

FAN SCHEDULE												
TAG	MANUFACTURER	TYPE	MODEL	RPM	AIR FLOW RATE		E.S.P.		MOTOR		SONES	ACCESSORIES
					(L/s)	(CFM)	(Pa)	(in.WC)	(W)	(HP)		
TF-1	GREENHECK	I	CSP-A410	1,000	142	300	62	0.25	149	0.20	2.0	BD,SC,DS
TF-2	GREENHECK	I	CSP-A410	1,000	142	300	62	0.25	149	0.20	2.0	BD,SC,DS
TF-3	GREENHECK	I	CSP-A200	900	94	200	62	0.25	45	0.06	0.9	BD,SC,DS

**NOTES:**

- TRANSFER FANS TO OPERATE BY ROOM SPEED CONTROLLER.
- COORDINATE AND SELECT ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTOR.
- REFER TO SPECIFICATIONS FOR APPROVED MANUFACTURER.

**FAN TYPES:**

C CENTRIFUGAL	R ROOF	I IN-LINE	CE CEILING EXHAUST	CU CENTRIFUGAL UP BLAST
TA TUBE AXIAL	W WALL	MF MIXED FLOW	P PROPELLER	CF CEILING FAN

**ABBREVIATIONS:**

BG BELT GUARD	MT MANUAL RESET TIMER	SD SCROLL DRAIN
AS ADJUSTABLE SHEAVES	NSW NON-SPARKING WHEEL	FC FACTORY CURB
SC SOLID STATE SPEED CONTROL	SH SPRING HANGERS	BS BIRDSCREEN
IG INLET GRILLE	VP VIBRATION PADS	MC MOUNTING COLLAR
BD BACKDRAFT DAMPER	SM SPRING MOUNT	WH WEATHERPROOF HOUSING
F FILTER	WC WALL CAP	RC ROOF CAP
E EPOXY COATING	DS DISCONNECT SWITCH	AD ACCESS DOOR
IH INLET HOOD	MDW MOTION DETECTOR, WALL MTD, GN	GOOSENECK

PLUMBING FIXTURE SCHEDULE									
FIXTURES	SPECIFICATION	WASTE	CW	HW	VENT	APPROVED MANUFACTURERS			
		IN(mm)	IN (mm)	IN (mm)	IN (mm)				
SK-1	FRANKE COMMERCIAL #56810-1P SINGLE BOWL COUNTERTOP MOUNT SINK, 460mm (18-1/8") x 511mm (20-1/8") x 254mm (10") DEEP, COUNTER MOUNTED, NO LEDGE, MOUNTING KIT PROVIDED, FULLY UNDERCOATED TO REDUCE CONDENSATION AND RESONANCE, FACTORY APPLIED RIM SEAL. AMERICAN STANDARD #4175.300 COLONY SOFT PULL DOWN KITCHEN FAUCET, DECK MOUNTED, CHROME PLATED SOLID CAST BRASS LEAD-FREE BODY, SINGLE LEVER, 1/4 TURN CERAMIC DISC VALVE CARTRIDGES, WITH PRESSURE COMPENSATING 5.7 LPM (1.50GPM) AERATOR OUTLET. ZURN THERMOSTATIC MIXING VALVE MODEL 1070, BRONZE ASTM B 584 W/NICKEL PLATING, INTERNAL BRASS, 1/2" OUTLET CONNECTION, OUTLET TEMPERATURE RANGE OF 95°F-115°F. OPEN GRID DRAIN, CHROME PLATED CAST BRASS ONE PIECE TOP, 17 GA. (1.5mm) TUBULAR 32mm (1-1/4") TAILPIECE, FAUCET SUPPLIES, CHROME PLATED POLISHED BRASS, HEAVY DUTY ANGLE STOPS, 10mm (3/8") I.P.S. INLET x 76mm (3") LONG RIGID HORIZONTAL NIPPLES, V.P. LOOSE KEYS, ESCUTCHEONS AND FLEXIBLE COPPER RISER. P-TRAP, HEAVY CAST BRASS ADJUSTABLE BODY, WITH SLIP NUT, 32mm (1-1/4") SIZE, SHALLOW WALL FLANGE AND SEAMLESS TUBULAR WALL BEND.	1-1/2" (38)	1/2" (13)	1/2" (13)	1-1/2" (38)	SINK: KOHLER, ELKAY FAUCET: SLOAN, CHICAGO FAUCETS, KOHLER, DELTA			
SP-1	LIBERTY 405 SERIES COMMERCIAL DRAIN PUMP. RATED AT 1/2 HP, 115 V, SINGLE PHASE, 60Hz, 3450 RPM. THE UNIT SHALL PRODUCE 15GPM AT 22' OF TOTAL DYNAMIC HEAD. CAPABLE OF HANDLING EFFLUENT WITH 3/8" SOLID HANDLING CAPABILITY. SHUT-OFF HEAD OF 34' AND MAX. FLOW OF 48GPM @5' OF TOTAL DYNAMIC HEAD. PIGGY BACK STYLE O/OFF FLOAT SWITCH CONTROLLER.VORTEX HIGH TEMP ENGINEERED POLYMER. MAX. LIQUID TEMP OF 82°C/180°F.	1-1/2" (38)	N/A	N/A	1-1/2" (38)	GRUNDFOS, LITTLE GIANT			
IWH-1	STIEBEL ELTRON MINI 2.5-1, 2.4 KW, HIGH LIMIT SWITCH WITH MANUAL RESET, NICHROME WIRE HEATING ELEMENT, SUPPLIED WITH AERATOR, FLOW SWITCH ACTIVATED, MOUNTS ON WALL AT POINT-OF-USE.	N/A	3/8"	3/8"	N/A	A.O. SMITH, BRADFORD WHITE			
DWC-1	FRANKE MODEL KER1P - 224MM x 266MM x 374 HIGH, 1 GPH REMOTE CHILLER. POWDER COATED GALVANIZED STEEL CABINET WITH PLASTIC FRONT. CHILLER IS AIR COOLED AND IS DESIGNED TO FIT UNDER A SINK. STAINLESS STEEL STORAGE TANK AND WATER WAYS. WATER LINES ARE WELDED TO ELIMINATE CORROSION AND ASSURE LEAKPROOF OPERATION. FOUR (4) FEET INSULATED POWER CORD WITH NEMA 5-15 PLUG, 1/4" O.D. STAINLESS STEEL WATER TUBE CONNECTIONS. 115 V, 0.05 COMPRESSOR POWER, 1.20 AMPERE WITH 135 WATTS TOTAL AMPERE. PROVIDE FRANKE MODEL L20.0296.701/DW5000 POLISHED CHROME COLD WATER DISPENSER COUNTER MOUNTED.	N/A	3/8"	3/8"	N/A	BEKRAFT, ICEBERG			
WF-1	FRANKE MODEL 'FRCNSTR100 WATER FILTRATION. BPA-FREE THERMOFORM POLYMER. QUARTER TURN ACTION SIMULTANEOUSLY SHUTS OFF THE WATER SUPPLY AND UNLOCKS THE FILTER BODY TO PREVENT LEAKS. AN ENCLOSED FILTER BODY DESIGN ALLOWS FOR QUICK CARTRIDGE REPLACEMENTS. INTEGRATED MOUNTING BRACKET AND PUSH FIT CONNECTIONS ALLOW FOR EASY INSTALLATION.	N/A	3/8"	3/8"	N/A	ESP WATER PRODUCTS, 3M AQUA-PURE			

DIRECT EXPANSION FAN COIL SCHEDULE (MITSUBISHI)										
TAG	SERVICE	MODEL	FAN PERFORMANCE			COOLING COIL PERFORMANCE		REFRIGERANT		
			AIR FLOW RATE (L/s)	(CFM)	E.S.P. (Pa)	(in.WC)	MOTOR (W)	NOMINAL COOLING (kW)	(MBH)	TYPE
AC-1	RM 107C	PLFY-P12NCMU-E	165	350	-	-	FRAC.	3.5	12.0	R410A
AC-2	RM 107C	PLFY-P12NCMU-E	165	350	-	-	FRAC.	3.5	12.0	R410A
AC-3	RM 107B	PLFY-P12NCMU-E	165	350	-	-	FRAC.	3.5	12.0	R410A
AC-4	RM 107B	PLFY-P12NCMU-E	165	350	-	-	FRAC.	3.5	12.0	R410A
AC-5	RM 107A	PLFY-P12NCMU-E	165	350	-	-	FRAC.	3.5	12.0	R410A
AC-6	RM 107A	PLFY-P12NCMU-E	165	350	-	-	FRAC.	3.5	12.0	R410A
AC-7	RM 109	PLFY-P15NCMU-E	165	350	-	-	FRAC.	4.4	15.0	R410A
AC-8	RM110	PLFY-P15NCMU-E	165	350	-	-	FRAC.	4.4	15.0	R410A
AC-9	RM114	PLFY-P12NCMU-E	165	350	-	-	FRAC.	3.5	12.0	R410A
AC-10	RM104	PKA-A12HA6	158	335	-	-	FRAC.	3.5	12.0	R410A

**NOTES:**

- SCHEDULE BASED ON MITSUBISHI, REFER TO SPECIFICATIONS FOR APPROVED ALTERNATES.
- PROVIDE CONDENSATE LIFT PUMP FOR EACH UNIT.
- PROVIDE ROOM CONTROLLERS AS INDICATED ON DRAWINGS WITH CLEAR LOCKING COVER. PROVIDE BACNET INTERFACE AND INTEGRATE WITH EXISTING BMS.
- AC-10 SHALL BE CAPABLE OF -40C (YEAR ROUND) OPERATION.
- REFER TO SPECIFICATIONS FOR APPROVED MANUFACTURER.

CONDENSING UNIT SCHEDULE																		
TAG	SERVES	MANUFACTURER	MODEL	REFRIG. TYPE	NOMINAL COOLING		COMPRESSORS		FANS		WEIGHT		WIDTH		LENGTH		HEIGHT	
					(kW)	(MBH)	TYPE	(No.)	(No.)	(kg)	(lbs.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	
CU-1	AC-1 TO 9	MITSUBISHI (CITY MULTI)	PUHY-P96TJMU-A (BS)	R410A	28.14	96	INVERTER SCROLL HERMETIC	1	1	225	497	1219.2	48	762	30	1651	65	
CU-2	AC-10	MITSUBISHI (CITY MULTI)	PUY-A12NH6A	R410A	3.52	12	INVERTER SCROLL HERMETIC	1	1	37	82	300	11	800	31.5	600	23	

**NOTES:**

- PROVIDE NONE PENETRATING ROOF SUPPORT SYSTEM WITH UNISTRUT FRAME AND RUBBER BASES FOR UNITS AND FOR SERVICES TO UNITS.
- COORDINATE SUPPORT REQUIREMENTS WITH STRUCTURAL ENGINEER.
- COORDINATE AND SELECT ELECTRICAL REQUIREMENTS WITH ELECTRICAL ENGINEER.
- REFER TO SPECIFICATIONS FOR APPROVED MANUFACTURER.
- PROVIDE WIND BAFFLES FOR ALL CONDENSING UNITS.
- CU-2 SHALL BE CAPABLE OF -40C (YEAR ROUND) OPERATION.

VAV TERMINAL UNIT SCHEDULE (Based on EH PRICE)										
TAG	AREA SERVED	UNIT SIZE	AIRFLOW RATE				ATTENUATOR			
			MAXIMUM (L/s)	(CFM)	MINIMUM (L/s)	(CFM)	LENGTH (mm)	(in.)		
VAV-1	Classroom	LGB SERIES	12	623	1,320	165	350	914	36	
VAV-2	Webex Room	LGB SERIES	6	104	220	26	55	914	36	
VAV-3	Office	LGB SERIES	6	28	60	7	15	914	36	
VAV-4	Meeting Room	LGB SERIES	8	198	420	50	105	914	36	

**NOTES:**

- COMPLETE ROUND BYPASS COLLAR C/W BALANCING DAMPER.
- COORDINATE CONTROLS WITH CONTROLS CONTRACTOR. INTEGRATE WITH EXISTING BMS. ACTUATOR AND DAMPER PROVIDED BY CONTROLS CONTRACTOR.
- PROVIDE CLEAR COVER FOR THERMOSTATS WITH LOCK.
- COORDINATE SUPPORT REQUIREMENTS WITH STRUCTURE.
- REFER TO SPECIFICATIONS FOR APPROVED MANUFACTURER.

DIFFUSER AND GRILLE SCHEDULE (Based on E. H. PRICE)		
TAG	MODEL	COLOUR
S-1	600x600mm SCD SQUARE CONE DIFFUSER	WHITE/PRIMER
S-2	300x300mm SCD SQUARE CONE DIFFUSER	WHITE
S-3	AST w/ ASP LINEAR 1 SLOT, 38mm (1.5") DIFFUSER (T-BAR)	WHITE
S-4	AS w/ ASP LINEAR 1 SLOT, 38mm (1.5") DIFFUSER (DRYWALL)	WHITE
R-1	SERIES 80 EGG CRATE GRILLE	WHITE
E-1	SERIES 80 EGG CRATE GRILLE	WHITE

**NOTES:**

- PROVIDE BALANCING DAMPER AT EACH SUPPLY BRANCH FOR DIFFUSERS AND AT EACH GRILLE. SIZE AS INDICATED ON DRAWINGS.
- PROVIDE BORDER TO SUITE SURFACE INSTALLED ON.
- PROVIDE PRIMERED FINISH FOR S-1 OR S-2 WHERE CEILING IS TO BE PAINTED.
- LINEAR SLOT DIFFUSER TO COME WITH NON-INSULATED PLENUM, CONNECTION SIZE AS INDICATED ON DRAWINGS.

FAN COIL SCHEDULE (Existing Equipment)												
TAG	Serves	Model	Fan Speed	Airflow	ESP	Tot Cooling	Elec Heat	Water Flow Rate	Water Connections			
				CFM	Pa	MBH	kW	gpm	mm			
CW-FC-203	Workstation (RM001)	CM-2-C	847	850	74	13.1	n/a	9.0	32			
CW-FC-204	Open Area (RM007)	LM-2-C	1090	1271	74	18.7	n/a	8.4	25			
CW-FC-205	Classroom (RM010)	CM-2-C	1045	1144	74	17.8	n/a	9.5	32			
CW-FC-207A	Classroom (RM009), Hallway, Classroom Storages (RM011) & (RM012), Telecom (RM013)	LM-5000	1106	1801	125	31.4	n/a	14.3	32			
CW-FC-207B	Classroom (RM008), Reception, Webex Room, Quiet Room and Office	CM-2-C	1306	1525	125	22.3	n/a	11.7	32			
CW-FC-217	Meeting (RM005) and Multi-Purpose Room (RM005)	LM-1-C	847	850	74	13.1	n/a	9.0	32			

ASHRAE 62.1-2007 OUTDOOR AIR CALCULATION																									
General Information										Ventilation/ Fresh Air						Supply				Exhaust					
Space	Space Function	Ceiling Height ft	Area ft² A <sub>z</sub>	Volume ft³	Zone Population P <sub>z</sub>	Occupancy Density ft²/occ	ASHRAE cfm/person	ASHRAE cfm/ft²	cfm	Zone Outdoor Airflow V <sub>oz</sub>		Primary Outdoor Air Fraction Z <sub>p</sub>		System Ventilation Efficiency E <sub>v</sub>		Outdoor Air Intake Flow V <sub>ot</sub>		Ventilation Effectiveness E <sub>v</sub>		ASHRAE Exhaust Rates					
										Heating cfm	Cooling cfm	Heating	Cooling	Heating*	Cooling*	Heating cfm	Cooling cfm	Heating cfm	Cooling cfm	HVAC System	Heating	Cooling	cfm/unit	cfm/ft²	Design cfm
Reception, Hallway	Corridor	9	653	5877	5	130.6	0.0	0.06	39.2	39.2	39.2	0.75	0.75	0.96	0.96	40.81	40.81	340.0	340.0	CW-FC-207B	1.0	1.0	N/A	N/A	N/A
Classroom	Classroom	12	810	9720	30	27.0	7.5	0.06	273.6	273.6	273.6	0.75	0.75	0.96	0.96	285.00	285.00	1450.0	1450.0	CW-FC-205	1.0	1.0	N/A	N/A	N/A
Classroom	Classroom	12	966	11592	61	15.8	7.5	0.06	515.5	515.5	515.5	0.75	0.75	0.96	0.96	536.94	536.94	2700.0	2700.0	CW-FC-207A	1.0	1.0	N/A	N/A	N/A
Classroom	Classroom	12	921	11052	35	26.3	7.5	0.06	317.8	317.8	317.8	0.75	0.75	0.96	0.96	331.00	331.00	1650.0	1650.0	CW-FC-207B/VAV-1	1.0	1.0	N/A	N/A	N/A
Open Area	Office	12	886	10632	25	35.4	7.5	0.06	240.7	240.7	240.7	0.75	0.75	0.96	0.96	250.69	250.69	1250.0	1250.0	CW-FC-204	1.0	1.0	N/A	N/A	N/A
Meeting Room	Meeting Room	10	326	3260	12	27.2	5.0	0.06	79.6	79.6	79.6	0.75	0.75	0.96	0.96	82.88	82.88	420.0	420.0	CW-FC-217/VAV-5	1.0	1.0	N/A	N/A	N/A
Multi-purpose Room	Meeting Room	9	288	2592	14	20.6	5.0	0.06	87.3	87.3	87.3	0.75	0.75	0.96	0.96	90.92	90.92	450.0	450.0	CW-FC-217/VAV-4	1.0	1.0	N/A	N/A	N/A
Webex Room	Meeting Room	9	187	1683	6	31.2	5.0	0.06	41.2	41.2	41.2	0.75	0.75	0.96	0.96	42.94	42.94	220.0	220.0	CW-FC-207B/VAV-2	1.0	1.0	N/A	N/A	N/A
Quiet Room	Office	8	54	432	2	27.0	5.0	0.06	13.2	13.2	13.2	0.75	0.75	0.96	0.96	14	14	70	70	CW-FC-207B	1.0	1.0	N/A	N/A	N/A
Office	Office	8	109	872	1	109.0	5.0	0.06	11.5	11.5	11.5	0.75	0.75	0.96	0.96	12	12	60	60	CW-FC-207B/VAV-3	1.0	1.0	N/A	N/A	N/A
WorkstationS	Workstation	12	1238	14856	11	112.5	5.0	0.06	129.3	129.3	129.3	0.75	0.75	0.96	0.96	135	135	680	680	CW-FC-203	1.0	1.0	N/A	N/A	N/A
Undesignated Room	Undesignated	12	108	1296	N/A	N/A	5.0	0.06	6.5	6.5	6.5	0.75	0.75	0.96	0.96	6.75	6.75	35.00	35.00	CW-FC-207A	1.0	1.0	N/A	N/A	N/A
Classroom Storage	Storage	8	51	408	N/A	N/A	N/A	0.12	6.1	6.1	6.1	0.75	0.75	0.96	0.96	6.38	6.38	35.0	35.0	CW-FC-207A	1.0	1.0	N/A	N/A	N/A
Classroom Storage	Storage	8	51	408	N/A	N/A	N/A	0.12	6.1	6.1	6.1	0.75	0.75	0.96	0.96	6.4	6.4	35.0	35.0	CW-FC-207A	1.0	1.0	N/A	N/A	N/A
Telecom Room	Telecom	8	41	328	N/A	N/A	N/A	0.12	4.9	4.9	4.9	0.75	0.75	0.96	0.96	5.1	5.1	25	25	CW-FC-207A	1.0	1.0	N/A	N/A	N/A
Hallway	Corridor	10	1346	13460	0	N/A	N/A	0.06	80.8	80.8	80.8	0.75	0.75	0.96	0.96	84.1	84.1	420	420	CW-FC-207A	1.0	1.0	N/A	N/A	N/A
<b>Totals</b>									<b>202</b>	<b>1853.2</b>	<b>1853.2</b>	<b>1853.2</b>					<b>1930</b>	<b>1930</b>	<b>9840</b>	<b>9840</b>					<b>0.0</b>

T/A = Transfer Air  
N/A = Not Applicable  
NIC = Not Included in Calculation

Total FIA Requirement = 1878.2 cfm	Total Supply Air Required = 9840.0 cfm
Existing Fresh Air Supply (AH-SF-201) = 1930.0 cfm	



DO NOT SCALE DRAWINGS

Revision/	Description/Description	Date/Date
3	ISSUED FOR CONSTRUCTION	15/11/20
2	100% CD SUBMISSION	15/10/20
1	99% CD SUBMISSION	15/09/28
0	50% CD SUBMISSION	15/08/14

Client/client

CANADA SCHOOL OF PUBLIC SERVICES (CSPS)

Winnipeg  
Manitoba

Project title/Titre du projet