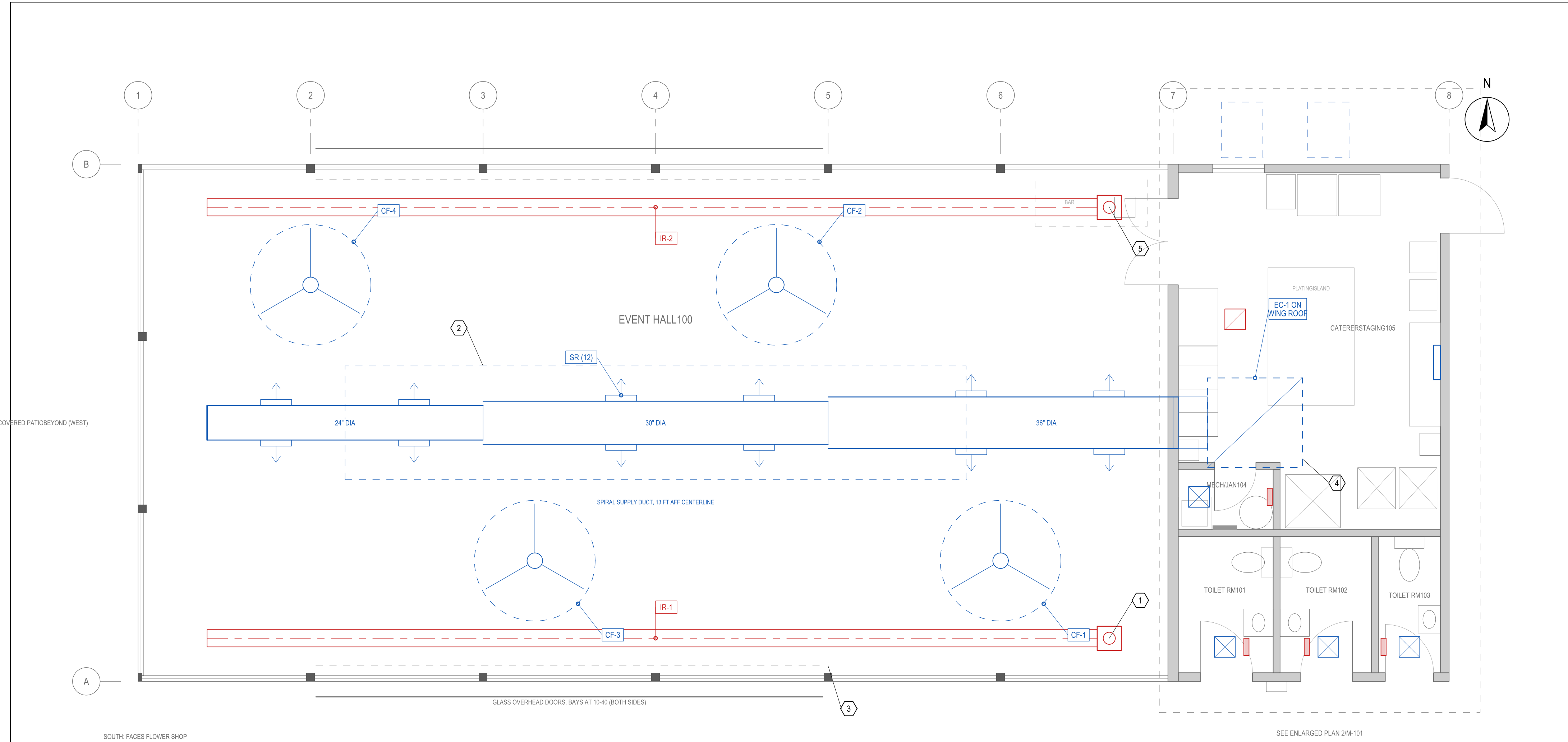




1 OVERALL HVAC PLAN

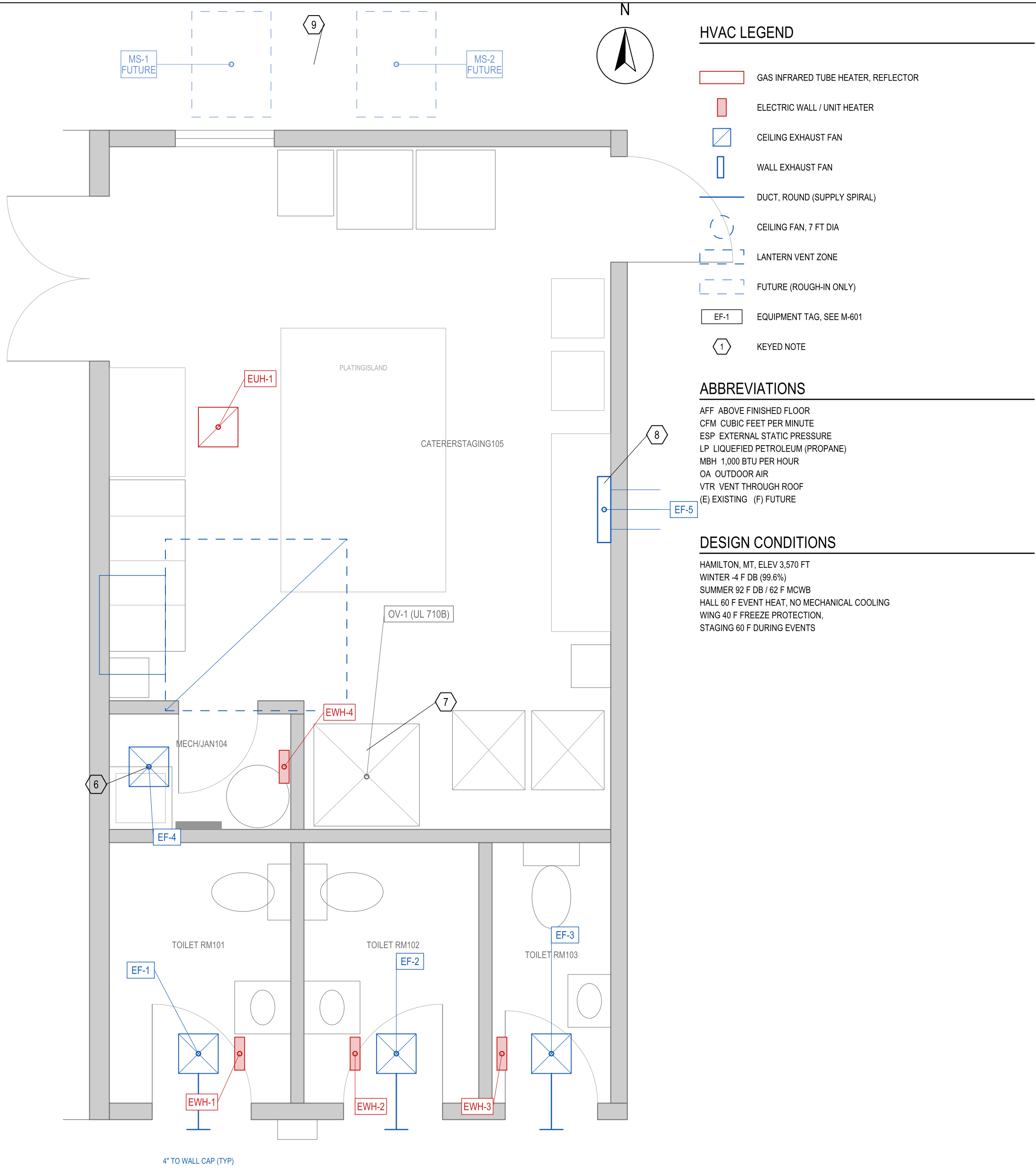
SCALE: 1/4" = 1'-0"

GENERAL NOTES

- CONCEPT R1 FOR OWNER AND CONTRACTOR REVIEW. NOT FOR CONSTRUCTION UNTIL STAMPED.
- HALL IS EVENT HEAT ONLY. TWO LP-FIRED INFRARED TUBE HEATERS, ONE PER EAVE. NO MECHANICAL COOLING IN THE HALL. SUMMER RELIEF IS NATURAL VENTILATION (GLASS OVERHEAD DOORS AND THE RIDGE LANTERN AWNING VENTS). FOUR CEILING FANS ZIG-ZAGGED 8 FT OFF CENTER, AND ONE EVAPORATIVE COOLER EC-1 ON THE WING ROOF (ABOUT 12,000 CFM, PRELIMINARY BY AIR CHANGE: 23,400 FT³ x 30 ACH = ABOUT 11,700 CFM, WET-BULB CHECK OPEN). SUPPLY IS A SPIRAL ROUND DUCT ON THE CENTERLINE: 36 IN FOR 20 FT, 30 IN TO 40 FT, 24 IN TO AN END CAP AT 36 FT, WITH 6 PAIRS OF SIDE REGISTERS AT ABOUT 1,000 CFM EACH, MAX VELOCITY ABOUT 1,650 FPM.
- HALL OUTDOOR AIR 850 CFM (ASHRAE 62.1 MULTIUSE ASSEMBLY, 99 PERSONS) IS DELIVERED NATURALLY. OPERATOR OPENS A MINIMUM OF ONE OVERHEAD DOOR OR THE LANTERN VENTS WHEN OCCUPIED.
- HEATER LOAD: 92,640 BTUH HALL PEAK AT -4 F x 1.25 = 115.8 MBH OUTPUT REQUIRED. TWO 75 MBH INPUT HEATERS AT ABOUT 85% GIVE ABOUT 128 MBH. SEE M-601.
- MAINTAIN IR HEATER CLEARANCES TO COMBUSTIBLES AND TO GLASS PER THE MANUFACTURER. COORDINATE MOUNTING HEIGHT (11 FT) WITH THE ROOF FRAMING AND THE OVERHEAD DOOR TRACKS.
- WING HEAT IS ELECTRIC. EXHAUST FANS PER M-601. TOILET FANS ON THE LIGHT SWITCH WITH A 15 MINUTE RUN-ON.
- ELECTRICAL CONNECTIONS BY DIVISION 26. VERIFY ALL VOLTAGES ON THE PANEL SCHEDULE.

KEYED NOTES

- IR BURNER AT THE EAST END. 4 IN FLUE UP THROUGH THE ROOF WITH LISTED ROOF JACK. OUTDOOR COMBUSTION AIR PER THE MANUFACTURER. GAS DROP 1/2 IN. SEE P-101.
- RIDGE LANTERN ABOVE: 18 AWNING VENTS ON AUTOMATIC OPENERS FOR STACK RELIEF. INTERLOCK: VENTS CLOSE WHEN THE IR HEATERS ARE CALLED.
- GLASS OVERHEAD DOORS, THREE BAYS EACH SIDE. PRIMARY MAKEUP AIR PATH IN SUMMER.
- EC-1 EVAPORATIVE COOLER ON A STEEL STAND ON THE FLAT WING ROOF, ABOUT 1,000 LB OPERATING. VERIFY WING ROOF JOISTS. DISCHARGES WEST THROUGH A SOLID INSULATED PANEL IN THE HALL. EAST GABLE INTO THE SPIRAL DUCT. MOTORIZED INSULATED DAMPER AT THE WALL. CLOSED IN WINTER. 1/2 IN CW UP TO THE ROOF WITH A DRAIN-DOWN VALVE AND FLOAT FILL, BLEED ACROSS THE ROOF TO THE GUTTER. 230 V 1 PH CIRCUIT WITH A DISCONNECT ON THE STAND. LADDER ACCESS. DRAIN AND COVER OCTOBER TO MAY.
- IR HEATER MOUNTING: 11 FT AFF ON THE EAVE, REFLECTOR TILTED TO THE FLOOR CENTER. KEEP 5 FT CLEAR OF THE OVERHEAD DOOR PANELS IN THE OPEN POSITION.
- IR RUNS CONTINUOUS (JANITOR CLOSET). 4 IN DUCT UP TO A ROOF CAP.
- OV-1 IS A LISTED VENTLESS OVEN (UL 710B). NO TYPE I HOOD. NO DUCT. NO SUPPRESSION. IF THE CATERER BRINGS A NON-LISTED APPLIANCE A HOOD IS REQUIRED. OWNER TO CONFIRM.
- EF-3 WALL FAN HIGH ON THE EAST WALL. THERMOSTAT AT 85 F PLUS MANUAL SWITCH. MAKEUP AIR THROUGH THE NORTH WINDOW AND THE SERVICE DOORS. NOT IN THE LOAD TOOL OUTPUT; ADDED ON THIS SHEET.
- FUTURE MINI-SPLIT PADS (ABOUT 8 TON TOTAL). ROUGH-IN ONLY; PAD, LINE-SET SLEEVE, CONDENSATE PATH AND 208 V CIRCUIT SPACE.



2 ENLARGED WING HVAC PLAN

SCALE: 3/8" = 1'-0"

ZONE HEATING SUMMARY (DESIGN.XLSX)

ZONE	AREA FT ²	HEATING BTUH	OA CFM	SYSTEM
HALL	1,800	92,640	850	IR-1/2
TR1	50	1,631	0	EWH
TR2	50	1,632	0	EWH
TR3	50	1,633	0	EWH
MECH-JAN	45	1,149	0	EWH
STAGING	255	9,337	91	EUH-1

HVAC LEGEND

- GAS INFRARED TUBE HEATER, REFLECTOR
- ELECTRIC WALL / UNIT HEATER
- CEILING EXHAUST FAN
- WALL EXHAUST FAN
- DUCT, ROUND (SUPPLY SPIRAL)
- CEILING FAN, 7 FT DIA
- LANTERN VENT ZONE
- FUTURE (ROUGH-IN ONLY)
- EF-1 EQUIPMENT TAG, SEE M-601
- KEYED NOTE

ABBREVIATIONS

- AFF ABOVE FINISHED FLOOR
 - CFM CUBIC FEET PER MINUTE
 - ESP EXTERNAL STATIC PRESSURE
 - LP LIQUEFIED PETROLEUM (PROPANE)
 - MBH 1,000 BTU PER HOUR
 - OA OUTDOOR AIR
 - VTR VENT THROUGH ROOF
 - (E) EXISTING (F) FUTURE
- DESIGN CONDITIONS
- HAMILTON, MT, ELEV 3,570 FT
WINTER -4 F DB (99.6%)
SUMMER 92 F DB / 62 F MCWB
HALL 60 F EVENT HEAT, NO MECHANICAL COOLING
WING 40 F FREEZE PROTECTION,
STAGING 60 F DURING EVENTS

SUTTON MECHANICAL & ENVIRONMENTAL
PROJECT NO: 2026-12
PROJECT: FARMWILD ORANGERY
CLIENT: FARMWILD

HVAC PLANS

DRAWN BY: MS
DATE: 2026-09-30

M-101
REV: A

