVE AHU
AHU02-1	AIR HANDLING UNIT CLASS 2 PLAN 1 - DIRECT DRIVE AHU
AHU02-2	AIR HANDLING UNIT CLASS 2 PLAN 2 - DIRECT DRIVE AHU
AHU02-3	AIR HANDLING UNIT CLASS 2 PLAN 3 - DIRECT DRIVE AHU
AHU02-4	AIR HANDLING UNIT CLASS 2 PLAN 4 - DIRECT DRIVE AHU
AHU03-1	AIR HANDLING UNIT CLASS 3 PLAN 1 - ERU BELT DRIVE
AHU03-2	AIR HANDLING UNIT CLASS 3 PLAN 2 - ERU BELT DRIVE
AHU03-3	AIR HANDLING UNIT CLASS 3 PLAN 3 - ERU BELT DRIVE
AHU03-4	AIR HANDLING UNIT CLASS 3 PLAN 4 - ERU BELT DRIVE
DWH01-1	DOMESTIC WATER HEATER CLASS 1 PLAN 1 - GAS FIRED DWH
DWH01-2	DOMESTIC WATER HEATER CLASS 1 PLAN 2 - GAS FIRED DWH
DWH02-1	DOMESTIC WATER HEATER CLASS 1 PLAN 2 - ELECTRIC DWH
1	



Sample Job Plan

AHU01-1	AIR HANDLING UNIT CLASS 1 PLAN 1 - BELT DRIVE AHU	
Task	Description	Duration
1	AHU is defined as a Large Unit, Central Air distribution to Large Zones, Self-Contained and Hydronic.	0:00
2	Follow lock out/tag out procedures at all times. De-energize or discharge all hydraulic, electrical, mechanical, or thermal energy prior to beginning work.	0:00
10	Observe unit for any change in running condition and unusual noise.	0:05
20	Clean or replace air filters if clogged or dirty; change bag filters when pressure drop is 1 in.	0:05
110	Inspect and clean drain pans.	0:15
280	Clean area around AHU and ensure a safe work area.	0:05
		0:30
AHU01-2	AIR HANDLING UNIT CLASS 1 PLAN 2 - BELT DRIVE AHU	
Task	Description	Duration
1	AHU is defined as a Large Unit, Central Air distribution to Large Zones, Self-Contained and Hydronic	0:00
2	Follow lock out/tag out procedures at all times. De-energize or discharge all hydraulic, electrical, mechanical, or thermal energy prior to beginning work.	0:00
10	Observe unit for any change in running condition and unusual noise.	0:05
20	Clean or replace air filters if clogged or dirty; change V-bank filters when pressure drop is 1 in	0:15
30	Check Bearings for vibration and excessive heat.	0:05
40	Check blower and motor bearing grease line connections if applicable.	0:05
50	Re-lubricate fan and motor bearings if necessary.	0:30
60	Check and adjust fan belt tension. Replace as necessary. Multi-belt drives shall only be replaced with matched sets.	0:30
110	Inspect and clean drain pans.	0:15
270	Inspect Freeze Stat for normal operation. During Months November through February Inspect Freeze Stat for normal operation.	0:15
280	Clean area around AHU and ensure a safe work area.	0:10
		2:10



Sample Job Plan

Job plan tasks are designed to provide guidance and expectations to our mechanics. They are not to instruct every detail or performing a task.

AHU01-4	AIR HANDLING UNIT CLASS 1 PLAN 4 - BELT DRIVE AHU	
Task	Description	Duration
1	AHU is defined as a Large Unit, Central Air distribution to Large Zones, Self-Contained and Hydronic	0:00
2	Follow lock out/tag out procedures at all times. De-energize or discharge all hydraulic, electrical, mechanical, or thermal energy prior to beginning work.	0:00
10	Observe unit for any change in running condition and unusual noise.	0:05
20	Clean or replace air filters if clogged or dirty; change V-bank filters when pressure drop is 1 in	0:15
30	Check Bearings for vibration and excessive heat	0:05
40	Check blower and motor bearing grease line connections if applicable.	0:05
50	Re-lubricate fan and motor bearings if necessary	0:15
60	Check and adjust fan belt tension. Replace as necessary. Multi-belt drives shall only be replaced with matched sets.	0:30
70	Check motor(s) bracket torque	0:10
80	Check bearing bolt torque and bearing set screw torque	0:10
90	Align fan and motor sheaves. Tighten sheave set screws to the proper torque	0:30
100	Tighten electrical connections.	0:05
110	Inspect and clean drain pans	0:15
120	Inspect coils for dirt build-up and clean as necessary	0:10
130	Clean out strainer if applicable.	0:10
140	Clean moisture eliminator with high pressure sprayer if applicable. Remove pollen in the spring and leaves in the fall.	0:30
150	Clean the fan wheels and shaft.	0:30
160	Rotate the fan wheel and check for obstructions. The wheel should not rub. Adjust the center if necessary.	0:15
210	Check damper linkages, set screws, and blade adjustment.	0:10
220	Clean damper operators.	0:05
230	Inspect electrical wiring, components and insulation for damage.	0:05
240	Inspect the unit casing for corrosion. If damage is found, clean and repaint.	0:05
250	Check condition of gasketing and insulation around unit, door and dampers.	0:05
260	Examine flex connections for cracks or leaks. Repair or replace damaged material.	0:05
270	Inspect Freeze Stat for normal operation. During Months November through February Inspect Freeze Stat for normal operation.	0:15
280	Clean area around AHU and ensure a safe work area.	0:10
		5:00



The Full PM Process – Collecting the Asset







The Full PM Process – Review and Upload to Maximo

ASSET TYPE	ASSET SUBTYPE	ASSET CLASS
<mark>Air Handling Unit</mark>	ERU	Direct Drive
Air Handling Unit	AHU with Direct Expansion	<mark>Belt Drive</mark>
Air Handling Unit	Roof Top Unit	
Air Handling Unit	Dedicated Outdoor Air System	
Air Handling Unit	Make-up Air Unit	

← List View As	sset	Spare Parts	Safety	Meters	Specifications	Work	Service Address	Мар			
A	sset:	1001032	AI	R HANDLIN	G UNIT AHU-1				Site: DANFORTH	Attachments 🔗	
Sta	atus:	OPERATING							+Type: <u>AIR HANDLING</u> Q	Moved?	
Asset 1	Type:	AIRHANDLER	0						⁺Billable Type: MQ	Audited?:	
Asset Subī	Type:		O,						Asset Template:	Returned To Vendor?	
Asset C	Class:	BELTDRIVE	O,						Asset Group: >	Asset Group #:	
Old Operating Subī	Type:		0						Criticality Ranking:5 🔍		



The Full PM Process – Creating the PM





The Full PM Process – Frequency and Dates

Adding the master PM auto generates the frequency, and the Job Plan Sequence

← List View PI	1 Frequency	Seasonal Dates	Job Plan Sequence	PM Hierarchy	Forecast	Forecast Cos	st
PM: 330AHU1	🔸 KOEI	NIG AHU-1 PENTHO	USE	6	Site: DA	NFORTH	Status: ACTIVE
							Forecast Exists?
Work Order Ger	eration Inform	ation					Z
ι	se Last Work O	rder's Start Date to (Calculate Next Due Dat	ie? 🔽	Generate W Ge	/ork Order Base enerate Work O	ed on Meter Readings (Do Not Estimate)? 📃 order When Meter Frequency is Reached? 📃
Time Based Fre	equency Met	er Based Frequency	/				
+ Frequen	: y: 1	Ale	rt Lead (Days):0	_	Extende	ed Date:	🛗 Target Start Time: 12:00 A 🎯
+ Frequency Uni	ts: MONTHS	Stimated I	Next Due Date: 9/1/23	🛗 Adj	just Next Du	e Date? 📃	



The Full PM Process – Job Plan Sequence

	🗲 List V	iew PM	Frequency	Seasonal Dates	Job Plan Sequence	PM Hierarchy	Forecast	Forecast Cost			
	PM: 330	AHU1	◆ KOEI	NIG AHU-1 PENTHO	USE		Site: DAN	IFORTH		Status: ACTIV	′E
							Forecast	t Exists?			
	Location		>					Store	eroom:		>
	۸۹۹۹	100103	^	IR HANDLING UNIT	AHU-1			+ Storeroon	n Site:	DANFORTH	0
	Tob Dian	AHU01-	2		21 CLASS 2 - BELT DR	τνε δημ		Storeroon	in Siter -		-
	JOD Plan	Anour	<u> </u>		I GEAGG 2 " DEET DR.		=				
	Job Pla	n Sequenc	e 🔻 <u>Filte</u>	r > ° ⊗	↑ ↓ ← 1 - 4	of 4 ⇒		d			
		Job Plan		Description		т	Total Work Un	its Sequence			
	>	AHU01-1		AIR HANDLING UNI	T CLASS 1 PLAN 1 - B	ELT DRIVE AHU	1.0	00 1	Ē		
	>	AHU01-2	2 >	AIR HANDLING UNI	T CLASS 1 PLAN 2 - BI	ELT DRIVE AHU	1.0	0 3	Ē		
	>	AHU01-3	3 >	AIR HANDLING UNI	T CLASS 1 PLAN 3 - BI	ELT DRIVE AHU	1.0	0 6	Ē		
	>	AHU01-4	1 >	AIR HANDLING UNI	T CLASS 1 PLAN 4 - BI	ELT DRIVE AHU	1.0	00 12	Ē		
	Now	low									



The Full PM Process – Koenig House

PM	Team	Building Nan	ne Building#	Description	Route	Asset Job Plan	Interval	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
330AHU1	NORTH	KOENIG	330	KOENIG AHU-1 PENTHOUSE		1001032 AHU01	Monthly	ACTIVE	1	1	2	1	1	3	1	1	2	1	1	4
330AHU2	NORTH	KOENIG	330	KOENIG AHU-2 LAUNDRY ROOM		1001033 AHU01	Monthly	ACTIVE	1	1	2	1	1	3	1	1	2	1	1	4
330AHU1A	NORTH	KOENIG	330	KOENIG CAHU-1A MECH ROOM		1001050 AHU01	Monthly	ACTIVE	1	1	2	1	1	3	1	1	2	1	1	4
330CHWP1	NORTH	KOENIG	330	KOENIG CHILLED WATER PUMP-1		1001041 CHWP01	Annual	ACTIVE				1								
330CHWP2	NORTH	KOENIG	330	KOENIG CHILLED WATER PUMP-2		1001042 CHWP01	Annual	ACTIVE				1								
330DWH4	NORTH	KOENIG	330	KOENIG DWH 4 MO 77204		1001051 DWH01	Quarterly	ACTIVE	1			1			2			1		
330DWH2	NORTH	KOENIG	330	KOENIG DWH 2 MO 77205		1001054 DWH01	Quarterly	ACTIVE	1			1			2			1		
330DWH3	NORTH	KOENIG	330	KOENIG DWH 3 MO 77206		1001057 DWH01	Quarterly	ACTIVE	1			1			2			1		
330DWP4	NORTH	KOENIG	330	KOENIG DOMESTIC WATER PUMP DWH 4		1001052 DWP01	Annual	ACTIVE												1
330DWP1	NORTH	KOENIG	330	KOENIG DOMESTIC WATER RETURN PUMP HWCP-1		1001053 DWP01	Annual	ACTIVE												1
330DWP5	NORTH	KOENIG	330	KOENIG DOMESTIC WATER PUMP DWH 2		1001055 DWP01	Annual	ACTIVE												1
330DWP6	NORTH	KOENIG	330	KOENIG DOMESTIC WATER PUMP DWH 3		1001056 DWP01	Annual	ACTIVE												1
330DWP2	NORTH	KOENIG	330	KOENIG DOMESTIC WATER RETURN PUMP HWCP-2		1001058 DWP01	Annual	ACTIVE												1
330DWP3	NORTH	KOENIG	330	KOENIG DOMESTIC WATER RETURN PUMP HWCP-3		1001059 DWP01	Annual	ACTIVE												1
330EF1	NORTH	KOENIG	330	KOENIG EXHAUST FAN 1- LAUNDRY		1001060 EF01	Semi-Annual	ACTIVE				2						1		
330EP01	NORTH	KOENIG	330	KOENIG ELECTRICAL PANELS	330EP1	EP01	Annual	ACTIVE			1									
330EXL	NORTH	KOENIG	330	KOENIG EMERGENCY/EXIT LIGHT INSPECTION		EXTLGT01	Monthly	ACTIVE	1	1	1	1	1	1	1	1	1	1	1	1
330FCU01	NORTH	KOENIG	330	KOENIG FAN COIL UNITS	330FCU1	FCU01	Semi-Annual	ACTIVE				3						1		
330FRXEX	NORTH	KOENIG	330	KOENIG-FIRE EXTINGUISHERS, FIRE VALVES, FDC INSPECTIO	N	FIREINSP02	Monthly	ACTIVE	1	1	1	1	1	1	1	1	1	1	1	1
330HWP3	NORTH	KOENIG	330	KOENIG HEATING WATER PUMP FOR AHU-1		1001031 HWP01	Annual	ACTIVE						1						
330HWP1	NORTH	KOENIG	330	KOENIG HEATING WATER PUMP SHWP-1		1001043 HWP01	Annual	ACTIVE						1						
330HWP2	NORTH	KOENIG	330	KOENIG HEATING WATER PUMP SHWP-2		1001044 HWP01	Annual	ACTIVE						1						
330HWST01	NORTH	KOENIG	330	KOENIG HOT WATER STORAGE TANKS	330HWST1	1001276 HWST01	Semi-Annual	ACTIVE			1						1			
330LAUND	NORTH	KOENIG	330	KOENIG CLEAN LAUNDRY ROOM BAG FILTER		LAUNDRY	Monthly	ACTIVE	1	1	1	1	1	1	1	1	1	1	1	1
330ROOF	NORTH	KOENIG	330	KOENIG HOUSE ROOF INSPECTION		ROOF01	Monthly	ACTIVE	1	1	1	1	1	1	1	1	1	1	1	1
330CUH1S2	NORTH	KOENIG	330	KOENIG CUH HYDRONIC 1S2		1002401 UH01	Annual	ACTIVE										1		
330CUHLS1	NORTH	KOENIG	330	KOENIG CUH HYDRONIC LS1		1003326 UH01	Annual	ACTIVE										1		
330UHH1	NORTH	KOENIG	330	KOENIG UNIT HEATER HYDRONIC MECHANICAL ROOM		1001281 UH01	Annual	ACTIVE										1		
Total									10	7	9	14	7	10	10	7	8	15	7	13

