

SUTTON MECHANICAL & ENVIRONMENTAL

RECOMMENDED MAINTENANCE PLAN

2026-12 FarmWild Orangery

Event hall, Hamilton, Montana

Document No. 2026-12-MAINT-PLAN Rev 0 September 30, 2026

DRAFT, FOR REVIEW. Not for construction.

No equipment make or model has been selected at this revision. All tasks below are type generic, based on ASHRAE/ACCA Standard 180 and general industry practice. Reconcile and reissue this plan against the selected manufacturer IOM manuals at submittal review (open BDR item: basis of design selections for all scheduled units).

Client: FarmWild

1. Purpose and Basis

This plan defines a recommended preventive maintenance (PM) program for the mechanical and plumbing equipment of the FarmWild Orangery, an event hall in Hamilton, Montana. It covers LP gas infrared heating, electric resistance heating, ceiling fans, evaporative cooling, exhaust fans, the domestic water heater, plumbing fixtures and specialties, the LP gas supply system, and the natural ventilation (ridge lantern vent) system. It is intended for the building operator or a contracted service provider, and as the framework for a PM contract scope.

Basis. No equipment make or model has been selected for this project as of this revision (basis of design open item, no submittals received). In the absence of a selected OEM installation, operation, and maintenance (IOM) manual, this plan is based on ASHRAE/ACCA Standard 180, Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems, plus general industry practice for plumbing fixtures, LP gas equipment, and evaporative coolers. Once basis of design selections are made, this plan should be reconciled against each manufacturer IOM manual and reissued.

Priority	Source	Application in this plan
1	OEM Installation, Operation and Maintenance (IOM) manual	Governs once equipment is selected and submittals are received. No equipment is selected at this revision, so no OEM requirements are cited. Reconcile and reissue this plan at submittal review.
2	ASHRAE/ACCA Standard 180, Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems	Minimum baseline tasks and frequencies for HVAC, water heating, and exhaust equipment.
3	General industry practice	Fills gaps for equipment types not directly tabulated in Standard 180, such as LP gas infrared heaters, evaporative coolers, plumbing specialties, and operable ridge vents.

Seasonal use. The Orangery is used as an event hall with LP gas infrared heating for winter events and the roof mounted evaporative cooler for summer events. This plan includes seasonal start up and shutdown tasks: evaporative cooler drain down, damper closure, and cover each fall with spring uncovering and startup, freeze protection of exterior hydrants and the bottle filler each fall with spring reactivation, and an infrared heater pre season check each fall before the heating season begins.

2. Equipment Covered

Tag	System	Description	Capacity / Data	Location / Serves
IR-1	LP Gas Infrared Heating	Gas-fired infrared tube heater, LP	75 MBH input, 50 ft tube	South eave
IR-2	LP Gas Infrared Heating	Gas-fired infrared tube heater, LP	75 MBH input, 50 ft tube	North eave
EUH-1	Electric Resistance Heating	Electric unit heater, ceiling	5 kW (17.1 MBH)	Staging 105
EWH-1	Electric Resistance Heating	Electric wall heater, recessed	750 W (2.6 MBH)	Toilet Rm 101
EWH-2	Electric Resistance Heating	Electric wall heater, recessed	750 W (2.6 MBH)	Toilet Rm 102
EWH-3	Electric Resistance Heating	Electric wall heater, recessed	750 W (2.6 MBH)	Toilet Rm 103
EWH-4	Electric Resistance Heating	Electric wall heater, surface	750 W (2.6 MBH)	Mech/Jan 104
CF-1	Ceiling Fans	Ceiling fan, reversible	84 in diameter, 13 ft AFF	Main hall
CF-2	Ceiling Fans	Ceiling fan, reversible	84 in diameter, 13 ft AFF	Main hall

CF-3	Ceiling Fans	Ceiling fan, reversible	84 in diameter, 13 ft AFF	Main hall
CF-4	Ceiling Fans	Ceiling fan, reversible	84 in diameter, 13 ft AFF	Main hall
EC-1	Evaporative Cooling	Direct evaporative cooler, roof mounted on steel stand, ducted supply, contractor furnished	about 12,000 CFM, 2 hp, 208-230/1, 8 in rigid media	Service wing roof at hall east gable
EF-1	Exhaust Fans	Toilet exhaust fan, ceiling cabinet	70 CFM at 0.50 in wg	Toilet Rm 101
EF-2	Exhaust Fans	Toilet exhaust fan, ceiling cabinet	70 CFM at 0.50 in wg	Toilet Rm 102
EF-3	Exhaust Fans	Toilet exhaust fan, ceiling cabinet	70 CFM at 0.50 in wg	Toilet Rm 103
EF-4	Exhaust Fans	Janitor exhaust fan, continuous, ceiling cabinet	50 CFM at 0.50 in wg	Mech/Jan 104
EF-5	Exhaust Fans	Wall propeller exhaust fan	400 CFM at 0.10 in wg	Staging 105
WH-1	Domestic Water Heater	Electric tank water heater, ASSE 1017 mixing valve, expansion tank	50 gal, 2 x 4.5 kW non-simultaneous	Mech/Jan 104
BF-1	Plumbing Fixtures and Specialties	Bottle filler and hi-lo fountain, exterior, freeze resistant	1-1/4 in waste and vent	South face, exterior
FS-1	Plumbing Fixtures and Specialties	Floor sink with trap primer	12 in x 12 in, half grate	Staging 105
FS-2	Plumbing Fixtures and Specialties	Floor sink with trap primer	12 in x 12 in, half grate	Staging 105
GI-1	Plumbing Fixtures and Specialties	Gravity grease interceptor, outdoor, in ground	Sized by septic designer	Exterior, staging drain
HB-1	Plumbing Fixtures and Specialties	Wall hydrant, frost free, ASSE 1019	3/4 in	Patio, exterior
HB-2	Plumbing Fixtures and Specialties	Wall hydrant, frost free, ASSE 1019	3/4 in	North wall, exterior
W-1	Plumbing Fixtures and Specialties	Water service entry, shutoff, dual check, sediment filter	1 in shutoff, sediment filter	Mech/Jan 104
LP-1	LP Gas Supply System	Propane tank, above ground, supplier owned, plus LP piping	500 gal water capacity	10 ft from building, exterior
LV-1	Natural Ventilation	Ridge lantern vents, operable, natural ventilation	Ridge run, full building length	Ridge, main hall

3. System Maintenance Programs

3.1 LP Gas Infrared Heating (IR-1, IR-2)

Tag	Task	Frequency	Hrs/Occ	Occ/Yr	Annual Hrs	Skill Level
IR-1	Visual inspection, clean reflector and tube	Quarterly	0.50	4	2.00	HVAC tech
IR-1	Check burner ignition, flame sense, and combustion	Semi-Annual	0.75	2	1.50	HVAC tech
IR-1	Inspect gas train, shutoff valves, and flex connector for leaks, soap test	Semi-Annual	0.50	2	1.00	HVAC tech
IR-1	Verify suspension	Annual /	0.50	1	0.50	HVAC tech

	chains, tube alignment, clearance to combustibles	Seasonal				
IR-1	Pre season start up check before heating season	Annual / Seasonal	1.00	1	1.00	HVAC tech
IR-2	Visual inspection, clean reflector and tube	Quarterly	0.50	4	2.00	HVAC tech
IR-2	Check burner ignition, flame sense, and combustion	Semi-Annual	0.75	2	1.50	HVAC tech
IR-2	Inspect gas train, shutoff valves, and flex connector for leaks, soap test	Semi-Annual	0.50	2	1.00	HVAC tech
IR-2	Verify suspension chains, tube alignment, clearance to combustibles	Annual / Seasonal	0.50	1	0.50	HVAC tech
IR-2	Pre season start up check before heating season	Annual / Seasonal	1.00	1	1.00	HVAC tech

3.2 Electric Resistance Heating (EUH-1, EWH-1, EWH-2, EWH-3, EWH-4)

Tag	Task	Frequency	Hrs/Occ	Occ/Yr	Annual Hrs	Skill Level
EWH-1	Visual inspection, clean dust from elements and grille	Quarterly	0.25	4	1.00	owner staff
EWH-1	Verify integral thermostat setpoint and operation	Semi-Annual	0.25	2	0.50	HVAC tech
EWH-1	Inspect wiring connections, tighten terminals	Annual / Seasonal	0.30	1	0.30	HVAC tech
EWH-1	Test high limit safety cutout	Annual / Seasonal	0.25	1	0.25	HVAC tech
EWH-2	Visual inspection, clean dust from elements and grille	Quarterly	0.25	4	1.00	owner staff
EWH-2	Verify integral thermostat setpoint and operation	Semi-Annual	0.25	2	0.50	HVAC tech
EWH-2	Inspect wiring connections, tighten terminals	Annual / Seasonal	0.30	1	0.30	HVAC tech
EWH-2	Test high limit safety cutout	Annual / Seasonal	0.25	1	0.25	HVAC tech
EWH-3	Visual inspection, clean dust from elements and grille	Quarterly	0.25	4	1.00	owner staff
EWH-3	Verify integral thermostat	Semi-Annual	0.25	2	0.50	HVAC tech

	setpoint and operation					
EWB-3	Inspect wiring connections, tighten terminals	Annual / Seasonal	0.30	1	0.30	HVAC tech
EWB-3	Test high limit safety cutout	Annual / Seasonal	0.25	1	0.25	HVAC tech
EWB-4	Visual inspection, clean dust from elements and grille	Quarterly	0.25	4	1.00	owner staff
EWB-4	Verify integral thermostat setpoint and operation	Semi-Annual	0.25	2	0.50	HVAC tech
EWB-4	Inspect wiring connections, tighten terminals	Annual / Seasonal	0.30	1	0.30	HVAC tech
EWB-4	Test high limit safety cutout	Annual / Seasonal	0.25	1	0.25	HVAC tech
EUH-1	Visual inspection, clean dust from elements and grille	Quarterly	0.25	4	1.00	owner staff
EUH-1	Verify integral thermostat setpoint and operation	Semi-Annual	0.25	2	0.50	HVAC tech
EUH-1	Inspect wiring connections, tighten terminals	Annual / Seasonal	0.30	1	0.30	HVAC tech
EUH-1	Test high limit safety cutout	Annual / Seasonal	0.25	1	0.25	HVAC tech

3.3 Ceiling Fans (CF-1, CF-2, CF-3, CF-4)

Tag	Task	Frequency	Hrs/Occ	Occ/Yr	Annual Hrs	Skill Level
CF-1	Visual inspection, check blade tracking and wobble	Quarterly	0.25	4	1.00	owner staff
CF-1	Lubricate motor bearings if applicable, tighten mounting	Semi-Annual	0.30	2	0.60	HVAC tech
CF-1	Verify reverse direction switch for winter destratification	Annual / Seasonal	0.20	1	0.20	owner staff
CF-1	Verify forward direction for summer cooling season	Annual / Seasonal	0.20	1	0.20	owner staff
CF-2	Visual inspection, check blade tracking and wobble	Quarterly	0.25	4	1.00	owner staff
CF-2	Lubricate motor bearings if applicable, tighten mounting	Semi-Annual	0.30	2	0.60	HVAC tech
CF-2	Verify reverse direction switch	Annual / Seasonal	0.20	1	0.20	owner staff

	for winter destratification					
CF-2	Verify forward direction for summer cooling season	Annual / Seasonal	0.20	1	0.20	owner staff
CF-3	Visual inspection, check blade tracking and wobble	Quarterly	0.25	4	1.00	owner staff
CF-3	Lubricate motor bearings if applicable, tighten mounting	Semi-Annual	0.30	2	0.60	HVAC tech
CF-3	Verify reverse direction switch for winter destratification	Annual / Seasonal	0.20	1	0.20	owner staff
CF-3	Verify forward direction for summer cooling season	Annual / Seasonal	0.20	1	0.20	owner staff
CF-4	Visual inspection, check blade tracking and wobble	Quarterly	0.25	4	1.00	owner staff
CF-4	Lubricate motor bearings if applicable, tighten mounting	Semi-Annual	0.30	2	0.60	HVAC tech
CF-4	Verify reverse direction switch for winter destratification	Annual / Seasonal	0.20	1	0.20	owner staff
CF-4	Verify forward direction for summer cooling season	Annual / Seasonal	0.20	1	0.20	owner staff

3.4 Evaporative Cooling (EC-1)

EC-1 is mounted on a galvanized steel stand on the service wing roof at the hall east gable. Roof access for all tasks below is by ladder, with fall protection per the site safety plan.

Tag	Task	Frequency	Hrs/Occ	Occ/Yr	Annual Hrs	Skill Level
EC-1	Spring start up: uncover unit, restore water service, fill and check pads and float, check belt and motor, open damper	Annual / Seasonal	1.00	1	1.00	owner staff
EC-1	In season monthly: check pads, clean sump, check bleed rate, check belt	Seasonal (4/yr)	0.50	4	2.00	owner staff
EC-1	Fall shutdown: drain the roof water line at the	Annual / Seasonal	1.00	1	1.00	owner staff

	inside drain-down valve, drain the sump, cover the unit, close damper and verify it seals					
EC-1	Check belt condition, motor bearings, and damper actuator/end switch	Annual / Seasonal	0.30	1	0.30	HVAC tech
EC-1	Check supply duct hangers, end cap, and each side register damper	Annual / Seasonal	0.40	1	0.40	HVAC tech

3.5 Exhaust Fans (EF-1, EF-2, EF-3, EF-4, EF-5)

Tag	Task	Frequency	Hrs/Occ	Occ/Yr	Annual Hrs	Skill Level
EF-1	Visual inspection, clean grille and wheel	Quarterly	0.20	4	0.80	owner staff
EF-1	Check belt and lubricate motor bearing if applicable	Semi-Annual	0.25	2	0.50	HVAC tech
EF-1	Verify airflow and motor amp draw against nameplate	Annual / Seasonal	0.30	1	0.30	HVAC tech
EF-2	Visual inspection, clean grille and wheel	Quarterly	0.20	4	0.80	owner staff
EF-2	Check belt and lubricate motor bearing if applicable	Semi-Annual	0.25	2	0.50	HVAC tech
EF-2	Verify airflow and motor amp draw against nameplate	Annual / Seasonal	0.30	1	0.30	HVAC tech
EF-3	Visual inspection, clean grille and wheel	Quarterly	0.20	4	0.80	owner staff
EF-3	Check belt and lubricate motor bearing if applicable	Semi-Annual	0.25	2	0.50	HVAC tech
EF-3	Verify airflow and motor amp draw against nameplate	Annual / Seasonal	0.30	1	0.30	HVAC tech
EF-4	Visual inspection, clean grille and wheel	Quarterly	0.20	4	0.80	owner staff
EF-4	Check belt and lubricate motor bearing if applicable	Semi-Annual	0.25	2	0.50	HVAC tech
EF-4	Verify airflow and motor amp	Annual / Seasonal	0.30	1	0.30	HVAC tech

	draw against nameplate					
EF-5	Visual inspection, clean grille and wheel	Quarterly	0.20	4	0.80	owner staff
EF-5	Check belt and lubricate motor bearing if applicable	Semi-Annual	0.25	2	0.50	HVAC tech
EF-5	Verify airflow and motor amp draw against nameplate	Annual / Seasonal	0.30	1	0.30	HVAC tech

3.6 Domestic Water Heater (WH-1)

Tag	Task	Frequency	Hrs/Occ	Occ/Yr	Annual Hrs	Skill Level
WH-1	Check storage setpoint (140 F) and ASSE 1017 mixing valve output (120 F)	Quarterly	0.30	4	1.20	plumber
WH-1	Inspect T and P relief valve operation, flush sediment from tank	Semi-Annual	0.50	2	1.00	plumber
WH-1	Inspect anode rod, check expansion tank precharge	Annual / Seasonal	0.75	1	0.75	plumber
WH-1	Inspect heating elements and electrical connections	Annual / Seasonal	0.50	1	0.50	HVAC tech

3.7 Plumbing Fixtures and Specialties (BF-1, FS-1, FS-2, GI-1, HB-1, HB-2, W-1)

Tag	Task	Frequency	Hrs/Occ	Occ/Yr	Annual Hrs	Skill Level
GI-1	Inspect and measure grease and solids accumulation	Quarterly	0.50	4	2.00	plumber
GI-1	Pump and clean interceptor when 25 percent full	Semi-Annual	1.50	2	3.00	plumber
W-1	Inspect dual check backflow preventer and sediment filter, replace cartridge	Semi-Annual	0.40	2	0.80	plumber
W-1	Test backflow preventer per local cross connection program if required	Annual / Seasonal	0.50	1	0.50	plumber
BF-1	Visual inspection and operational check	Quarterly	0.15	4	0.60	plumber
BF-1	Fall freeze protection	Annual / Seasonal	0.25	1	0.25	plumber

	shutdown, drain, shut isolation valve					
BF-1	Spring reactivation, open isolation valve, check for leaks	Annual / Seasonal	0.25	1	0.25	plumber
HB-1	Visual inspection and operational check	Quarterly	0.15	4	0.60	plumber
HB-1	Fall freeze protection shutdown, drain, shut isolation valve	Annual / Seasonal	0.25	1	0.25	plumber
HB-1	Spring reactivation, open isolation valve, check for leaks	Annual / Seasonal	0.25	1	0.25	plumber
HB-2	Visual inspection and operational check	Quarterly	0.15	4	0.60	plumber
HB-2	Fall freeze protection shutdown, drain, shut isolation valve	Annual / Seasonal	0.25	1	0.25	plumber
HB-2	Spring reactivation, open isolation valve, check for leaks	Annual / Seasonal	0.25	1	0.25	plumber
FS-1	Verify trap primer activates, floor sink trap holds water seal	Quarterly	0.20	4	0.80	plumber
FS-1	Clean strainer and grate	Semi-Annual	0.20	2	0.40	owner staff
FS-2	Verify trap primer activates, floor sink trap holds water seal	Quarterly	0.20	4	0.80	plumber
FS-2	Clean strainer and grate	Semi-Annual	0.20	2	0.40	owner staff

3.8 LP Gas Supply System (LP-1)

Tag	Task	Frequency	Hrs/Occ	Occ/Yr	Annual Hrs	Skill Level
LP-1	Visual inspection of tank, piping, and connections for damage or leaks	Quarterly	0.25	4	1.00	owner staff
LP-1	Supplier scheduled tank inspection, relief valve check, leak test	Annual / Seasonal	0.50	1	0.50	LP supplier
LP-1	Pre season check of LP piping, regulators,	Annual / Seasonal	0.50	1	0.50	LP supplier

	sediment traps before heating season					
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3.9 Natural Ventilation (LV-1)

Tag	Task	Frequency	Hrs/Occ	Occ/Yr	Annual Hrs	Skill Level
LV-1	Visual inspection, lubricate operator hardware and hinges	Semi-Annual	0.30	2	0.60	owner staff
LV-1	Verify open and close operator and interlock with IR heater controls	Annual / Seasonal	0.30	1	0.30	HVAC tech
LV-1	Clean insect screens and check weatherseal before heating season	Annual / Seasonal	0.30	1	0.30	owner staff

4. Annual Labor Hours Summary

System	Task Count	Annual Hours
LP Gas Infrared Heating	10	12.00
Electric Resistance Heating	20	10.25
Ceiling Fans	16	8.00
Evaporative Cooling	5	4.70
Exhaust Fans	15	8.00
Domestic Water Heater	4	3.45
Plumbing Fixtures and Specialties	17	12.00
LP Gas Supply System	3	2.00
Natural Ventilation	3	1.20
TOTAL, all systems	93	61.60

5. Recordkeeping

The owner or contracted service provider should keep a maintenance log for each tag showing date performed, technician or provider, task completed, parts or consumables used, and as found condition. Retain LP supplier service records and any tank inspection or leak test reports for the life of the tank. Retain water heater anode rod and expansion tank records. Update this plan and the accompanying PM schedule workbook once basis of design equipment is selected and OEM IOM manuals are received, and again after any equipment replacement.

This plan and the companion PM Schedule workbook (2026-12-PM-SCHEDULE.xlsx) are generated from the same task table and will be reissued together.