GENERAL NOTES

GENERAL NOTES - MECHANICAL

1. REFERENCE TO RELATED WORK: "REF" INDICATIONS DENOTE WORK COVERED ELSEWHERE (ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL, LANDSCAPE, OR KITCHEN), OR ITEM BASED ON A SPECIFIC MANUFACTURER'S DIMENSIONS (VERIFY).

2. ELECTRICAL CHARACTERISTICS: REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL CHARACTERISTICS (VOLTAGES, ETC. OF MECHANICAL EQUIPMENT, UNLESS OTHERWISE INDICATED.

3. CODES: COMPLETE INSTALLATION OF THE MECHANICAL SYSTEM SHALL BE PER THE APPLICABLE BUILDING, MECHANICAL, ENERGY, PLUMBING, FIRE, AND HEALTH CODES AND REGULATIONS AS ADOPTED BY THE LOCAL AHJ.

4. PREPARE AND SUBMIT FOR REVIEW A SHOP DRAWING BASED ON FINAL STRUCTURAL SHOP DRAWINGS FOR LOCATING AND ROUTING ALL DUCTWORK, DAMPERS, EQUIPMENT, PIPING, ETC.
   A. COORDINATE FLOOR AND BEAM PENETRATIONS WITH STRUCTURAL.
   B. COORDINATE FINAL LOCATION AND ROUTING WITH CEILING, LIGHTS, WALLS, FIRE SPRINKLER PIPING, AND OTHER TRADES WORK.
   C. INCLUDE ADDITIONAL OFFSETS, ELBOWS, ROUTING, EQUIVALENT DUCT SIZING EXCHANGE, RELOCATING, ETC. AS REQUIRED FOR A COMPLETE OPERATING MECHANICAL SYSTEM.
   D. PROVIDE SHOP DRAWINGS AT NO ADDITIONAL COST TO THE OWNER.

5. MECHANICAL CONTRACTOR SHALL LOCATE AND COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITHIN THE STRUCTURE.

6. ACCESS DOORS: COORDINATE WITH ARCHITECT AND LOCATE ALL ACCESS DOORS ON SHOP DRAWINGS PRIOR TO BEGINNING OF CONSTRUCTION. ACCESS DOORS IN FIRE RATED STRUCTURE SHALL BE FIRE RATED. VERIFY ACCESS DOOR LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO BIDDING.

7. RATED PENETRATION: DUCT PENETRATIONS THROUGH RATED ENCLOSURES SHALL BE FIRE/SMOKE DAMPERED PER THE LATEST EDITION OF THE UNDERWRITERS LABORATORIES(UL) FIRE RESISTANCE WITH HOURLY RATINGS FOR THROUGH-PENETRATION FIRE STOPS SYSTEM VOLUME #2. OR SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S UL LISTINGS (3M OR EQUIVALENT). DETERMINE REQUIREMENTS WITH GENERAL CONTRACTOR PRIOR TO BID.

8. EXHAUST OUTLETS: SOURCE-SPECIFIC FANS SHALL BE VENTED TO OUTDOORS WITH A MINIMUM 3' CLEARANCE BETWEEN VENT OUTLETS AND BUILDING OPENINGS, AND 10' MINIMUM BETWEEN VENT OUTLETS AND MECHANICAL AIR INTAKES.

9. ROOF PENETRATIONS: SEE ARCHITECTURAL DRAWINGS FOR ROOF CAP, ROOF CURB, ROOF DRAIN, AND VTR DETAILS.

10. EXPOSED PIPING: PROVIDE CHROME PLATING FOR EXPOSED PIPING IN FINISHED ROOMS.

11. PENETRATIONS: PROVIDE ESCUTCHEON PLATES FOR EXPOSED PIPING PENETRATIONS AND SHEET METAL FLASHING FOR EXPOSED DUCTWORK PENETRATIONS.

12. SHAFT AND PLENUM CONNECTIONS: SEAL CONNECTIONS TO AIR SHAFTS AIRTIGHT. PROVIDE AIRTIGHT SEAL AROUND PENETRATIONS IN AIR PLENUMS.

13. LIGHT FIXTURE CLEARANCE: COORDINATE LOCATIONS OF MECHANICAL WORK TO PROVIDE CLEARANCES OVER LIGHTING FIXTURES FOR REMOVAL AND REPLACEMENT.

14. CABLE TRAYS: DUCTWORK AND PIPING INSTALLED ADJACENT TO ELECTRICAL CABLE TRAYS SHALL ALLOW MINIMUM ACCESS OF 6" ABOVE AND TO THE SIDE OF CABLE TRAYS.

15. MOTORS: COMPLY WITH ENERGY CODE ENFORCED BY AHJ FOR MINIMUM EFFICIENCIES UNDER FULL LOAD.

16. ACCESS CLEARANCES FOR MAINTENANCE AND REPLACEMENT: VERIFY PHYSICAL DIMENSIONS OF EQUIPMENT TO ENSURE THAT ACCESS CLEARANCES CAN BE MET. COORDINATE LOCATIONS OF MECHANICAL WORK AND WORK OF OTHER TRADES TO PROVIDE ACCESS CLEARANCES FOR SERVICE AND MAINTENANCE.

COORDINATION REQUIREMENTS

1. PIPING: COORDINATE WITH STRUCTURAL FOR EXACT LOCATION OF ALL STRUCTURAL FRAMING AND FOOTINGS AND FINALIZE THE EXACT ROUTING OF ALL PIPES WITH STRUCTURAL AND AT THE SITE PRIOR AND DURING THE CONSTRUCTION.

2. DUCTWORK: LOCATE AND COORDINATE THE EXACT LOCATION OF DUCTWORK WITH STRUCTURAL PLANS AND WITH THE GENERAL CONTRACTOR PRIOR TO INSTALLATION OF ANY STRUCTURE OR EQUIPMENT. COORDINATE WITH FRAMING CONTRACTOR TO ASSURE JOIST SPACES LINE UP WHEN DUCTWORK MUST PASS THROUGH DIFFERENT JOIST SPACES.

3. ADJUSTMENTS: ALL EQUIPMENT, MOTORS, FANS GAS BURNERS, IGNITION DEVICES, DRIVES, ETC. SHALL BE ADJUSTED AND BALANCED TO OPERATE AT SPECIFIED RATINGS AS REQUIRED FOR THIS PROJECT SITE AND ACCOUNTING FOR ELEVATION ABOVE SEA LEVEL.

4. APPROVALS: MECHANICAL AND PLUMBING EQUIPMENT SHALL BE APPROVED FOR INSTALLATION IN THE PROJECT LOCATION AND SHALL HAVE ALL CERTIFICATIONS AND RATINGS TO MEET ALL ENERGY, POLLUTION, ENVIRONMENTAL, SEISMIC, ETC. CODES AND REGULATIONS. THE CONTRACTOR SHALL COORDINATE WITH HIS MANUFACTURE SUPPLIERS AND SHALL INCLUDE ALL COSTS REQUIRED TO MEET THESE REQUIREMENTS IN HIS BID.

5. FIRE PROTECTION: CONTRACTOR SHALL PROVIDE A FULLY DESIGNED FIRE PROTECTION SPRINKLER SYSTEM IN COMPLIANCE WITH NFPA AND LOCAL CODES. PROVIDE DESIGN, PERMITS, MATERIALS, INSTALLATION, TESTING AND ALL OTHER FOR A FULLY OPERATIONAL SYSTEM. LOCATION OF ALL PIPING TO BE COORDINATED WITH OTHER TRADES.

6. FIREPLACES: COORDINATE WITH THE GENERAL CONTRACTOR TO DETERMINE GAS FIREPLACE FLUE AND COMBUSTION AIR DUCTWORK REQUIREMENTS PRIOR TO BIDDING.

PIPING NOTES

1. DISASSEMBLY PROVISIONS: PROVIDE UNIONS OR FLANGES AT PIPING CONNECTIONS TO EQUIPMENT, COILS, TRAPS, CONTROL VALVES, AND OTHER COMPONENTS TO ALLOW DISASSEMBLY FOR MAINTENANCE.

2. REDUCERS: PROVIDE AS REQUIRED FROM LINE PIPE SIZE TO EQUIPMENT, TRAP, COIL, AND CONTROL VALVE CONNECTION SIZES.

3. OFFSETS: PROVIDE FOR BRANCH LINES TO EQUIPMENT.

4. DIELECTRIC UNIONS: PROVIDE AT CONNECTIONS OF DISSIMILAR PIPE.

5. REFRIGERANT PIPING: PROVIDE SIZING & INSTALLATION IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

6. CONDENSATE DRAIN: PROVIDE A P-TRAP FOR EACH HVAC UNIT CONDENSATE PAN WITH PLUG TEES FOR CLEANING. CONDENSATE DRAINS SHALL BE DISCHARGED TO AN INDIRECT WASTE OR OUTSIDE.

INSULATION/LINING NOTES

1. ENERGY CODE: AS A MINIMUM, COMPLY WITH THICKNESSES AND TYPES LISTED IN ENERGY CODE ENFORCED BY AHJ.

PLAN NOTES

1. DUCTWORK SHALL BE METALLIC DUCTWORK

2. TEST AND BALANCE WORK SHALL BE PERFORMED BY AN INDEPENDENT TEST AND BALANCE AGENCY. PROVIDE (3) COPIES OF TEST AND BALANCE REPORT TO OWNER.

3. COORDINATE DUCTWORK WITH MISCELLANEOUS OBSTRUCTIONS IN CEILING SPACE.

4. RESTROOM EXHAUST SHALL BE A MINIMUM OF 10' FROM ANY MECHANICAL OUTSIDE AIR INTAKES.

5. ROUTE DUCTWORK UNDERNEATH JOISTS UON.

6. TRANSITION DUCT UNDER BEAMS AND DUCTS. FIELD VERIFY AVAILABLE CEILING CAVITY DIMENSIONS.

7. COORDINATE MOUNTING HEIGHT OF DIFFUSERS WITH ARCHITECTURAL PLANS.

SHEET METAL NOTES

1. REFERENCE: SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, CURRENT EDITION.

2. CLEARANCE: COORDINATE DUCTWORK WITH MISCELLANEOUS OBSTRUCTIONS IN CEILING SPACE.

3. ROUND ELBOWS AND OFFSETS: FULL RADIUS (R/D = 1.5), 5-PIECE SEGMENTED OR STAMPED. REFER TO SMACNA HVACDCS FIG 2-7, 3-3. DO NOT USE ANGLED OFFSET (TYPE 1). MITERED OFFSET (TYPE 2) MAY BE USED UP TO 30 DEGREE OFFSET ANGLE.

4. ROUND TEES AND LATERALS: CONICAL TEE PER SMACNA HVACDCS FIG 3-5; DO NOT USE STRAIGHT TEE; DO NOT USE CONICAL SADDLE TAP FOR EXPOSED DUCTWORK IN FINISHED SPACES. 90-DEGREE TEE WITH OVAL TO ROUND TAP, LATERAL, AND 45-DEGREE RECTANGULAR LEAD-IN PER SMACNA HVACDCS FIG 3-4.

5. RECTANGULAR ELBOWS AND OFFSETS: FULL RADIUS WHERE SPACE PERMITS, R/W = 1.5; OTHERWISE USE SQUARE CORNER ELBOW WITH TURNING VANES.

6. RECTANGULAR DIVIDED FLOW FITTINGS: USE GENERALLY, EXCEPT BRANCHES TO TERMINALS; SMACNA HVACDCS FIG 2-5, TYPES 1, 2, 4A, AND 4B. DO NOT USE TYPE 3.

7. TURNING VANES: H.E.P. MANUFACTURER OR APPROVED HIGH EFFICIENCY PROFILE AIRFOIL TYPE FOR RECTANGULAR SQUARE THROAT ELBOWS. ACOUSTICAL TYPE FOR RETURN AIR MITERED ELBOWS.

8. TAKEOFFS TO OPENINGS: CONICAL TYPE WITH VOLUME DAMPER FOR ROUND DUCT BRANCHES PER SMACNA HVACDCS FIG 2-6, MINIMUM INLET DIAMETER 2 INCHES LARGER THAN DUCT SIZE. 45 DEGREE ENTRY FITTING FOR RECTANGULAR DUCT BRANCHES PER SMACNA HVACDCS FIG 2-6.

9. FLEXIBLE CONNECTIONS: PROVIDE AT EACH DUCT CONNECTION TO FANS, PACKAGED HVAC EQUIPMENT, EXTERNALLY ISOLATED AIR HANDLING UNITS, FAN COIL UNITS, AND SIMILAR EQUIPMENT. EXCEPTION: EQUIPMENT IN CORRIDOR CEILING SPACES WHERE FIRE RATING IS REQUIRED.

HVAC NOTES

1. ATTACHMENTS: AIR DISTRIBUTION OUTLETS AND LOUVERS SHALL HAVE ALL REQUIRED ACCESSORIES AND ATTACHMENTS FOR A COMPLETE CONNECTION TO THE SPECIFIC TYPE OF STRUCTURE THAT THEY ARE BEING ATTACHED TO. THIS INCLUDES, BUT IS NOT LIMITED TO, EXTERIOR BRICKS, GWB WALLS, GWB CEILING, ETC.

2. DUCTWORK: DUCTWORK SHALL BE SMOOTH SHEET METAL (CLASS-1). DUCTWORK THROUGH FIRE RATED STRUCTURE AND FLOOR SHALL BE MIN. 26 GA. STEEL. MAXIMUM LENGTH OF FLEXIBLE DUCTS SHALL BE 5'-0", UNLESS OTHERWISE NOTED ON DRAWINGS. DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.

3. VOLUME DAMPERS: PROVIDE AN ACCESSIBLE MANUAL VOLUME DAMPER FOR EACH SUPPLY, RETURN, OSA, AND EXHAUST OPENING, LOCATED AS FAR UPSTREAM AS POSSIBLE FROM THE OPENING. PROVIDE A MANUAL VOLUME DAMPER FOR BRANCH MAINS SERVING MORE THAN ONE OPENING. VOLUME DAMPERS IN NON-ACCESSIBLE CEILINGS SHALL HAVE A CONTROL ARM EXTENDED TO AN ACCESSIBLE LOCATION.

4. SEISMIC: PROVIDE SEISMIC RESTRAINTS FOR MECHANICAL EQUIPMENT, PIPING, AND DUCTWORK PER SMACNA AND LOCAL REGULATIONS.

5. FILTER CLEARANCE: PROVIDE ADEQUATE CLEARANCE FOR CHANGING AIR FILTERS.

6. DUCTWORK AND PIPING OUTSIDE OF MECHANICAL ROOMS SHALL BE CONCEALED, COORDINATE WITH THE GENERAL CONTRACTOR TO FUR-OUT AS REQUIRED.

7. FIRE RATINGS: RATED FLOOR/CEILING JOINT SPACES HAVING DUCTWORK INSIDE THEM SHALL BE FIRE/SMOKE PROTECTED TO MAINTAIN THE 1-HOUR FLOOR/CEILING RATING PER LOCAL JURISDICTIONS. EXHAUST DUCTWORK PENETRATING THE 1-HOUR ROOF/CEILING OR FLOOR/CEILING ASSEMBLY SHALL HAVE ACCESSIBLE CEILING FIRE DAMPERS. ALTERNATIVELY, THE EXHAUST DUCTWORK SHALL BE ROUTED INSIDE A RATED SHAFT TO PROTECT THE CEILING/ROOF RATING PER THE LOCAL JURISDICTIONS.

8. FIRESTOP: PIPE, DUCT AND CONDUIT PENETRATIONS THROUGH RATED ASSEMBLIES SHALL BE FIRE AND SMOKE STOPPED PER CODE.

9. CORRIDOR THERMOSTAT: PROVIDE TAMPERPROOF THERMOSTATS IN CORRIDORS. DO NOT PROVIDE PLASTIC GUARDS TO MAKE THE THERMOSTATS TAMPERPROOF. PROVIDE BLANK SECURABLE THERMOSTAT COVERS.

ABBREVIATIONS

ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNIT PER HOUR
C	COMMON
CAP	CAPACITY
CC	COOLING COIL
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CLG	CEILING, COOLING
CO	CLEANOUT
COMB	COMBUSTION
CONT	CONTINUE, CONTROL
COP	COEFFICIENT OF PERFORMANCE
CWS	CHILLED/CONDENSER WATER SUPPLY
CWR	CHILLED/CONDENSER WATER RETURN
D	DIAMETER
DB	DRY BULB, DECIBEL
DIM	DIMENSION
DISCH	DISCHARGE
DN	DOWN
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST GRILLE
ELEC	ELECTRIC
ESP	EXTERNAL STATIC PRESSURE
EXH	EXHAUST
EXT	EXTERIOR, EXTERNAL
F	FAHRENHEIT
FCU	FAN COIL UNIT
FLR	FLOOR
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE/SMOKE DAMPER
G	GAS
GAL	GALLONS
GPM	GALLONS PER MINUTE
GRD	GRILLES, REGISTERS, DIFFUSERS
GWB	GYPSUM WALLBOARD
HD	HEAD
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPU	HEAT PUMP UNIT
HRU	HEAT RECOVERY UNIT
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HVU	HEATING & VENTILATION UNIT
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
ID	INDIRECT DRAIN, INSIDE DIAMETER
IN	INCH
KW	KILOWATT
L	LONG, LENGTH
LB	POUND
MBH	THOUSAND BTU PER HOUR
MECH	MECHANICAL
MCA	MIN CIRCUIT AMPACITY
MOCP	MAX OVER CURRENT PROTECTION
MTD	MOUNTED
OSA	OUTDOOR AIR
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIMENSION OR DIAMETER
OPNG	OPENING
P	PUMP
PD	PRESSURE DROP, PUMPED DRAIN
POC	POINT OF CONNECTION
PRV	PRESSURE REDUCING VALVE
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
RD	ROOF DRAIN
REF	REFERENCE
RF	RELIEF FAN
RG	RETURN GRILLE
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SCH	SCHEDULE
SF	SUPPLY FAN, SQUARE FOOT
SENS	SENSIBLE
SG	SUPPLY GRILLE
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SO	SCREENED OPENING
SP	STATIC PRESSURE
SS	STAINLESS STEEL, SANITARY SEWER
SQ	SQUARE
TG	TRANSFER GRILLE
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VENT
VENT	VENTILATION, VENTILATOR
VTR	VENT THRU ROOF
W	WASTE, WATT, WIDE
WB	WET BULB (TEMPERATURE)

LEGEND

EQUIPMENT

- EF-1 — TYPICAL EQUIPMENT DESIGNATION (EXHAUST FAN SHOWN)
- DSD — DUCT SMOKE DETECTOR
- T — ROOM THERMOSTAT OR TEMPERATURE TRANSMITTER
- H — ROOM HUMIDISTAT OR HUMIDITY TRANSMITTER
- CO — CARBON MONOXIDE SENSOR
- SD — SMOKE DETECTOR

TERMINALS

- CD-12x12 / 400 OR CD-1 / 400 — DIFFUSER/GRILLE TYPE, AND NUMBER OR SIZE; DESIGN CFM (WHERE APPLICABLE) CEILING DIFFUSER (FLOW ARROWS SHOWN FOR NON SYMMETRICAL AIRFLOW)
- CEILING RETURN/EXHAUST GRILLE
- LINEAR DIFFUSER, CEILING OR WALL MOUNTED (FLOW ARROWS SHOWN FOR NON SYMMETRICAL AIRFLOW)
- WALL SUPPLY GRILLE (SG)
- WALL RETURN/EXHAUST GRILLE (RG, EG)
- 50 / 50 — TRANSFER GRILLE (TG), DUCT CONNECTED, WALL MOUNTED W/ OPTIONAL CFM SHOWN; TRANSFER GRILLE, CEILING MOUNTED WITH FULL-SIZED LINED DUCT CONNECTION

PIPING

- CD — CONDENSATE DRAINAGE
- G — NATURAL GAS - STD. PRESSURE
- MPG — NATURAL GAS - MEDIUM PRESSURE
- PIPE CAP
- PIPE PLUG
- UNION
- FLANGE
- GATE VALVE OR BALL VALVE
- BALL VALVE
- PRESSURE REDUCING VALVE (PRV)
- BREAK IN PIPING OR DUCTWORK
- RL — RAIN LEADER (RL)
- OL — OVERFLOW RAIN LEADER (OL)
- CHECK VALVE

DUCTWORK

- 18x12 — DUCT (1ST FIGURE = SIDE SHOWN, 2ND FIGURE = SIDE NOT SHOWN)
- UP DOWN — DUCT SECTION, POSITIVE PRESSURE
- UP DOWN — DUCT SECTION, NEGATIVE PRESSURE
- UP DOWN — ROUND DUCT SECTION
- UP UP UP — DUCT PENETRATION THRU FLOOR OR ROOF
- VOLUME DAMPER
- FSD FSD — FIRE/SMOKE DAMPER (◀ = HORIZ DUCT, ◆ = VERT DUCT), 2-HR RATED, UON
- FD FD — FIRE DAMPER (◀ = HORIZ DUCT, ◆ = VERT DUCT), 2-HR RATED, UON
- 90° ELBOW, R/D OR R/W=1.5
- SQUARE CORNER ELBOW WITH TURNING VANES
- 90° TAKE-OFF OR TEE
- 90° CONICAL TAKE-OFF
- 45° LATERAL TAKE-OFF
- TRANSITION OR REDUCER (FOT = FLAT ON TOP, FOB = FLAT ON BOTTOM)
- WYE FITTING
- 90° RECTANGULAR TAKE-OFF WITH 45° TAPER
- 90° DIVERGING RECTANGULAR TEE, EITHER RADIUS OR TURNING VANES
- PARALLEL FLOW BRANCH CONNECTION, EITHER RADIUS OR TURNING VANES
- FLEXIBLE DUCT
- ∅ — ROUND DUCT INDICATOR

DRAWINGS ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

SHEET INDEX

CONTRACTOR SUBSTITUTIONS & REVISIONS

CONTRACTOR SUBSTITUTIONS & REVISIONS: PLEASE SUBMIT PROPOSALS FOR SUBSTITUTIONS OR REVISIONS FOR REVIEW AND APPROVAL PRIOR TO ORDERING MATERIAL OR DOING WORK. FOR EQUIPMENT THAT IS SCHEDULED BY MANUFACTURER'S NAME AND CATALOG DESIGNATIONS, THE MANUFACTURER'S PUBLISHED DATA AND/OR SPECIFICATION FOR THAT ITEM ARE CONSIDERED PART OF SPECIFICATION. ENGINEERING COSTS FOR REVISING MEP PLANS SHALL BE ADDRESSED IN THE COST ANALYSIS OF THE SUBSTITUTION PROPOSAL. CONTRACTOR TO COORDINATE WITH ENGINEER AND DETERMINE ASSOCIATED DESIGN AND PERMITTING COSTS. CONTRACTOR SHALL BE RESPONSIBLE FOR OTHER COSTS ASSOCIATED WITH UNFORESEEN ISSUES RESULTING FROM SUBSTITUTIONS OR REVISIONS.

APPLICABLE CODES

THESE DRAWINGS ARE BASED ON THE FOLLOWING CODES:
-2018 WASHINGTON STATE COMMERCIAL CODE
-2018 WASHINGTON STATE MECHANICAL CODE
-2018 WASHINGTON STATE ENERGY CODE

NO.	DATE	DESCRIPTION REVISIONS

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206.364.3343 TEL.
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. O'BRIEN — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 06-17-24

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
JTB	JTB	NK	

PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADDN
7112 S 12TH ST, TACOMA, WA, 98465

ROBISON ENGINEERING, INC
19401 40TH AVE W. SUITE 302
LYNNWOOD, WA 98036
PHONE:(206)3643343

DATE: 6/17/24

SHEET TITLE: LEGEND, GENERAL NOTES SHEET INDEX

SHEET NO. M000

DIFFUSER SCHEDULE

DIFFUSER, GRILLE, AND LOUVER SCHEDULE

EQUIP ID	DESCRIPTION	NOMINAL SIZE (INCHES)	INSTALLED ORIENTATION	MAXIMUM DESIGN FLOW (CFM)	BASIS OF DESIGN
CD-1	CEILING DIFFUSER	8x8	HORIZONTAL	230	TITUS TMS
SGH-3	SUPPLY GRILLE	10x10	HORIZONTAL	355	TITUS 350RL
SGV-1	SUPPLY GRILLE	8x6	VERTICAL	176	TITUS 350RL
SGV-2	SUPPLY GRILLE	12x6	VERTICAL	256	TITUS 350RL
SGV-3	SUPPLY GRILLE	16x6	VERTICAL	342	TITUS 350ZRL
SGV-4	SUPPLY GRILLE	20x6	VERTICAL	430	TITUS 350ZRL
SGV-5	SUPPLY GRILLE	12x12	VERTICAL	499	TITUS 350ZRL
SGV-7	SUPPLY GRILLE	27x8	VERTICAL	720	TITUS 350ZRL
RGH-3	RETURN GRILLE	18x6	HORIZONTAL	378	TITUS 350ZRL
RGH-7	RETURN GRILLE	30x8	HORIZONTAL	780	TITUS 300RL
RGH-9	RETURN GRILLE	36x8	HORIZONTAL	940	TITUS 300RL
EGH-2	EXHAUST GRILLE	8x8	HORIZONTAL	222	TITUS 300RL
EGV-5	EXHAUST GRILLE	12x12	VERTICAL	499	TITUS 300RL
L-SPF	EXHAUST LOUVER	42x30	HORIZONTAL	7000	GREENHECK ESU-154 OR EQUIV.

VENTILATION TABLES

2018 WSMC										
Room	Area (SF)	Default OCC Density	Default People	OSA Per person	OSA per SF	Zone Air Distrub. Effect.	OSA Min		OSA provided	Exhaust provided
LEVEL 1										
100 Lobby	516	30	16	5	0.06	0.8	139		200	150
102 Parlor	120	40	5	5	0.06	0.8	41		50	50
103 WC									25	50
104 Parlor	94	40	4	5	0.06	0.8	33		50	50
105 Office	93	20	2	5	0.06	0.8	20		25	25
106 Office	91	20	2	5	0.06	0.8	20		25	25
107 Office	91	20	2	5	0.06	0.8	20		25	25
108 Office	91	20	2	5	0.06	0.8	20		25	25
109 Office	93	20	2	5	0.06	0.8	20		25	25
111 Meeting	176	50	9	5	0.06	0.8	70		100	100
113 Kitchenette	122								75	150
114 WC									25	50
115 Janitor	14								15	30
117 WC									25	50
118 Meeting	143	50	8	5	0.06	0.8	61		75	75
119 Library	140	10	2	5	0.12	0.8	34		50	50
123 Copy Room	275	5	2	5	0.06	0.8	34		50	50
126 Lunch Room	339	30	11	7.5	0.06	0.8	129		150	120
128 Meeting	1070	50	54	5	0.06	0.8	418		450	340
132 WC									25	50
Corridor East	410				0.06	0.8	31		75	75
Corridor South	47				0.06	0.8	4		25	25
Corridor Central	408				0.06	0.8	31		75	75
Corridor West	204				0.06	0.8	16		50	50
							LEVEL 1 TOTALS		1715	1715
LEVEL 2										
200 Office (med)	172	5	3	5	0.06	0.8	32		40	40
201 WC									25	50
202 Office (small)	107	5	2	5	0.06	0.8	21		25	25
203 Office	93	5	2	5	0.06	0.8	20		25	25
204 Office	91	5	2	5	0.06	0.8	20		25	25
205 Office	91	5	2	5	0.06	0.8	20		25	25
206 Office	91	5	2	5	0.06	0.8	20		25	25
207 Office	93	5	2	5	0.06	0.8	20		25	25
208 Records Storage	89	0	0	5	0.12	0.8	14		25	25
209 Meeting	176	50	9	5	0.06	0.8	70		100	100
210 Meeting	1320	50	66	5	0.06	0.8	512		600	490
216 WC									25	50
217 Storage	100	0	0	5	0.12	0.8	15		25	50
220 Kitchenette									75	150
221 WC									25	50
223 Janitor	14								15	30
224 WC									25	50
225 Meeting	129	50	7	5	0.06	0.8	54		75	75
226 Office	102	2	2	5	0.06	0.8	21		25	25
227 Library	100	10	1	5	0.12	0.8	22		25	25
229 Office	152	2	3	5	0.06	0.8	31		40	40
230 Meeting	1340	50	67	5	0.06	0.8	520		600	490
2CW Corridor West	408				0.06	0.8	31		75	75
							LEVEL 2 TOTALS		1970	1965

NO.	DATE	DESCRIPTION
		REVISIONS

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206 364 3343 TEL.
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. O'BRIEN — REGISTERED PROFESSIONAL ENGINEER — 06-17-24

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
JTB	JTB	NK	

PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADD'N
7112 S 12TH ST, TACOMA, WA, 98465

ROBISON ENGINEERING, INC
19401 40TH AVE W. SUITE 302
LYNNWOOD, WA 98036
PHONE:(206)3643343

DATE: 6/17/24

SHEET TITLE: VENTILATION TABLES, DIFFUSER SCHEDULE

SHEET NO. M001

MECHANICAL SCHEDULES

SPLIT SYSTEM HEAT PUMP SCHEDULE - OUTDOOR UNITS

EQUIP ID	SERVICE	NOMINAL CAPACITY (TONS)	COOLING		HEATING		ELECTRICAL (8)			WEIGHT (LBS)	MIN OUTDOOR TEMP	BASIS OF DESIGN[1]-(3)	CONNECTED INDOOR UNITS
			CAPACITY (BTU/H)	RATING	CAPACITY (BTU/H)	RATING	VOLTAGE	MCA	MOCP				
HP-1	BUILDING PER PLAN	32	364,000	12.2 EER	410,000	3.76 COP	208V/3P	80/80	125/125	900/900	-22	MITSUBISHI PURY-EP384TSNU-A1	(7)

NOTES: (1) AHRI LISTED WITH ALL STANDARD FEATURES, INSTALLATION ACCESSORIES AND COMPRESSOR SHORT CYCLING PROTECTION, FILTER DRIER, REFRIGERANT LINE FILTER, LIQUID SOLENOID VALVE, AND SAFETY PRESSURE SWITCHES. INSTALL REFRIGERANT TUBING AND LENGTH IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.

(2) SYSYEM USES R-410A REFRIGERANT.

(3) ROUTING OF REFRIGERANT LINES FROM INDOOR TO OUTDOOR UNITS NOT SHOWN ON PLANS. CONTRACTOR TO FIELD COORDINATE ROUTING. ALL REFRIGERANT PIPES ARE TO BE ACOUSTICALLY ISOLATED (AND ATTACHED TO THE UNIT VIA A FLEXIBLE CONNECTION).

(4) PROVIDE JOINT KIT, PANEL HEATER KIT AND SNOW/HAIL GUARDS KIT

(5) EQUIPMENT PLACEMENT REQUIRES STRUCTURAL REVIEW.

(6) MANUFACTURER'S SPECIFIED OPERATING RANGE IN HEATING MODE WITHOUT OPTIONAL EQUIPMENT.

(7) REFER TO BRANCH BOX SCHEDULE AND ASSOCIATED TABLE FOR WHICH FAN COIL IS CONNECTED.

(8) THIS UNIT CONSISTS OF TWO PURY-EP192TNU-A1 UNITS COMBINED.

SPLIT SYSTEM HEAT PUMP SCHEDULE - INDOOR UNITS

EQUIP ID	SERVICE	MOUNTING/ DISCHARGE	FAN (CFM)	FILTER	COOLING CAPACITY (BTU/H)	HEATING CAPACITY (BTU/H)	ELECTRICAL			FRESH AIR DUCT	BASIS OF DESIGN[1]	CONNECTED OUTDOOR UNIT
							VOLTAGE	MCA	MOCP			
FCU-B101	MACHINE ROOM	WALL MOUNTED	646	-	18,000	20,000	208V/1P	(4)	(4)	N	MITSUBISHI PKFY-P18NLMU-E	HP-1
FCU-100	100 LOBBY	CEILING CASSETTE	280	(2)	18,000	20,000	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P18NFMU-E	HP-1
FCU-101	101 RECEPTION	CEILING CASSETTE	280	(2)	18,000	20,000	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P18NFMU-E	HP-1
FCU-102	102 PARLOR	CEILING CASSETTE	390	(2)	8,000	9,000	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P08NFMU-E	HP-1
FCU-104	104 PARLOR	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-105	105 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-106	106 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-107	107 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-108	108 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-109	109 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-111	111 MEETING	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-113	113 KITCHENETTE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-118	118 MEETING	CEILING CASSETTE	390	(2)	8,000	9,000	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P08NFMU-E	HP-1
FCU-119	119 LIBRARY	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-123	123 COPY/WORK ROOM	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-125	125 HALL	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-126	126 LUNCH ROOM	CEILING CASSETTE	390	(2)	8,000	9,000	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P08NFMU-E	HP-1
FCU-127	127 HALL	CEILING CASSETTE	390	(2)	8,000	9,000	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P08NFMU-E	HP-1
FCU-128A	128A MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1
FCU-128B	128B MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1
FCU-129	129 MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1
FCU-200	200 OFFICE	CEILING CASSETTE	390	(2)	8,000	9,000	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P08NFMU-E	HP-1
FCU-202	202 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-203	203 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-204	204 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-205	205 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-206	206 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-207	207 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-208	208 RECORDS STORAGE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-209	209 MEETING	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-210	210 MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1
FCU-211	211 MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1
FCU-212	212 MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1
FCU-213	213 MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1
FCU-214	214 HALL	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-220	220 KITCHENETTE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-225	225 MEETING	CEILING CASSETTE	390	(2)	8,000	9,000	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P08NFMU-E	HP-1
FCU-226	226 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-227	227 LIBRARY	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-229	229 OFFICE	CEILING CASSETTE	280	(2)	5,000	5,600	208V/1P	(4)	(4)	Y[3]	MITSUBISHI PLFY-P05NFMU-E	HP-1
FCU-230A	230A MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1
FCU-230B	230B MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1
FCU-230C	230C MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1
FCU-230D	230D MEETING	CEILING CASSETTE	335	(2)	12,000	13,500	208V/1P	(4)	(4)	N	MITSUBISHI PLFY-P12NFMU-E	HP-1

NOTES: (1) SYSTEM USES R-410A REFRIGERANT.

(2) PROVIDE MERV-8 FILTER.

(3) CONNECT FRESH AIR DUCT TO ERV PER PLAN.

(4) INDOORS UNIT ARE POWERED BY THE OUTDOOR UNIT.

NO.	DATE	DESCRIPTION
		REVISIONS

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
2063643343 TEL.
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. O'BRIEN — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 06-17-24

DRAWN: JTB | DESIGNED: JTB | CHECKED: NK | APPROVED:

PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADD'N
7112 S 12TH ST, TACOMA, WA, 98465

ROBISON ENGINEERING, INC
19401 40TH AVE W. SUITE 302
LYNNWOOD, WA 98036
PHONE:(206)3643343

DATE: 6/17/24

SHEET TITLE: MECHANICAL SCHEDULES

SHEET NO. M002

BRANCH BOX SCHEDULE

EQUIP NO.	SERVICE	MAIN/SUB	ELECTRICAL				BASIS OF DESIGN (1)(2)(3)	CONNECTED INDOOR UNITS
			POWER INPUT, KW (COOLING/HEATING)	VOLTAGE	MCA	MOCP		
BB-1	PER PLANS	MAIN	0.66/0.37	208V/1P	0.81	20	CMB-P108NU-JA1	(4)
BB-2	PER PLANS	SUB	0.59/0.30	208V/1P	.7	20	CMB-P108NU-KB1	(4)
BB-3	PER PLANS	SUB	0.59/0.30	208V/1P	.7	20	CMB-P108NU-KB1	(4)
BB-4	PER PLANS	SUB	0.30/0.15	208V/1P	.4	20	CMB-P104NU-KB1	(4)
BB-5	PER PLANS	SUB	0.30/0.15	208V/1P	.4	20	CMB-P104NU-KB1	(4)
BB-6	PER PLANS	SUB	0.30/0.15	208V/1P	.4	20	CMB-P104NU-KB1	(4)
BB-7	PER PLANS	SUB	0.59/0.30	208V/1P	.7	20	CMB-P108NU-KB1	(4)
BB-8	PER PLANS	SUB	0.30/0.15	208V/1P	.4	20	CMB-P104NU-KB1	(4)
BB-9	PER PLANS	SUB	0.59/0.30	208V/1P	.7	20	CMB-P108NU-KB1	(4)
BB-10	PER PLANS	SUB	0.30/0.15	208V/1P	.4	20	CMB-P104NU-KB1	(4)

NOTES: (1) PROVIDE CONDENSATE PIPE AND ROUTE TO APPROVED RECEPTOR.
(2) ROUTING OF REFRIGERANT LINES FROM INDOOR TO OUTDOOR UNITS NOT SHOWN ON PLANS. CONTRACTOR TO FIELD COORDINATE ROUTING.
(3) PROVIDE ACCESS PANEL FOR BRANCH BOX
(4) PER BRANCH BOX / FAN COIL CONNECTION TABLE

ENERGY RECOVERY VENTILATOR (ERV) SCHEDULE

EQUIP ID	SERVICE	MOUNTING/ DISCHARGE	FAN (SUPPLY & EXHAUST)		TEMPERATURE EFFICIENCY	OPERATION	ELECTRICAL			WEIGHT (LBS)	BASIS OF DESIGN[1]
			AIRFLOW (CFM)	ESP (IN H2O)			VOLTAGE	MCA	MOCP		
ERV-1	LEVEL 1 WEST	HORIZONTAL	600	0.86	67%	CONTINUOUS	208V/1P	5.2	15	123	MITSUBISHI LGH-F600RVX2-E
ERV-2	LEVELS 1&2 EAST	HORIZONTAL	1200	0.86	67%	CONTINUOUS	208V/1P	10.4	15	251	MITSUBISHI LGH-F1200RVX2-E
ERV-3	LEVELS 1&2 CENTRAL	HORIZONTAL	1200	0.86	67%	CONTINUOUS	208V/1P	10.4	15	251	MITSUBISHI LGH-F1200RVX2-E
ERV-4	LEVEL 2 SOUTH	HORIZONTAL	300	1.00	65.5%	CONTINUOUS	208V/1P	4.3	15	75	MITSUBISHI LGH-F300RVX2-E
ERV-5	LEVEL 1 WEST	HORIZONTAL	600	0.86	67%	CONTINUOUS	208V/1P	5.2	15	123	MITSUBISHI LGH-F600RVX2-E
ERV-6	BASEMENT	VERTICAL	150	0.4	72%	CONTINUOUS	120V/1P	1.4	15	50	FANTECH ATMO 150E

NOTES: (1) PROVIDE MERV 8 FILTER FOR EACH SUPPLY AND EXHAUST FAN.
(5) UNIT SHALL OPERATE CONTINUOUSLY. PROVIDE LABEL ABOVE WALL SWITCH READING "WHOLE HOUSE VENTILATION. LEAVE ON UNLESS OUTDOOR AIR QUALITY IS VERY POOR." LABEL SHALL BE BLACK WITH 3/16" WHITE, ENGRAVED LETTERS AND SHALL BE ATTACHED WITH PERMANENT ADHESIVE.

SPLIT SYSTEM AIR CONDITIONER SCHEDULE - OUTDOOR UNITS

EQUIP ID	SERVICE	NOMINAL CAPACITY (TONS)	COOLING		ELECTRICAL			WEIGHT (LBS)	MIN OUTDOOR TEMP[4]	BASIS OF DESIGN[1]-[3]	CONNECTED INDOOR UNIT
			CAPACITY (BTU/H)	RATING	VOLTAGE	MCA	MOCP				
OAC-1	ELECTRICAL 135	1.5	18,000	20.5 SEER	208V/1P	14	15	121	14F	MITSUBISHI MUY-GL18NA	IAC-1

NOTES: (1) AHRI LISTED WITH ALL STANDARD FEATURES, INSTALLATION ACCESSORIES AND COMPRESSOR SHORT CYCLING PROTECTION. FILTER DRIER, REFRIGERANT LINE FILTER, LIQUID SOLENOID VALVE, AND SAFETY PRESSURE SWITCHES. INSTALL REFRIGERANT TUBING AND LENGTH IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
(2) SYSTEM USES R-410A REFRIGERANT.
(3) ROUTING OF REFRIGERANT LINES FROM INDOOR TO OUTDOOR UNITS NOT SHOWN ON PLANS. CONTRACTOR TO FIELD COORDINATE ROUTING. ALL REFRIGERANT PIPES ARE TO BE ACOUSTICALLY ISOLATED (AND ATTACHED TO THE UNIT VIA A FLEXIBLE CONNECTION).
(4) PERFORMANCE OF STOCK UNIT (WITHOUT OPTIONAL EQUIPMENT, IF AVAILABLE).

SPLIT SYSTEM AIR CONDITIONER SCHEDULE - INDOOR UNITS

EQUIP ID	SERVICE	MOUNTING	COOLING		ELECTRICAL	WEIGHT (LBS)	BASIS OF DESIGN[2]	CONNECTED OUTDOOR UNIT
			CAPACITY (BTU/H)	RATING				
IAC-1	ELECTRICAL 135	HIGH WALL	18,000	20.5 SEER	(1)	28	MITSUBISHI MSY-GL18NA	OAC-1

NOTES: (1) INDOOR UNIT IS POWERED BY OUTDOOR UNIT.
(2) ROUTING OF REFRIGERANT LINES FROM INDOOR TO OUTDOOR UNITS NOT SHOWN ON PLANS. CONTRACTOR TO FIELD COORDINATE ROUTING. ALL REFRIGERANT PIPES ARE TO BE ACOUSTICALLY ISOLATED (AND ATTACHED TO THE UNIT VIA A FLEXIBLE CONNECTION).

BRANCH BOX & FCU CONNECTION

		HEATING CAPACITY (BTU/H)	
Branch Box=	**1**		
FCU-100		20,000	
FCU-101		20,000	
FCU-102		9,000	
		49,000	Total
Branch Box=	**2**		
FCU-104		5,600	
FCU-105		5,600	
FCU-106		5,600	
FCU-107		5,600	
FCU-108		5,600	
FCU-109		5,600	
		33,600	Total
Branch Box=	**3**		
FCU-118		9,000	
FCU-119		5,600	
FCU-123		5,600	
FCU-125		5,600	
FCU-126		9,000	
		34,800	Total
Branch Box=	**4**		
FCU-111		5,600	
FCU-113		5,600	
FCU-127		9,000	
FCU-128A		13,500	
		33,700	Total
Branch Box=	**5**		
FCU-128B		13,500	
FCU-129		13,500	
FCU-B101		18,000	
		45,000	Total
Branch Box=	**6**		
FCU-200		9,000	
FCU-229		5,600	
FCU-230A		13,500	
FCU-230B		13,500	
		41,600	Total
Branch Box=	**7**		
FCU-202		5,600	
FCU-203		5,600	
FCU-204		5,600	
FCU-205		5,600	
FCU-206		5,600	
FCU-207		5,600	
		33,600	Total
Branch Box=	**8**		
FCU-208		5,600	
FCU-209		5,600	
FCU-230C		13,500	
FCU-230D		13,500	
		38,200	Total
Branch Box=	**9**		
FCU-214		5,600	
FCU-220		9,000	
FCU-225		9,000	
FCU-226		9,000	
FCU-227		9,000	
		41,600	Total
Branch Box=	**10**		
FCU-210		13,500	
FCU-211		13,500	
FCU-212		13,500	
FCU-213		13,500	
		54,000	Total

NO.	DATE	DESCRIPTION
		REVISIONS

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206 363 3343 TEL.
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. O'BRIEN — REGISTERED PROFESSIONAL ENGINEER — 06-17-24

DRAWN: JTB | DESIGNED: JTB | CHECKED: NK | APPROVED:

PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADD'N
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ROBISON ENGINEERING, INC
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PHONE(206)363-3343

DATE: 6/17/24

SHEET TITLE: MECHANICAL SCHEDULES

SHEET NO. M003

MECHANICAL COMPLIANCE SUMMARY

1

ENERGY CREDITS ACHIEVED FOR GROUP B:
1. MORE EFFICIENT HVAC PERFORMANCE IN ACCORDANCE WITH SECTION C406.2 (3 CREDITS)
6. DEDICATED OUTDOOR AIR SYSTEM IN ACCORDANCE WITH SECTION C406.6 (4 CREDITS)

MECHANICAL COMPLIANCE SUMMARY

2018 WSEC Compliance Forms for Commercial Buildings including Group R2, R3 & R4 over 3 stories and all R1

Project & Applicant Information	**Project Title**	ST. CHARLES BORROMEO PARISH OFFICES ADDITION - 2018 WSEC	For Building Department Use:	**Date: Jun 14, 2024**
	Project Address	7112 S. 12TH STREET Tacoma, WA 984651799		
	Applicant Name	Nicholas King		
	Applicant Phone	206-364-3343		
	Applicant Email	nking@robisonengineering.com		

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

General Occupancy	All Commercial		**General Building Use Type**	Office, Other	**Building Cond. Floor Area**	13,663
General Project Types	New Building	**New Building or Addition Mechanical Scope**	Multiple Zone Systems & Equipment	**Alteration Mechanical Scope**	**Project Cond. Floor Area**	13,663
					Floors Above Grade	2
					Compliance Method	General Prescriptive
Mechanical Project Description	This project uses a VRF system for provide heating/cooling. Multiple ERV's are used to provide code required continuous ventilation.					

Mechanical Compliance Scope and Method	**Project Type**	**Mechanical Scope**	**Economizer Exception(s) Applied?**	**DOAS Ventilation Provided?**	**Higher Equipment Efficiency Option Applied?**	**Equipment Efficiency Compliance Verification**
	New Building	Multiple Zone Systems & Equipment	Yes	Yes	Yes	**COMPLIES**

Additional Efficiency Credits Included (AEC)	**Higher equipment efficiency and fan FEG**	**Dedicated outside air systems (DOAS)**	
Does building include occupancy classifications requiring DOAS?	Yes	**Does project include DOAS equipment?**	Yes
Based on project scope do TSPR requirements apply?	Yes	**Do all systems comply with Appendix D standard reference design or qualify for an exception to TSPR?**	Yes

Scope & Space Conditioning	**NEW BUILDING - MULTIPLE ZONE SYSTEMS & EQUIPMENT**	**Compliance Verification**	**COMPLIES**

Multiple Zone Air Systems Category - Heat pump, unitary

Air Systems Summary Information

System ID	Supply Airflow Control	Ventilation Standard	Ventilation CFM	Ventilation Air Source	Paired with DOAS	Ventilation energy recovery	Energy Recovery Efficiency (%)
HP-1	Constant volume	ASHRAE Standard 62.1		Other System		Yes per C403.5 Energy Recovery	67

Air Systems & Equipment - Cooling

System/ Equip ID	Cooling System/Equip Type	Specific Type	Cooling Capacity per item (Btu/h)	AEC Efficiency Multiplier	Econo Exception Multiplier (FL & PL)	Combined Efficiency Multiplier (AEC & Econo)	Proposed Cooling Efficiency	CE Units	Proposed Part Load Efficiency	PL Units	Efficiency Compliance Verification
HP-1	Heat pump, air cooled	Split system	364,000	1.15	0	1.15	12.2	EER	30.7	IEER	COMPLIES

Air Systems & Equipment - Heating

System /Equip ID	Heating System/Equip Type	Specific Type	Heat Pump Heating Capacity (Btu/h)	Cooling Capacity (Btu/h)	AEC Efficiency Multiplier	Proposed Heat Pump Heating Efficiency	HPH Units	Proposed Low OSA Temp Efficiency	LTH Units	Efficiency Compliance Verification
HP-1	Heat pump, air cooled, heating	Split system	410,000	364,000	1.15	3.9	COP	2.5	COP	COMPLIES

Air Systems & Equipment Details

System ID	Area(s) Served	Location In Project Documents - Plan/Detail #	
HP-1	WHOLE BUILDING	M002	
	Heating Section/Auxiliary Heating Type: Electric resistance (or None)		Economizer Compliance Method: Economizer not required

	WSEC Equip Efficiency Reference Table - Cooling: Table C403.3.2(2) - Unitary and Applied Heat Pumps	
	Proposed Low OSA Temp Efficiency: 2.5	LTH Units: COP
	WSEC Equip Efficiency Reference Table - Heating: Table C403.3.2(2) - Unitary and Applied Heat Pumps	

ENVELOPE COMPLIANCE SUMMARY

ENVELOPE COMPLIANCE SUMMARY

2018 WSEC Compliance Forms for Commercial Buildings including Group R2, R3 & R4 over 3 stories and all R1

Project & Applicant Information	**Project Title**	ST. CHARLES BORROMEO PARISH OFFICES ADDITION - 2018 WSEC	For Building Department Use:	**Date: Jun 14, 2024**
	Project Address	7112 S. 12TH STREET Tacoma, WA 984651799		
	Applicant Name	Nicholas King		
	Applicant Phone	206-364-3343		
	Applicant Email	nking@robisonengineering.com		

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

General Occupancy	All Commercial	**General Building Use Type(s)**	Office, Other	**Building Cond. Floor Area**	13,663	
Project Scope	New Building	**Space Conditioning Categories**	Fully Conditioned	**Project Cond. Floor Area**	13,663	
				Floors Above Grade	2	
				Compliance Method	General Prescriptive	
Envelope Project Description	This is a two story above grade office and meeting space for the St. Charles Catholic School with a basement level.					

Envelope Compliance Scope and Method	**Scope**	**Space Conditioning Category**	**Compliance Method**	**WWR/SRR per Category**	**UA Calculation Adjustment**	**Fenestration Alternates**	**Compliance Verification**
	New Building	Fully Conditioned	Prescriptive	17.02% / 0%	None selected	No alternates selected	**COMPLIES**

Air Barrier Testing	Air barrier testing included in project scope	**Air Barrier Comments**	

Project Title	ST. CHARLES BORROMEO PARISH OFFICES ADDITION - 2018 WSEC	**Date**	**Jun 14, 2024**
Scope & Space Conditioning	**NEW BUILDING - FULLY CONDITIONED**	**Compliance Verification**	**COMPLIES**
Window-to-wall Ratio	17.02% **Skylight-to-roof-ratio** 0%	**Vertical Fenestration Alternate**	No alternates selected

Opaque Envelope Assemblies

				Insulation R-Values				
Roof/Ceiling	**Location in Documents**	**Assembly ID**	**Assembly Location**	**Cavity**	**Continuous (% penetration)**	**2nd Layer (MB Roof)**	**U-Factor**	**Net Area (SF)**
Attic and other	A1.2	R1	Exterior	R-49	(< 0.04%)		U-0.021	5,803
	U-Factor Source: WSEC Appendix A			U-Factor Source Description: Per code				
	Roof Framing Type (Standard, Advanced): Standard			Roof Framing Material: Wood-framed				
	Ceiling/Attic Venting: Vented			Is this assembly exterior or interior?: Exterior				
Walls	**Location in Documents**	**Assembly ID**	**Assembly Location**	**Cavity**	**Continuous (% penetration)**	**Insulated Wall Furring**	**U-Factor**	**Net Area (SF)**
Wood-framed and other - Commercial	A1.2	1	Exterior	R-21	R-0 (< 0.04%)		U-0.054	6,728
	Which insulation code target does wall comply with?: R-21 Cavity + Intermediate Framing			U-Factor Source: WSEC Appendix A				
	U-Factor Source Description: Per code			Wall Framing Type (Standard, Inter., Advanced): Intermediate				
	Is this assembly exterior or interior?: Exterior			Framing Depth: 2x6				
				Framing Spacing: 16				
Slab-on-grade Floors	**Location in Documents**	**Assembly ID**	**Assembly Location**	**Slab Edge**	**Under Slab**		**F-Factor**	**Perimeter Length (SF)**
Unheated slab	A1.2	F1	At grade level	R-10			F-0.54	388
	Slab Insulation Method: Uninsulated slab			F-Factor Source: WSEC Appendix A				
	F-Factor Source Description: Code Min							

Fenestration & Opaque Door Assemblies

				Insulation R-Values				
Opaque Doors	**Location in Documents**	**Assembly ID**	**Assembly Location**	**Door Insulation**			**U-Factor**	**Rough Opening (SF)**
Swinging	A1.2	110A, 113B, 118B, 119B, 120B, 121C, 131B, 131C, 135A	Exterior				U-0.37	207
	What percentage of this opaque door is glazing?: 50% or less			U-Factor Source: WSEC Appendix A				
	U-Factor Source Description: Per code			Is this assembly exterior or interior?: Exterior				
	Is this a public entrance door?: Yes			Door enclosed within a vestibule?: No vestibule				
Vertical Fenestration	**Location in Documents**	**Assembly ID**	**Assembly Location**	**Shading (PF)**	**Fenestration SHGC**	**Fenestration U-Factor**	**Rough Opening (SF)**	
Fixed - Class AW or site built	A1.2	A, B	Exterior		PF < 0.2	SHGC-0.38	U-0.38	798
	U-Factor & SHGC Source: WSEC Appendix A			U-Factor Source Description: Per code				
	Is this assembly exterior or interior?: Exterior							
Fixed - Class AW or site built	A1.2	A,B, C, D	Exterior		PF < 0.2	SHGC-0.38	U-0.38	456
	U-Factor & SHGC Source: WSEC Appendix A			U-Factor Source Description: Per code				
	Is this assembly exterior or interior?: Exterior							
Glazed Doors	**Location in Documents**	**Assembly ID**	**Assembly Location**	**Shading (PF)**	**Fenestration SHGC**	**Fenestration U-Factor**	**Rough Opening (SF)**	
Swinging entrance door	A1.2	127B	Exterior		PF < 0.2	SHGC-0.51	U-0.60	48
	U-Factor & SHGC Source: WSEC Appendix A			U-Factor Source Description: Per code				
	Is this assembly exterior or interior?: Exterior			Is this a public entrance door?: Yes				
	Door enclosed within a vestibule?: No vestibule							
Swinging entrance door	A1.2	121B, 100A, 127A, 130B,	Exterior		PF < 0.2	SHGC-0.38	U-0.60	120
	U-Factor & SHGC Source: WSEC Appendix A			U-Factor Source Description: Per code				
	Is this assembly exterior or interior?: Exterior			Is this a public entrance door?: Yes				
	Door enclosed within a vestibule?: No vestibule							

NO.	DATE	DESCRIPTION REVISIONS

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206 364 3343 TEL.
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. OBRIEN — REGISTERED PROFESSIONAL ENGINEER — 06-17-24

DRAWN: JTB | DESIGNED: JTB | CHECKED: NK | APPROVED:

PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADD'N
7112 S 12TH ST, TACOMA, WA, 98465

ROBISON ENGINEERING, INC
19401 40TH AVE W. SUITE 302
LYNNWOOD, WA 98036
PHONE:(206)364.3343

DATE: 6/17/24

SHEET TITLE: MECHANICAL & ENVELOPE COMPLIANCE

SHEET NO. M004

Room Information, Part 1

Values in italics have been changed from the default

Number	Name	Area	Ceiling Height	Ventilation		Infiltration		Cooling Temperature	Heating Temperature	Relative Humidity
				Cooling	Heating	Cooling	Heating			
207 Office	Office (small)	93 ft²	9'-6"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%
208 Records Storage	Storage	89 ft²	9'-6"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%
209 Meeting	Conference Rooms	176 ft²	9'-6"	*Direct*	*100 CFM*	Same as cooling	100 CFM	0.25 AC / hour	7 CFM	Same as cooling	7 CFM	75° F	70° F	50%
213 Meeting	Conference Rooms	1,320 ft²	9'-6"	*Direct*	*600 CFM*	Same as cooling	600 CFM	0.25 AC / hour	53 CFM	Same as cooling	53 CFM	75° F	70° F	50%
217 Storage	Storage	100 ft²	9'-6"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%
220 Kitchenette	Kitchenette	122 ft²	9'-6"	Direct	75 CFM	Same as cooling	75 CFM	0.25 AC / hour	5 CFM	Same as cooling	5 CFM	75° F	70° F	50%
225 Meeting	Conference Rooms	129 ft²	9'-6"	*Direct*	*75 CFM*	Same as cooling	75 CFM	0.25 AC / hour	6 CFM	Same as cooling	6 CFM	75° F	70° F	50%
226 Office	Office (small)	102 ft²	9'-6"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	5 CFM	Same as cooling	5 CFM	75° F	70° F	50%
227 Library	Library	100 ft²	9'-6"	Direct	50 CFM	Same as cooling	50 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%
229 Office	Office (med)	152 ft²	9'-6"	Direct	40 CFM	Same as cooling	40 CFM	0.25 AC / hour	7 CFM	Same as cooling	7 CFM	75° F	70° F	50%
230 Meeting	Conference Rooms	1,360 ft²	9'-6"	*Direct*	*600 CFM*	Same as cooling	600 CFM	0.25 AC / hour	55 CFM	Same as cooling	55 CFM	75° F	70° F	50%
Level 1 Corridor Central	Corridors	408 ft²	10'-5"	*Direct*	*75 CFM*	Same as cooling	75 CFM	0.25 AC / hour	18 CFM	Same as cooling	18 CFM	75° F	70° F	50%
Level 1 Corridor East	Corridors	434 ft²	10'-5"	*Direct*	*75 CFM*	Same as cooling	75 CFM	0.25 AC / hour	19 CFM	Same as cooling	19 CFM	75° F	70° F	50%
Level 1 Corridor South	Corridors	47 ft²	10'-5"	0.12 CFM / ft²	6 CFM	Same as cooling	6 CFM	0.25 AC / hour	3 CFM	Same as cooling	3 CFM	75° F	70° F	50%
Level 1 Corridor West	Corridors	204 ft²	10'-5"	*Direct*	*50 CFM*	Same as cooling	50 CFM	0.25 AC / hour	9 CFM	Same as cooling	9 CFM	75° F	70° F	50%
Level 2 Corridor West	Corridors	408 ft²	9'-6"	*Direct*	*75 CFM*	Same as cooling	75 CFM	0.25 AC / hour	17 CFM	Same as cooling	17 CFM	75° F	70° F	50%

Glass

Room Number	Area	Type	Facing Direction	Shaded
100 Lobby	138 ft²	Code min (operable)	E	
102 Parlor	36 ft²	Code min (operable)	N	
102 Parlor	36 ft²	Code min (operable)	E	
104 Parlor	36 ft²	Code min (operable)	N	
105 Office	36 ft²	Code min (operable)	N	
106 Office	36 ft²	Code min (operable)	N	
107 Office	36 ft²	Code min (operable)	N	
108 Office	36 ft²	Code min (operable)	N	
109 Office	36 ft²	Code min (operable)	N	
118 Meeting	36 ft²	Code min (operable)	S	
128 Meeting	108 ft²	Code min (operable)	N	
200 Office	36 ft²	Code min (operable)	N	
200 Office	36 ft²	Code min (operable)	E	
202 Office	36 ft²	Code min (operable)	N	
203 Office	36 ft²	Code min (operable)	N	
204 Office	36 ft²	Code min (operable)	N	
205 Office	36 ft²	Code min (operable)	N	
206 Office	36 ft²	Code min (operable)	N	
207 Office	36 ft²	Code min (operable)	N	
213 Meeting	144 ft²	Code min (operable)	N	
220 Kitchenette	20 ft²	Code min (operable)	S	
225 Meeting	36 ft²	Code min (operable)	S	
226 Office	20 ft²	Code min (operable)	S	
227 Library	20 ft²	Code min (operable)	S	
229 Office	36 ft²	Code min (operable)	E	
Level 1 Corridor Central	50 ft²	Code min (operable)	S	
Level 1 Corridor Central	50 ft²	Code min (operable)	N	
Level 1 Corridor West	27 ft²	Code min (operable)	W	
Level 2 Corridor West	20 ft²	Code min (operable)	W	
Level 2 Corridor West	36 ft²	Code min (operable)	S	

Room Information, Part 1

Values in italics have been changed from the default

Number	Name	Area	Ceiling Height	Ventilation		Infiltration		Cooling Temperature	Heating Temperature	Relative Humidity
				Cooling	Heating	Cooling	Heating			
100 Lobby	Lobby	516 ft²	10'-5"	*Direct*	*200 CFM*	Same as cooling	200 CFM	0.25 AC / hour	23 CFM	Same as cooling	23 CFM	75° F	70° F	50%
102 Parlor	Parlor	120 ft²	10'-5"	*Direct*	*50 CFM*	Same as cooling	50 CFM	0.25 AC / hour	6 CFM	Same as cooling	6 CFM	75° F	70° F	50%
104 Parlor	Parlor	94 ft²	10'-5"	*Direct*	*50 CFM*	Same as cooling	50 CFM	0.25 AC / hour	5 CFM	Same as cooling	5 CFM	75° F	70° F	50%

Project Information

Project Name:	Si Charles Building Tacoma		
Project Location:	TACOMA, MCCHORD AFB, WA		
Default Heating Temperature:	70° F	**Heating Safety Factor (Room):**	0%
		Heating Safety Factor (Ventilation):	0%
Default Cooling Temperature:	75° F	**Cooling Safety Factor (Room):**	0%
		Cooling Safety Factor (Ventilation):	0%
Default Relative Humidity:	50%	**Floor Slab Heat Loss Coefficient:**	0.54
Calculation Date:	March 12, 2024, 10:25 p.m.		

Design Conditions

OSA Low:	21° F	**Latitude:**	48° N
OSA Daily Range:	23° F	**Elevation:**	319'
	OSA High Dry Bulb	**OSA High Wet Bulb**	
July	88° F	66° F	

Roof Types

Roof Type	U-Value	ASHRAE Type	Color	Description
Attic	0.021	5	Dark	2018 WSEC Table C402.1.4 Attic Roof (Type B and Group R)

Roofs

Location	Type	Area
Floor Level 2	Attic	4,800 ft²

Wall Types

Wall Type	U-Value	ASHRAE Type	Color	Description
Code min , wood (Type B)	0.054	10	Dark	2018 WSEC Table C402.1.4

Walls

Room Number	Length	Height	Area (Minus Doors and Glass)	Type	Facing Direction	On Perimeter
100 Lobby	19'-10"	12'	100 ft²	Code min , wood (Type B)	E	
102 Parlor	12'-9"	12'	117 ft²	Code min , wood (Type B)	N	
102 Parlor	9'-5"	12'	77 ft²	Code min , wood (Type B)	E	
104 Parlor	10'	12'	84 ft²	Code min , wood (Type B)	N	
105 Office	9'-10"	12'	82 ft²	Code min , wood (Type B)	N	
106 Office	9'-9"	12'	81 ft²	Code min , wood (Type B)	N	
107 Office	9'-9"	12'	81 ft²	Code min , wood (Type B)	N	
108 Office	9'-9"	12'	81 ft²	Code min , wood (Type B)	N	
109 Office	9'-10"	12'	82 ft²	Code min , wood (Type B)	N	
113 Kitchenette	13'-2"	12'	131 ft²	Code min , wood (Type B)	S	
118 Meeting	15'-6"	12'	123 ft²	Code min , wood (Type B)	S	
119 Library	15'-2"	12'	155 ft²	Code min , wood (Type B)	S	
128 Meeting	44'-1"	12'	421 ft²	Code min , wood (Type B)	N	
128 Meeting	4'-11"	12'	59 ft²	Code min , wood (Type B)	W	
128 Meeting	3'-7"	12'	43 ft²	Code min , wood (Type B)	E	

Room Information, Part 2

Values in italics have been changed from the default

Number	Lighting Load		Equipment Load		People			Glass Zone Type
			Sensible	Latent		Sensible btuh / Person	Latent btuh / Person	
100 Lobby	0.8 watts / ft²	1,410	1 watts / ft²	1,760	0	*16 ft² / person*	*33 people*	250	250	B
102 Parlor	0.8 watts / ft²	328	1 watts / ft²	410	0	*5 people*	250	200	B
104 Parlor	0.8 watts / ft²	257	1 watts / ft²	321	0	*4 people*	250	200	B
105 Office	0.8 watts / ft²	253	1 watts / ft²	317	0	2 people	250	200	B
106 Office	0.8 watts / ft²	250	1 watts / ft²	312	0	2 people	250	200	B
107 Office	0.8 watts / ft²	250	1 watts / ft²	312	0	2 people	250	200	B
108 Office	0.8 watts / ft²	250	1 watts / ft²	312	0	2 people	250	200	B
109 Office	0.8 watts / ft²	253	1 watts / ft²	317	0	2 people	250	200	B
111 Meeting	0.8 watts / ft²	480	1 watts / ft²	600	0	9 people	250	200	B
113 Kitchenette	0.8 watts / ft²	333	1 watts / ft²	416	0	0 people	250	200	B
118 Meeting	0.8 watts / ft²	391	1 watts / ft²	489	0	8 people	250	200	B
119 Library	0.8 watts / ft²	383	1 watts / ft²	479	0	2 people	250	200	B
123 Copy Room	0.8 watts / ft²	750	1 watts / ft²	938	0	2 people	250	200	B
126 Lunch Room	0.8 watts / ft²	926	1 watts / ft²	1,160	0	11 people	250	200	B
128 Meeting	0.8 watts / ft²	2,920	1 watts / ft²	3,650	0	54 people	250	200	B
200 Office	0.8 watts / ft²	470	1 watts / ft²	588	0	3 people	250	200	B
202 Office	0.8 watts / ft²	292	1 watts / ft²	365	0	2 people	250	200	B
203 Office	0.8 watts / ft²	253	1 watts / ft²	317	0	2 people	250	200	B
204 Office	0.8 watts / ft²	250	1 watts / ft²	312	0	2 people	250	200	B
205 Office	0.8 watts / ft²	250	1 watts / ft²	312	0	2 people	250	200	B
206 Office	0.8 watts / ft²	250	1 watts / ft²	312	0	2 people	250	200	B
207 Office	0.8 watts / ft²	253	1 watts / ft²	317	0	2 people	250	200	B
208 Records Storage	0.8 watts / ft²	242	0 watts / ft²	0	0	0 people	250	200	B
209 Meeting	0.8 watts / ft²	480	1 watts / ft²	600	0	9 people	250	200	B

Room Information, Part 1

Values in italics have been changed from the default

Number	Name	Area	Ceiling Height	Ventilation		Infiltration		Cooling Temperature	Heating Temperature	Relative Humidity
				Cooling	Heating	Cooling	Heating			
105 Office	Office (small)	93 ft²	10'-5"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	5 CFM	Same as cooling	5 CFM	75° F	70° F	50%
106 Office	Office (small)	91 ft²	10'-5"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%
107 Office	Office (small)	91 ft²	10'-5"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%
108 Office	Office (small)	91 ft²	10'-5"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%
109 Office	Office (small)	93 ft²	10'-5"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	5 CFM	Same as cooling	5 CFM	75° F	70° F	50%
111 Meeting	Conference Rooms	176 ft²	10'-5"	*Direct*	*100 CFM*	Same as cooling	100 CFM	0.25 AC / hour	8 CFM	Same as cooling	8 CFM	75° F	70° F	50%
113 Kitchenette	Kitchenette	122 ft²	10'-5"	Direct	75 CFM	Same as cooling	75 CFM	0.25 AC / hour	6 CFM	Same as cooling	6 CFM	75° F	70° F	50%
118 Meeting	Conference Rooms	143 ft²	10'-5"	*Direct*	*75 CFM*	Same as cooling	75 CFM	0.25 AC / hour	7 CFM	Same as cooling	7 CFM	75° F	70° F	50%
119 Library	Library	140 ft²	10'-5"	Direct	50 CFM	Same as cooling	50 CFM	0.25 AC / hour	7 CFM	Same as cooling	7 CFM	75° F	70° F	50%
123 Copy Room	Office (small)	275 ft²	10'-5"	*Direct*	*50 CFM*	Same as cooling	50 CFM	0.25 AC / hour	12 CFM	Same as cooling	12 CFM	75° F	70° F	50%
126 Lunch Room	Lunch Room	339 ft²	10'-5"	Direct	150 CFM	Same as cooling	150 CFM	0.25 AC / hour	15 CFM	Same as cooling	15 CFM	75° F	70° F	50%
128 Meeting	Conference Rooms	1,070 ft²	10'-5"	*Direct*	*450 CFM*	Same as cooling	450 CFM	0.25 AC / hour	47 CFM	Same as cooling	47 CFM	75° F	70° F	50%
200 Office	Office (med)	172 ft²	9'-6"	Direct	40 CFM	Same as cooling	40 CFM	0.25 AC / hour	7 CFM	Same as cooling	7 CFM	75° F	70° F	50%
202 Office	Office (small)	107 ft²	9'-6"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	5 CFM	Same as cooling	5 CFM	75° F	70° F	50%
203 Office	Office (small)	93 ft²	9'-6"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%
204 Office	Office (small)	91 ft²	9'-6"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%
205 Office	Office (small)	91 ft²	9'-6"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%
206 Office	Office (small)	91 ft²	9'-6"	Direct	25 CFM	Same as cooling	25 CFM	0.25 AC / hour	4 CFM	Same as cooling	4 CFM	75° F	70° F	50%

Walls

Room Number	Length	Height	Area (Minus Doors and Glass)	Type	Facing Direction	On Perimeter
200 Office	11'-1"	10'	75 ft²	Code min , wood (Type B)	N	
200 Office	15'-6"	10'	119 ft²	Code min , wood (Type B)	E	
202 Office	11'-4"	10'	78 ft²	Code min , wood (Type B)	N	
203 Office	9'-10"	10'	63 ft²	Code min , wood (Type B)	N	
204 Office	9'-8"	10'	61 ft²	Code min , wood (Type B)	N	
205 Office	9'-9"	10'	61 ft²	Code min , wood (Type B)	N	
206 Office	9'-8"	10'	61 ft²	Code min , wood (Type B)	N	
207 Office	9'-10"	10'	63 ft²	Code min , wood (Type B)	N	
208 Records Storage	9'-5"	10'	94 ft²	Code min , wood (Type B)	N	
213 Meeting	54'-7"	10'	401 ft²	Code min , wood (Type B)	N	
213 Meeting	4'-11"	10'	49 ft²	Code min , wood (Type B)	W	
217 Storage	10'-10"	10'	108 ft²	Code min , wood (Type B)	S	
220 Kitchenette	13'-2"	10'	112 ft²	Code min , wood (Type B)	S	
225 Meeting	14'	10'	104 ft²	Code min , wood (Type B)	S	
226 Office	11'	10'	90 ft²	Code min , wood (Type B)	S	
227 Library	10'-10"	10'	88 ft²	Code min , wood (Type B)	S	
229 Office	13'-9"	10'	101 ft²	Code min , wood (Type B)	E	
Level 1 Corridor Central	12'-4"	12'	98 ft²	Code min , wood (Type B)	S	
Level 1 Corridor Central	10'	12'	70 ft²	Code min , wood (Type B)	N	
Level 1 Corridor South	5'-2"	12'	35 ft²	Code min , wood (Type B)	S	
Level 1 Corridor West	5'	12'	33 ft²	Code min , wood (Type B)	W	
Level 2 Corridor West	5'	10'	30 ft²	Code min , wood (Type B)	W	
Level 2 Corridor West	12'-4"	10'	87 ft²	Code min , wood (Type B)	S	

Door Types

Door Type	U-Value	ASHRAE Type	Color	Description
Code min, opaque, swinging	0.37	2	Dark	2018 WSEC Table C402.1.4

Doors

Room Number	Area	Type	Facing Direction
113 Kitchenette	27 ft²	Code min, opaque, swinging	S
118 Meeting	27 ft²	Code min, opaque, swinging	S
119 Library	27 ft²	Code min, opaque, swinging	S
Level 1 Corridor South	27 ft²	Code min, opaque, swinging	S

Glass Types

Glass Type	U-Value	SHGC	Description
Code min (operable)	0.4	0.38	2018 WSEC Table C402.4

NO.	DATE	DESCRIPTION
		REVISIONS

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
2063643343 TEL.
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. OBRIEN — REGISTERED PROFESSIONAL ENGINEER — 06-17-24

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
JTB	JTB	NK	

PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADD'N
7112 S 12TH ST, TACOMA, WA, 98465

ROBISON ENGINEERING, INC
19401 40TH AVE W. SUITE 302
LYNNWOOD, WA 98036
PHONE:(206)3643343

DATE: 6/17/24

SHEET TITLE:
HEAT LOAD CALCULATIONS

SHEET NO.
M005

Load Total Summary - System
(Includes Ventilation and Plenum Loads)

Location	Area	Cooling CFM	Peak	btuh Total	btuh Sensible	btuh Latent	Tons Total	Tons Sensible	Tons Latent	ft² / ton	CFM / ton	CFM / ft²	Heating CFM	btuh	kW	CFM / ft²
Room 109 Office	93 ft²	84	July 2:00 p.m.	2,280	1,960	321	0.2	0.2	0	487	441	0.91	68	1,870	0.5	0.73
Room 111 Meeting	176 ft²	158	July 3:00 p.m.	5,490	3,970	1,520	0.5	0.3	0.1	384	345	0.9	100	2,130	0.6	0.57
Room 113 Kitchenette	122 ft²	75	July 4:00 p.m.	1,920	1,920	-213	0.2	0.2	0	763	470	0.62	75	2,780	0.8	0.62
Room 118 Meeting	143 ft²	245	July 2:00 p.m.	7,110	5,730	1,380	0.6	0.5	0.1	242	413	1.71	108	3,580	1.1	0.75
Room 119 Library	140 ft²	99	July 4:00 p.m.	2,690	2,440	250	0.2	0.2	0	626	442	0.71	78	2,520	0.7	0.56
Room 123 Copy Room	275 ft²	108	July 3:00 p.m.	2,860	2,620	237	0.2	0.2	0	1,150	454	0.39	50	1,480	0.4	0.18
Room 126 Lunch Room	339 ft²	231	July 3:00 p.m.	7,610	5,840	1,770	0.6	0.5	0.1	535	364	0.68	150	3,350	1	0.44
Room 128 Meeting	1,070 ft²	1,050	July 3:00 p.m.	34,800	25,300	9,490	2.9	2.1	0.8	368	363	0.99	450	15,000	4.4	0.42
Room Level 1 Corridor Central	408 ft²	229	July 1:00 p.m.	5,400	5,400	-245	0.5	0.5	0	907	509	0.56	184	5,220	1.5	0.45
Room Level 1 Corridor East	434 ft²	75	July 3:00 p.m.	1,850	1,850	-248	0.2	0.2	0	2,820	487	0.17	75	2,280	0.7	0.17
Room Level 1 Corridor South	47 ft²	33	July 4:00 p.m.	761	761	-24	0.1	0.1	0	748	520	0.7	41	976	0.3	0.87
Room Level 1 Corridor West	204 ft²	129	July 5:00 p.m.	3,090	3,090	-155	0.3	0.3	0	791	501	0.63	57	2,070	0.6	0.28
Zone 2ND FLOOR	4,800 ft²	4,550	July 12:00 p.m.	137,000	108,000	28,700	11.4	9	2.4	420	398	0.95	4,550	71,000	20.8	0.95
Room 200 Office	172 ft²	217	July 9:00 a.m.	5,410	4,940	476	0.5	0.4	0	382	481	1.26	149	3,860	1.1	0.87
Room 202 Office	107 ft²	93	July 3:00 p.m.	2,480	2,160	321	0.2	0.2	0	517	450	0.87	74	2,010	0.6	0.69
Room 203 Office	93 ft²	87	July 3:00 p.m.	2,360	2,040	324	0.2	0.2	0	471	442	0.94	67	1,860	0.5	0.72
Room 204 Office	91 ft²	87	July 3:00 p.m.	2,350	2,030	324	0.2	0.2	0	467	444	0.95	67	1,850	0.5	0.73
Room 205 Office	91 ft²	87	July 3:00 p.m.	2,350	2,030	324	0.2	0.2	0	467	444	0.95	67	1,850	0.5	0.73
Room 206 Office	91 ft²	87	July 3:00 p.m.	2,350	2,030	324	0.2	0.2	0	467	444	0.95	67	1,850	0.5	0.73
Room 207 Office	93 ft²	87	July 3:00 p.m.	2,360	2,040	324	0.2	0.2	0	471	442	0.94	67	1,860	0.5	0.72
Room 208 Records Storage	89 ft²	25	July 5:00 p.m.	586	586	-76	0	0	0	1,810	512	0.28	37	1,220	0.4	0.42
Room 209 Meeting	176 ft²	167	July 4:00 p.m.	5,690	4,170	1,520	0.5	0.3	0.1	371	352	0.95	100	2,260	0.7	0.57
Room 213 Meeting	1,320 ft²	1,360	July 6:00 p.m.	44,300	32,800	11,500	3.7	2.7	1	358	369	1.03	600	20,000	5.9	0.45
Room 217 Storage	100 ft²	28	July 6:00 p.m.	751	751	-76	0.1	0.1	0	1,590	447	0.28	41	1,310	0.4	0.41
Room 220 Kitchenette	122 ft²	93	July 1:00 p.m.	2,430	2,430	-211	0.2	0.2	0	602	460	0.76	75	2,700	0.8	0.62
Room 225 Meeting	129 ft²	216	July 1:00 p.m.	6,290	5,100	1,190	0.5	0.4	0.1	247	412	1.67	84	3,080	0.9	0.65

Cooling Load Details - System
(Btu/h / % Total)

(See "Cooling Load Details - Room" for lighting, equipment, and people loads)

Location	Peak	Roof	Wall	Glass	Ventilation Sensible	Ventilation Latent	Infiltration Sensible	Infiltration Latent
Room Level 2 Corridor West	July 3:00 p.m.	441 9%	99 2%	2,770 55%	400 8%	-198 -4%	236 5%	-45 -1%

Cooling Load Details - Room
(Btu/h / % of Total)

Location	Peak	Roof	Wall	Glass	Lighting	Equipment Sensible	Equipment Latent	People Sensible	People Latent	Infiltration Sensible	Infiltration Latent
Zone 1ST FLOOR	CV - Sum of Peaks	0 0%	3,000 3%	26,100 22%	12,400 10%	11,800 10%	0 0%	34,500 29%	29,300 25%	2,260 2%	-545 0%
Room 100 Lobby	July 9:00 a.m.	0 0%	30 0%	9,630 33%	1,410 5%	1,760 6%	0 0%	8,250 28%	8,250 28%	-82 0%	-61 0%
Room 102 Parlor	July 9:00 a.m.	0 0%	20 0%	2,900 49%	328 6%	410 7%	0 0%	1,250 21%	1,000 17%	-21 0%	-16 0%
Room 104 Parlor	July 2:00 p.m.	0 0%	20 1%	674 22%	257 8%	321 10%	0 0%	1,000 32%	800 26%	66 2%	-13 0%
Room 105 Office	July 2:00 p.m.	0 0%	20 1%	674 30%	253 11%	317 14%	0 0%	500 23%	400 18%	66 3%	-13 -1%
Room 106 Office	July 2:00 p.m.	0 0%	20 1%	674 31%	250 11%	312 14%	0 0%	500 23%	400 18%	53 2%	-11 0%
Room 107 Office	July 2:00 p.m.	0 0%	20 1%	674 31%	250 11%	312 14%	0 0%	500 23%	400 18%	53 2%	-11 0%
Room 108 Office	July 2:00 p.m.	0 0%	20 1%	674 31%	250 11%	312 14%	0 0%	500 23%	400 18%	53 2%	-11 0%
Room 109 Office	July 2:00 p.m.	0 0%	20 1%	674 30%	253 11%	317 14%	0 0%	500 23%	400 18%	66 3%	-13 -1%
Room 111 Meeting	July 3:00 p.m.	0 0%	0 0%	0 0%	480 9%	600 11%	0 0%	2,250 43%	1,800 34%	111 2%	-21 0%
Room 113 Kitchenette	July 4:00 p.m.	0 0%	688 46%	0 0%	333 22%	416 28%	0 0%	0 0%	0 0%	79 5%	-16 -1%
Room 118 Meeting	July 2:00 p.m.	0 0%	534 8%	1,820 26%	391 6%	489 7%	0 0%	2,000 29%	1,600 23%	92 1%	-18 0%
Room 119 Library	July 4:00 p.m.	0 0%	720 28%	0 0%	383 15%	479 19%	0 0%	500 20%	400 16%	92 4%	-18 -1%
Room 123 Copy Room	July 3:00 p.m.	0 0%	0 0%	0 0%	750 28%	938 34%	0 0%	500 18%	400 15%	167 6%	-32 -1%
Room 126 Lunch Room	July 3:00 p.m.	0 0%	0 0%	0 0%	926 13%	1,160 16%	0 0%	2,750 38%	2,200 31%	208 3%	-40 -1%
Room 128 Meeting	July 3:00 p.m.	0 0%	242 1%	1,970 6%	2,920 9%	3,650 11%	0 0%	13,500 40%	10,800 32%	652 2%	-124 0%
Room Level 1 Corridor Central	July 1:00 p.m.	0 0%	58 1%	3,620 73%	1,110 23%	0 0%	0 0%	0 0%	0 0%	201 4%	-47 -1%
Room Level 1 Corridor East	July 3:00 p.m.	0 0%	0 0%	0 0%	1,180 85%	0 0%	0 0%	0 0%	0 0%	264 19%	-50 -4%
Room Level 1 Corridor South	July 4:00 p.m.	0 0%	560 78%	0 0%	129 18%	0 0%	0 0%	0 0%	0 0%	39 5%	-8 -1%
Room Level 1 Corridor West	July 5:00 p.m.	0 0%	31 1%	2,130 76%	556 20%	0 0%	0 0%	0 0%	0 0%	103 4%	-24 -1%
Zone 2ND FLOOR	CV - Sum of Peaks	5,170 4%	1,050 1%	19,800 15%	13,100 10%	14,400 11%	0 0%	42,800 32%	34,200 26%	2,110 2%	-524 0%
Room 200 Office	July 9:00 a.m.	5 0%	33 1%	2,900 55%	470 9%	588 11%	0 0%	750 14%	600 11%	-25 0%	-18 0%

Supply Air Requirements

Location	Current Supply CFM	Required Supply CFM	Cooling Peak	Supply Temperature	Sensible Load (btuh)	Supply CFM	OSA CFM	OSA %	Heating Temperature Difference	Heating Load (btuh)	Supply CFM	OSA CFM	OSA %
Room 226 Office	0	109	July 1:00 p.m.		2,380	109	25	23%		1,290	60	25	42%
Room 227 Library	0	108	July 1:00 p.m.		2,350	108	50	46%		1,220	57	50	88%
Room 229 Office	0	193	July 9:00 a.m.		4,210	193	40	21%		1,860	87	40	46%
Room 230 Meeting	0	1,260	July 4:00 p.m.		27,500	1,260	600	47%		4,280	600	600	100%
Room Level 2 Corridor West	0	214	July 3:00 p.m.		4,660	214	75	35%		3,170	149	75	50%

Ventilation Schedule

Location	Room Type	Ventilation Requirements	Area (ft²)	People	Ventilation CFM	Supply CFM	Ventilation %
Zone 1ST FLOOR			4,550	138	1,580	4,160	38%
Room 100 Lobby	Lobby	Direct	516	33	200	965	21%
Room 102 Parlor	Parlor	Direct	120	5	50	224	22%
Room 104 Parlor	Parlor	Direct	94.2	4	50	107	47%
Room 105 Office	Office (small)	Direct	92.8	2	25	84	30%
Room 106 Office	Office (small)	Direct	91.4	2	25	83	30%
Room 107 Office	Office (small)	Direct	91.4	2	25	83	30%
Room 108 Office	Office (small)	Direct	91.4	2	25	83	30%
Room 109 Office	Office (small)	Direct	92.8	2	25	84	30%
Room 111 Meeting	Conference Rooms	Direct	176	9	100	158	63%
Room 113 Kitchenette	Kitchenette	Direct	122	0	75	75	100%
Room 118 Meeting	Conference Rooms	Direct	143	8	75	245	31%
Room 119 Library	Library	Direct	140	2	50	99	51%
Room 123 Copy Room	Office (small)	Direct	275	2	50	108	46%
Room 126 Lunch Room	Lunch Room	Direct	339	11	150	231	65%
Room 128 Meeting	Conference Rooms	Direct	1,070	54	450	1,050	43%
Room Level 1 Corridor Central	Corridors	Direct	408	0	75	229	33%
Room Level 1 Corridor East	Corridors	Direct	434	0	75	75	100%
Room Level 1 Corridor South	Corridors	0.12 CFM / ft²	47.4	0	6	41	15%
Room Level 1 Corridor West	Corridors	Direct	204	0	50	129	39%
Zone 2ND FLOOR			4,800	171	1,880	4,550	41%
Room 200 Office	Office (med)	Direct	172	3	40	217	18%
Room 202 Office	Office (small)	Direct	107	2	25	93	27%
Room 203 Office	Office (small)	Direct	92.8	2	25	87	29%
Room 204 Office	Office (small)	Direct	91.4	2	25	87	29%
Room 205 Office	Office (small)	Direct	91.4	2	25	87	29%
Room 206 Office	Office (small)	Direct	91.4	2	25	87	29%
Room 207 Office	Office (small)	Direct	92.8	2	25	87	29%
Room 208 Records Storage	Storage	Direct	88.5	0	25	37	68%
Room 209 Meeting	Conference Rooms	Direct	176	9	100	167	60%
Room 213 Meeting	Conference Rooms	Direct	1,320	66	600	1,360	44%
Room 217 Storage	Storage	Direct	99.8	0	25	41	61%
Room 220 Kitchenette	Kitchenette	Direct	122	0	75	93	81%
Room 225 Meeting	Conference Rooms	Direct	129	7	75	216	35%

Room Information, Part 2
Values in italics have been changed from the default

Number	Lighting Load		Equipment Load Sensible		Equipment Load Latent	People		Sensible btuh / Person	Latent btuh / Person	Glass Zone Type
213 Meeting	0.8 watts / ft²	3,610	1 watts / ft²	4,510	0		*66 people*	250	200	B
217 Storage	0.8 watts / ft²	273	0 watts / ft²	0	0		0 people	250	200	B
220 Kitchenette	0.8 watts / ft²	333	1 watts / ft²	416	0		0 people	250	200	B
225 Meeting	0.8 watts / ft²	354	1 watts / ft²	442	0		7 people	250	200	B
226 Office	0.8 watts / ft²	278	1 watts / ft²	347	0		2 people	250	200	B
227 Library	0.8 watts / ft²	273	1 watts / ft²	341	0		2 people	250	200	B
229 Office	0.8 watts / ft²	415	1 watts / ft²	519	0		3 people	250	200	B
230 Meeting	0.8 watts / ft²	3,730	1 watts / ft²	4,660	0		*67 people*	250	200	B
Level 1 Corridor Central	0.8 watts / ft²	1,110		0	0	0 ft² / person	0 people	250	250	B
Level 1 Corridor East	0.8 watts / ft²	1,180		0	0	0 ft² / person	0 people	250	250	B
Level 1 Corridor South	0.8 watts / ft²	129		0	0	0 ft² / person	0 people	250	250	B
Level 1 Corridor West	0.8 watts / ft²	556		0	0	0 ft² / person	0 people	250	250	B
Level 2 Corridor West	0.8 watts / ft²	1,110		0	0	0 ft² / person	0 people	250	250	B

Supply Air Requirements

Location	Current Supply CFM	Required Supply CFM	Cooling Peak	Supply Temperature	Sensible Load (btuh)	Supply CFM	OSA CFM	OSA %	Heating Temperature Difference	Heating Load (btuh)	Supply CFM	OSA CFM	OSA %
Zone 1ST FLOOR	0	4,160	CV - Sum of Peaks		90,100	4,150	1,580	38%		37,700	2,160	1,580	73%
Room 100 Lobby	0	965	July 9:00 a.m.		21,000	965	200	21%		4,700	258	200	78%
Room 102 Parlor	0	224	July 9:00 a.m.		4,890	224	50	22%		2,820	132	50	38%
Room 104 Parlor	0	107	July 2:00 p.m.		2,340	107	50	47%		1,450	68	50	74%
Room 105 Office	0	84	July 2:00 p.m.		1,830	84	25	30%		1,450	68	25	37%
Room 106 Office	0	83	July 2:00 p.m.		1,810	83	25	30%		1,380	65	25	38%
Room 107 Office	0	83	July 2:00 p.m.		1,810	83	25	30%		1,380	65	25	38%
Room 108 Office	0	83	July 2:00 p.m.		1,810	83	25	30%		1,380	65	25	38%

Load Total Summary - System
(Includes Ventilation and Plenum Loads)

Location	Area	Cooling CFM	Peak	btuh Total	btuh Sensible	btuh Latent	Tons Total	Tons Sensible	Tons Latent	ft² / ton	CFM / ton	CFM / ft²	Heating CFM	btuh	kW	CFM / ft²
Room 226 Office	102 ft²	109	July 1:00 p.m.	2,830	2,510	321	0.2	0.2	0	431	462	1.07	60	1,710	0.5	0.59
Room 227 Library	100 ft²	108	July 1:00 p.m.	2,880	2,620	258	0.2	0.2	0	416	450	1.08	57	2,080	0.6	0.57
Room 229 Office	152 ft²	193	July 9:00 a.m.	4,900	4,420	476	0.4	0.4	0	372	473	1.27	87	2,540	0.7	0.57
Room 230 Meeting	1,360 ft²	1,260	July 4:00 p.m.	42,400	30,700	11,700	3.5	2.6	1	386	358	0.93	600	14,500	4.3	0.44
Room Level 2 Corridor West	408 ft²	214	July 3:00 p.m.	5,060	5,060	-242	0.4	0.4	0	967	507	0.53	149	4,460	1.3	0.37

Load Total Summary - Room
(Excludes Ventilation and Plenum Loads)

Location	Area	Cooling CFM	Peak	btuh Total	btuh Sensible	btuh Latent	Tons Total	Tons Sensible	Tons Latent	ft² / ton	CFM / ton	CFM / ft²	Heating CFM	btuh	kW	CFM / ft²
Zone 1ST FLOOR	4,550 ft²	4,150	CV - Sum of Peaks	119,000	90,100	28,700	9.9	7.5	2.4	459	419	0.91	2,160	37,700	11	0.47
Room 100 Lobby	516 ft²	965	July 9:00 a.m.	29,200	21,000	8,190	2.4	1.8	0.7	212	397	1.87	258	4,700	1.4	0.5
Room 102 Parlor	120 ft²	224	July 9:00 a.m.	5,870	4,890	984	0.5	0.4	0.1	245	458	1.87	132	2,820	0.8	1.1
Room 104 Parlor	94 ft²	107	July 2:00 p.m.	3,130	2,340	787	0.3	0.2	0.1	362	411	1.14	68	1,450	0.4	0.72
Room 105 Office	93 ft²	84	July 2:00 p.m.	2,220	1,830	387	0.2	0.2	0	502	455	0.91	68	1,450	0.4	0.73
Room 106 Office	91 ft²	83	July 2:00 p.m.	2,200	1,810	389	0.2	0.2	0	499	453	0.91	65	1,380	0.4	0.71
Room 107 Office	91 ft²	83	July 2:00 p.m.	2,200	1,810	389	0.2	0.2	0	499	453	0.91	65	1,380	0.4	0.71
Room 108 Office	91 ft²	83	July 2:00 p.m.	2,200	1,810	389	0.2	0.2	0	499	453	0.91	65	1,380	0.4	0.71
Room 109 Office	93 ft²	84	July 2:00 p.m.	2,220	1,830	387	0.2	0.2	0	502	455	0.91	68	1,450	0.4	0.73
Room 111 Meeting	176 ft²	158	July 3:00 p.m.	5,220	3,440	1,780	0.4	0.3	0.1	404	363	0.9	100	419	0.1	0.57
Room 113 Kitchenette	122 ft²	75	July 4:00 p.m.	1,500	1,510	-16	0.1	0.1	0	975	600	0.62	75	1,500	0.4	0.62
Room 118 Meeting	143 ft²	245	July 2:00 p.m.	6,910	5,330	1,580	0.6	0.4	0.1	249	425	1.71	108	2,300	0.7	0.75
Room 119 Library	140 ft²	99	July 4:00 p.m.	2,550	2,170	382	0.2	0.2	0	659	465	0.71	78	1,670	0.5	0.56
Room 123 Copy Room	275 ft²	108	July 3:00 p.m.	2,720	2,350	368	0.2	0.2	0	1,210	476	0.39	50	628	0.2	0.18
Room 126 Lunch Room	339 ft²	231	July 3:00 p.m.	7,200	5,040	2,160	0.6	0.4	0.2	565	385	0.68	150	785	0.2	0.44
Room 128 Meeting	1,070 ft²	1,050	July 3:00 p.m.	33,600	22,900	10,700	2.8	1.9	0.9	382	376	0.99	450	7,350	2.2	0.42
Room Level 1 Corridor Central	408 ft²	229	July 1:00 p.m.	4,950	5,000	-47	0.4	0.4	0	989	555	0.56	184	3,940	1.2	0.45

Heating Load Details - System and Room
(Btu/h / % of System Total)

Location	Roof	Wall	Glass	Slab	Vertical Partitions	Horizontal Partitions	Ventilation	Infiltration
Room 119 Library	0 0%	900 36%	0 0%	401 16%	0 0%	0 0%	854 34%	366 15%
Room 123 Copy Room	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	854 58%	628 42%
Room 126 Lunch Room	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	2,560 77%	785 23%
Room 128 Meeting	0 0%	1,380 9%	2,120 14%	1,390 9%	0 0%	0 0%	7,690 51%	2,460 16%
Room Level 1 Corridor Central	0 0%	444 9%	1,960 38%	590 11%	0 0%	0 0%	1,280 25%	942 18%
Room Level 1 Corridor East	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1,280 56%	994 44%
Room Level 1 Corridor South	0 0%	581 60%	0 0%	136 14%	0 0%	0 0%	102 11%	157 16%
Room Level 1 Corridor West	0 0%	87 4%	529 26%	132 6%	0 0%	0 0%	854 41%	471 23%
Zone 2ND FLOOR	4,940 7%	4,880 7%	12,200 17%	6,520 9%	0 0%	0 0%	32,100 45%	10,400 15%
Room 200 Office	177 5%	514 13%	1,410 37%	704 18%	0 0%	0 0%	683 18%	366 9%
Room 202 Office	110 5%	205 10%	706 35%	300 15%	0 0%	0 0%	427 21%	262 13%
Room 203 Office	96 5%	165 9%	706 38%	261 14%	0 0%	0 0%	427 23%	209 11%
Room 204 Office	94 5%	162 9%	706 38%	257 14%	0 0%	0 0%	427 23%	209 11%
Room 205 Office	94 5%	162 9%	706 38%	257 14%	0 0%	0 0%	427 23%	209 11%
Room 206 Office	94 5%	162 9%	706 38%	257 14%	0 0%	0 0%	427 23%	209 11%
Room 207 Office	96 5%	165 9%	706 38%	261 14%	0 0%	0 0%	427 23%	209 11%
Room 208 Records Storage	91 7%	249 20%	0 0%	249 20%	0 0%	0 0%	427 35%	209 17%
Room 209 Meeting	181 8%	0 0%	0 0%	0 0%	0 0%	0 0%	1,710 76%	366 16%
Room 213 Meeting	1,360 7%	1,190 6%	2,820 14%	1,570 8%	0 0%	0 0%	10,200 51%	2,770 14%
Room 217 Storage	103 8%	286 22%	0 0%	286 22%	0 0%	0 0%	427 33%	209 16%
Room 220 Kitchenette	125 5%	295 11%	392 14%	348 13%	0 0%	0 0%	1,280 47%	262 10%
Room 225 Meeting	133 4%	275 9%	706 23%	370 12%	0 0%	0 0%	1,280 42%	314 10%
Room 226 Office	105 6%	238 14%	392 23%	291 17%	0 0%	0 0%	427 25%	262 15%
Room 227 Library	103 5%	233 11%	392 19%	286 14%	0 0%	0 0%	854 41%	209 10%
Room 229 Office	156 6%	267 11%	706 28%	363 14%	0 0%	0 0%	683 27%	366 14%
Room 230 Meeting	1,400 10%	0 0%	0 0%	0 0%	0 0%	0 0%	10,200 71%	2,880 20%
Room Level 2 Corridor West	420 9%	310 7%	1,100 25%	458 10%	0 0%	0 0%	1,280 29%	889 20%

Load Total Summary - System
(Includes Ventilation and Plenum Loads)

Location	Area	Cooling CFM	Peak	btuh Total	btuh Sensible	btuh Latent	Tons Total	Tons Sensible	Tons Latent	ft² / ton	CFM / ton	CFM / ft²	Heating CFM	btuh	kW	CFM / ft²
Zone 1ST FLOOR	4,550 ft²	4,160	July 12:00 p.m.	123,000	98,500	24,500	10.3	8.2	2.1	443	405	0.91	4,160	64,700	19	0.91
Room 100 Lobby	516 ft²	965	July 9:00 a.m.	29,700	22,100	7,660	2.5	1.8	0.6	208	390	1.87	258	8,110	2.4	0.5
Room 102 Parlor	120 ft²	224	July 9:00 a.m.	6,010	5,160	853	0.5	0.4	0.1	240	447	1.87	132	3,680	1.1	1.1
Room 104 Parlor	94 ft²	107	July 2:00 p.m.	3,260	2,610	655	0.3	0.2	0.1	347	394	1.14	68	2,310	0.7	0.72
Room 105 Office	93 ft²	84	July 2:00 p.m.	2,280	1,960	321	0.2	0.2	0	487	441	0.91	68	1,870	0.5	0.73
Room 106 Office	91 ft²	83	July 2:00 p.m.	2,260	1,940	324	0.2	0.2	0	484	440	0.91	65	1,810	0.5	0.71
Room 107 Office	91 ft²	83	July 2:00 p.m.	2,260	1,940	324	0.2	0.2	0	484	440	0.91	65	1,810	0.5	0.71
Room 108 Office	91 ft²	83	July 2:00 p.m.	2,260	1,940	324	0.2	0.2	0	484	440	0.91	65	1,810	0.5	0.71

Ventilation Schedule

Location	Room Type	Ventilation Requirements	Area (ft²)	People	Ventilation CFM	Supply CFM	Ventilation %
Room 226 Office	Office (small)	Direct	102	2	25	109	23%
Room 227 Library	Library	Direct	99.8	2	50	108	46%
Room 229 Office	Office (med)	Direct	152	3	40	193	21%
Room 230 Meeting	Conference Rooms	Direct	1,360	67	600	1,260	47%
Room Level 2 Corridor West	Corridors	Direct	408	0	75	214	35%

Cooling Load Details - System
(Btu/h / % Total)

(See "Cooling Load Details - Room" for lighting, equipment, and people loads)

Location	Peak	Roof	Wall	Glass	Ventilation Sensible	Ventilation Latent	Infiltration Sensible	Infiltration Latent
Zone 1ST FLOOR	July 12:00 p.m.	0 0%	3,000 2%	26,100 21%	8,440 7%	-4,160 -3%	2,260 2%	-545 0%
Room 100 Lobby	July 9:00 a.m.	0 0%	30 0%	9,630 32%	1,070 4%	-527 -2%	-82 0%	-61 0%
Room 102 Parlor	July 9:00 a.m.	0 0%	20 0%	2,900 48%	267 4%	-132 -2%	-21 0%	-16 0%
Room 104 Parlor	July 2:00 p.m.	0 0%	20 1%	674 21%	267 8%	-132 -4%	66 2%	-13 0%
Room 105 Office	July 2:00 p.m.	0 0%	20 1%	674 30%	133 6%	-66 -3%	66 3%	-13 -1%
Room 106 Office	July 2:00 p.m.	0 0%	20 1%	674 30%	133 6%	-66 -3%	53 2%	-11 0%
Room 107 Office	July 2:00 p.m.	0 0%	20 1%	674 30%	133 6%	-66 -3%	53 2%	-11 0%
Room 108 Office	July 2:00 p.m.	0 0%	20 1%	674 30%	133 6%	-66 -3%	53 2%	-11 0%
Room 109 Office	July 2:00 p.m.	0 0%	20 1%	674 30%	133 6%	-66 -3%	66 3%	-13 -1%
Room 111 Meeting	July 3:00 p.m.	0 0%	0 0%	0 0%	534 10%	-263 -5%	111 2%	-21 0%
Room 113 Kitchenette	July 4:00 p.m.	0 0%	688 36%	0 0%	400 21%	-198 -10%	79 4%	-16 -1%
Room 118 Meeting	July 2:00 p.m.	0 0%	534 8%	1,820 26%	400 6%	-198 -3%	92 1%	-18 0%
Room 119 Library	July 4:00 p.m.	0 0%	720 27%	0 0%	267 10%	-132 -5%	92 3%	-18 -1%
Room 123 Copy Room	July 3:00 p.m.	0 0%	0 0%	0 0%	267 9%	-132 -5%	167 6%	-32 -1%
Room 126 Lunch Room	July 3:00 p.m.	0 0%	0 0%	0 0%	801 11%	-395 -5%	208 3%	-40 -1%
Room 128 Meeting	July 3:00 p.m.	0 0%	242 1%	1,970 6%	2,400 7%	-1,190 -3%	652 2%	-124 0%
Room Level 1 Corridor Central	July 1:00 p.m.	0 0%	58 1%	3,620 67%	400 7%	-198 -4%	201 4%	-47 -1%
Room Level 1 Corridor East	July 3:00 p.m.	0 0%	0 0%	0 0%	400 22%	-198 -11%	264 14%	-50 -3%
Room Level 1 Corridor South	July 4:00 p.m.	0 0%	560 74%	0 0%	32 4%	-16 -2%	39 5%	-8 -1%
Room Level 1 Corridor West	July 5:00 p.m.	0 0%	31 1%	2,130 69%	267 9%	-132 -4%	103 3%	-24 -1%
Zone 2ND FLOOR	July 12:00 p.m.	5,170 4%	1,050 1%	19,800 14%	10,000 7%	-4,950 -4%	2,110 2%	-524 0%
Room 200 Office	July 9:00 a.m.	5 0%	33 1%	2,900 54%	214 4%	-105 -2%	-25 0%	-18 0%
Room 202 Office	July 3:00 p.m.	116 5%	27 1%	657 26%	133 5%	-66 -3%	69 3%	-13 -1%
Room 203 Office	July 3:00 p.m.	100 4%	22 1%	657 28%	133 6%	-66 -3%	56 2%	-11 0%
Room 204 Office	July 3:00 p.m.	99 4%	21 1%	657 28%	133 6%	-66 -3%	56 2%	-11 0%
Room 205 Office	July 3:00 p.m.	99 4%	21 1%	657 28%	133 6%	-66 -3%	56 2%	-11 0%
Room 206 Office	July 3:00 p.m.	99 4%	21 1%	657 28%	133 6%	-66 -3%	56 2%	-11 0%
Room 207 Office	July 3:00 p.m.	100 4%	22 1%	657 28%	133 6%	-66 -3%	56 2%	-11 0%
Room 208 Records Storage	July 5:00 p.m.	112 19%	53 9%	0 0%	133 23%	-66 -11%	46 8%	-11 -2%
Room 209 Meeting	July 4:00 p.m.	212 4%	0 0%	0 0%	534 9%	-263 -5%	92 2%	-18 0%
Room 213 Meeting	July 6:00 p.m.	1,680 4%	336 1%	2,510 6%	3,200 7%	-1,580 -4%	462 1%	-140 0%
Room 217 Storage	July 6:00 p.m.	127 17%	184 24%	0 0%	133 18%	-66 -9%	35 5%	-11 -1%
Room 220 Kitchenette	July 1:00 p.m.	88 4%	51 2%	1,080 45%	400 16%	-198 -8%	56 2%	-13 -1%
Room 225 Meeting	July 1:00 p.m.	94 1%	48 1%	1,950 31%	400 6%	-198 -3%	67 1%	-16 0%
Room 226 Office	July 1:00 p.m.	74 3%	41 1%	1,080 38%	133 5%	-66 -2%	56 2%	-13 0%
Room 227 Library	July 1:00 p.m.	72 3%	40 1%	1,080 38%	267 9%	-132 -5%	45 2%	-11 0%
Room 229 Office	July 9:00 a.m.	5 0%	30 1%	2,510 51%	214 4%	-105 -2%	-25 -1%	-18 0%
Room 230 Meeting	July 4:00 p.m.	1,650 4%	0 0%	0 0%	3,200 8%	-1,580 -4%	723 2%	-145 0%

Supply Air Requirements

Location	Current Supply CFM	Required Supply CFM	Cooling Peak	Supply Temperature	Sensible Load (btuh)	Supply CFM	OSA CFM	OSA %	Heating Temperature Difference	Heating Load (btuh)	Supply CFM	OSA CFM	OSA %
Room 109 Office	0	84	July 2:00 p.m.		1,830	84	25	30%		1,450	68	25	37%
Room 111 Meeting	0	158	July 3:00 p.m.		3,440	158	100	63%		419	100	100	100%
Room 113 Kitchenette	0	75	July 4:00 p.m.		1,510	75	75	100%		1,500	75	75	100%
Room 118 Meeting	0	245	July 2:00 p.m.		5,330	245	75	31%		2,300	108	75	69%
Room 119 Library	0	99	July 4:00 p.m.		2,170	99	50	51%		1,670	78	50	64%
Room 123 Copy Room	0	108	July 3:00 p.m.		2,350	108	50	46%		628	50	50	100%
Room 126 Lunch Room	0	231	July 3:00 p.m.		5,040	231	150	65%		785	150	150	100%
Room 128 Meeting	0	1,050	July 3:00 p.m.		22,900	1,050	450	43%		7,350	450	450	100%
Room Level 1 Corridor Central	0	229	July 1:00 p.m.		5,000	229	75	33%		3,940	184	75	41%
Room Level 1 Corridor East	0	75	July 3:00 p.m.		1,450	75	75	100%		994	75	75	100%
Room Level 1 Corridor South	0	41	July 4:00 p.m.		729	33	6	18%		873	41	6	15%
Room Level 1 Corridor West	0	129	July 5:00 p.m.		2,820	129	50	39%		1,220	57	50	88%
Zone 2ND FLOOR	0	4,550	CV - Sum of Peaks		98,400	4,520	1,880	42%		38,900	2,450	1,880	77%
Room 200 Office	0	217	July 9:00 a.m.		4,720	217	40	18%		3,170	149	40	27%
Room 202 Office	0	93	July 3:00 p.m.		2,030	93	25	27%		1,580	74	25	34%
Room 203 Office	0	87	July 3:00 p.m.		1,900	87	25	29%		1,440	67	25	37%
Room 204 Office	0	87	July 3:00 p.m.		1,890	87	25	29%		1,430	67	25	37%
Room 205 Office	0	87	July 3:00 p.m.		1,890	87	25	29%		1,430	67	25	37%
Room 206 Office	0	87	July 3:00 p.m.		1,890	87	25	29%		1,430	67	25	37%
Room 207 Office	0	87	July 3:00 p.m.		1,900	87	25	29%		1,440	67	25	37%
Room 208 Records Storage	0	37	July 5:00 p.m.		453	25	25	100%		798	37	25	68%
Room 209 Meeting	0	167	July 4:00 p.m.		3,630	167	100	60%		547	100	100	100%
Room 213 Meeting	0	1,360	July 6:00 p.m.		29,600	1,360	600	44%		9,720	600	600	100%
Room 217 Storage	0	41	July 6:00 p.m.		618	28	25	89%		883	41	25	61%
Room 220 Kitchenette	0	93	July 1:00 p.m.		2,030	93	75	81%		1,420	75	75	100%
Room 225 Meeting	0	216	July 1:00 p.m.		4,700	216	75	35%		1,800	84	75	89%

NO. | DATE | DESCRIPTION
REVISIONS

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206-364-3343 TEL
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. O'BRIEN, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER, 06-17-24

DRAWN: JTB
DESIGNED: JTB
CHECKED: NK
APPROVED:

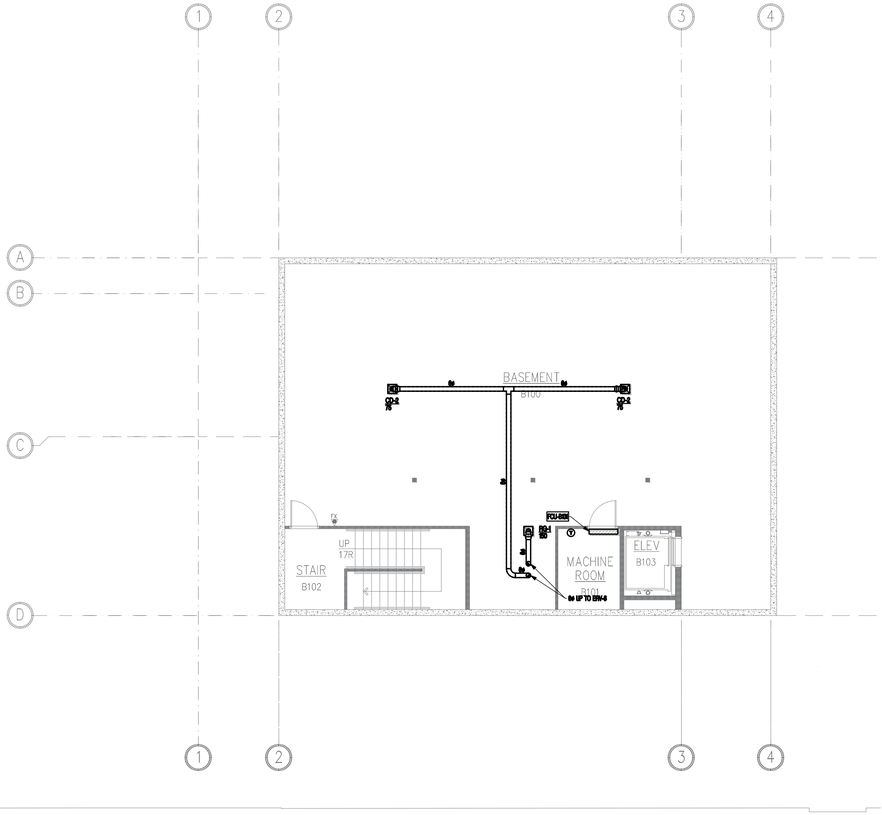
PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADD'N
7112 S 12TH ST, TACOMA, WA, 98465

ROBISON ENGINEERING, INC
19401 40TH AVE W. SUITE 302
LYNNWOOD, WA 98036
PHONE:(206)364-3343

DATE: 6/17/24

SHEET TITLE: HEAT LOAD CALCULATIONS

SHEET NO. M006



MECHANICAL PLAN - BASEMENT

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

NO.	DATE	DESCRIPTION
		REVISIONS

ROBISON
ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
2063643343 TEL.
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. O'BRIEN
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
06-17-24

DRAWN: JTB
DESIGNED: JTB
CHECKED: NK
APPROVED:

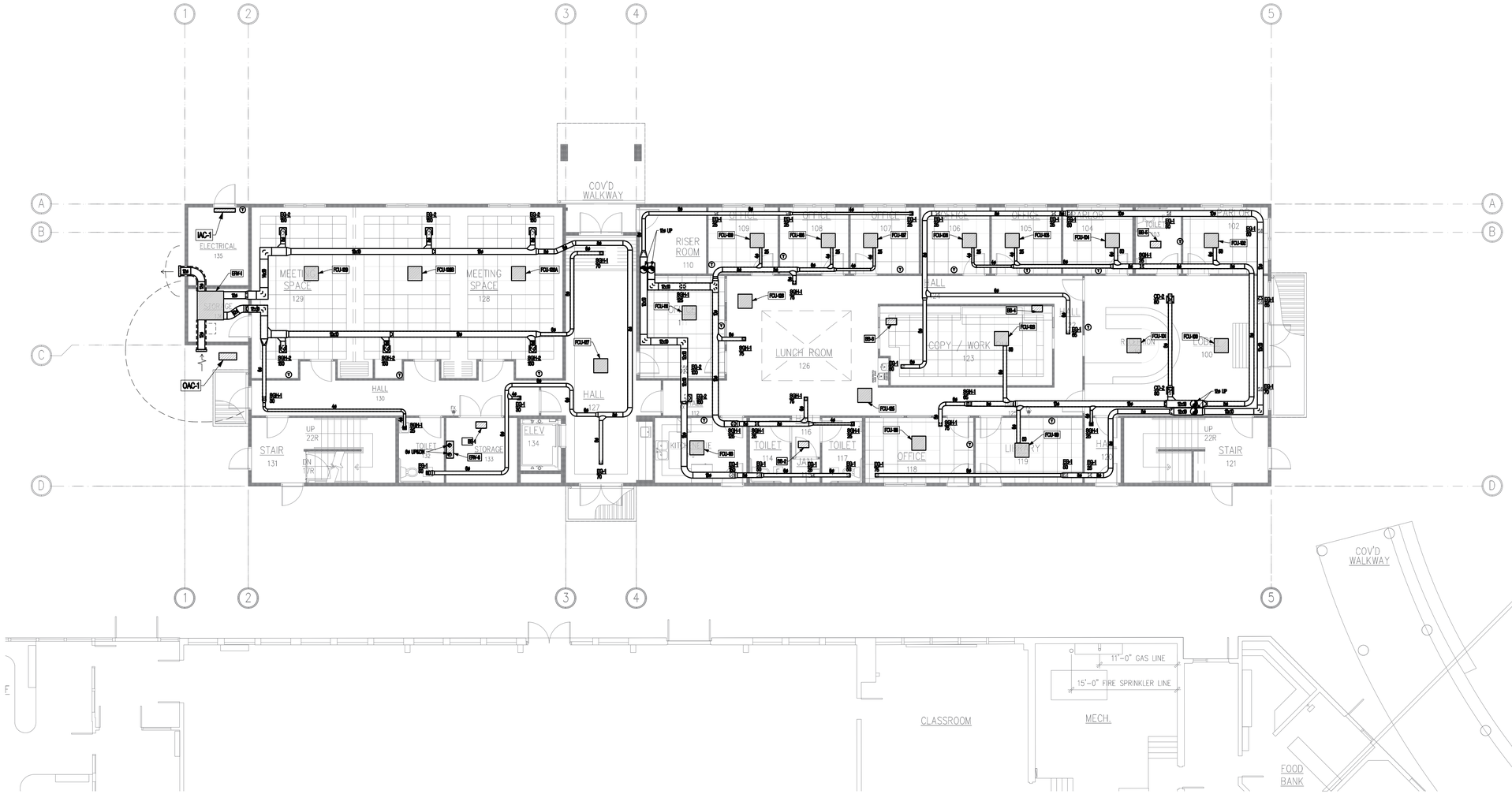
PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADD'N
7112 S 12TH ST, TACOMA, WA, 98465

ROBISON ENGINEERING, INC
19401 40TH AVE W. SUITE 302
LYNNWOOD, WA 98036
PHONE:(206)3643343

DATE: 6/17/24

SHEET TITLE: MECHANICAL PLAN - BASEMENT

SHEET NO. M200



MECHANICAL PLAN - LEVEL 1

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

NO.	DATE	DESCRIPTION
		REVISIONS

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206 364 3343 TEL
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. O'BRIEN — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 06-17-24

DRAWN: JTB
DESIGNED: JTB
CHECKED: NK
APPROVED:

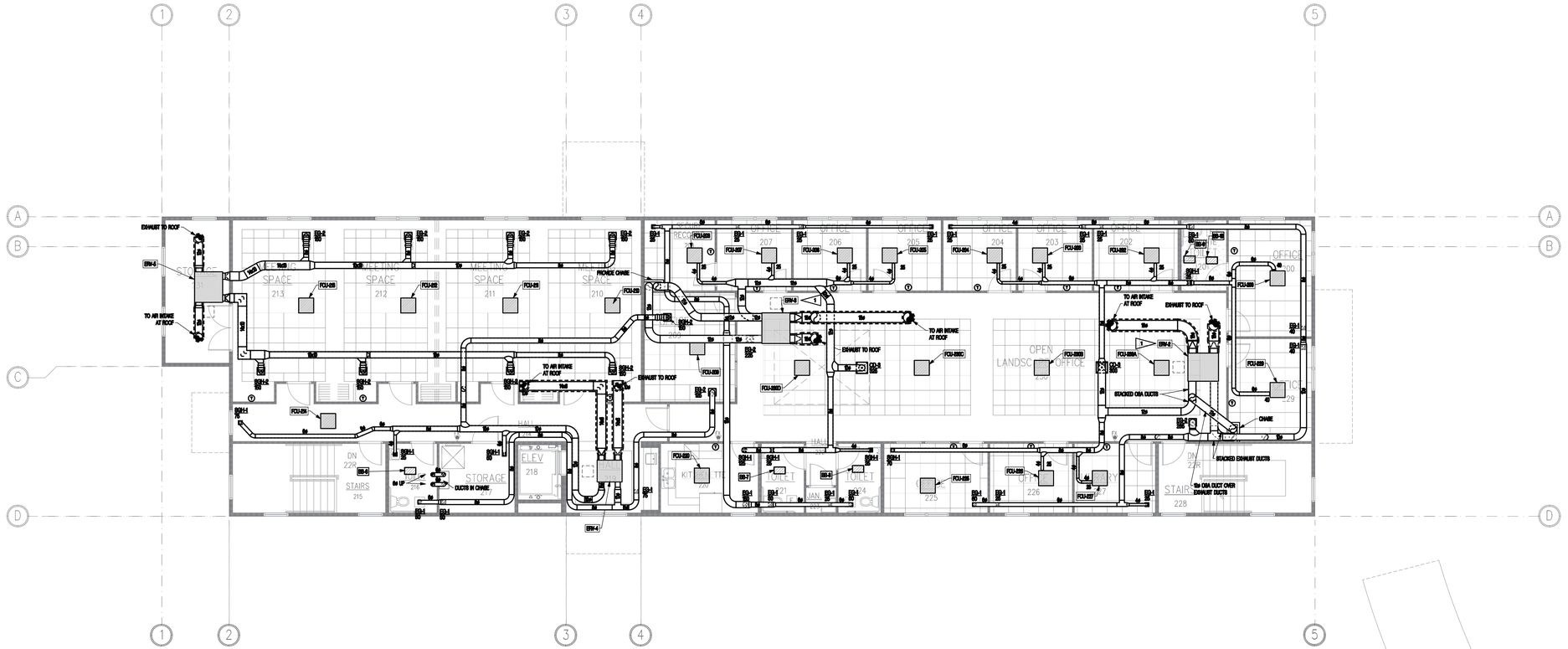
PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADD'N
7112 S 12TH ST, TACOMA, WA, 98465

ROBISON ENGINEERING, INC
19401 40TH AVE W. SUITE 302
LYNNWOOD, WA 98036
PHONE: (206)3643343

DATE: 6/17/24

SHEET TITLE: MECHANICAL PLAN - LEVEL 1

SHEET NO. M201



GENERAL NOTES:

1. MOUNT THERMOSTATS AT 48" AFF. COORDINATE LOCATION WITH ARCHITECT.
2. INSULATE ERV OSA DUCT TO MIN R-6. INSULATE ERV EXHAUST DUCT TO MIN R-7.
3. OBSERVE ALL REQUIRED OPERATIONAL AND SERVICE CLEARANCES WHEN INSTALLING HEAT PUMPS. REFER TO MANUFACTURER LITERATURE.

FLAG NOTES:

1. ERV-21 AND ERV-22 AND CONNECTING DUCTWORK INSTALLED IN ATTIC SPACE. ROOF TRUSSES SHALL BE DESIGNED TO ACCOMMODATE SIZE OF ERVs.

MECHANICAL PLAN - LEVEL 2

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

N

NO.	DATE	DESCRIPTION
		REVISIONS

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206 364 3343 TEL
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. OBRIEN — REGISTERED PROFESSIONAL ENGINEER — 06-17-24

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
JTB	JTB	NK	

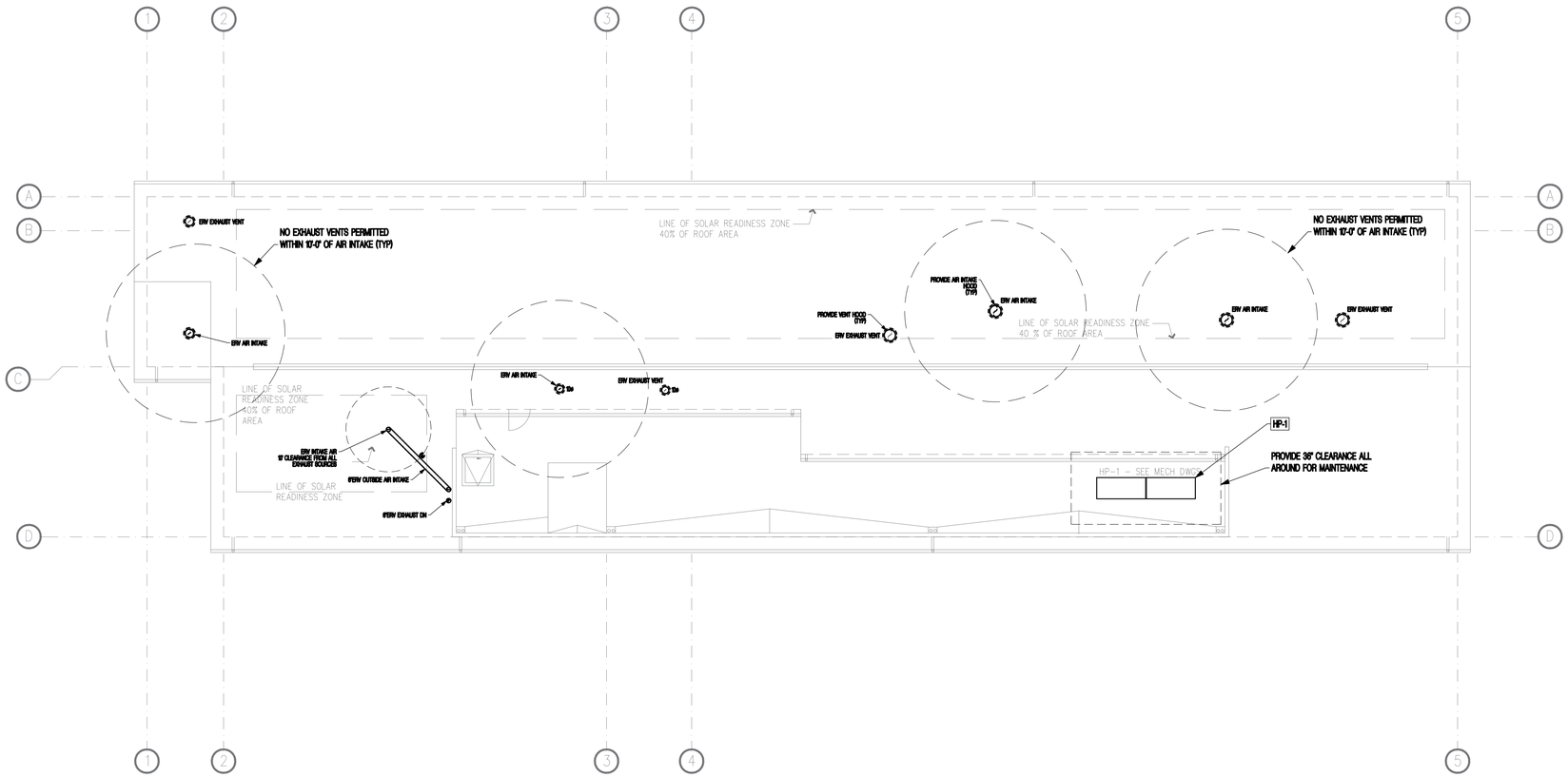
PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADD'N
7112 S 12TH ST, TACOMA, WA, 98465

ROBISON ENGINEERING, INC
19401 40TH AVE W. SUITE 302
LYNNWOOD, WA 98036
PHONE:(206)364-3343

DATE: 6/17/24

SHEET TITLE: MECHANICAL PLAN - LEVEL 2

SHEET NO. **M202**



MECHANICAL PLAN - ROOF

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

N

NO.	DATE	DESCRIPTION
		REVISIONS

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206-364-3343 TEL
REI PROJECT NO.: 1145-008
CONTACT: NICK KING

JACOB J. OBRIEN — REGISTERED PROFESSIONAL ENGINEER — 06-17-24

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
JTB	JTB	NK	

PROJECT: ST CHARLES BORROMEO PARISH OFFICES ADD'N
7112 S 12TH ST, TACOMA, WA, 98465

ROBISON ENGINEERING, INC
19401 40TH AVE W. SUITE 302
LYNNWOOD, WA 98036
PHONE:(206)3643343

DATE: 6/17/24

SHEET TITLE: MECHANICAL PLAN - ROOF

SHEET NO. **M203**