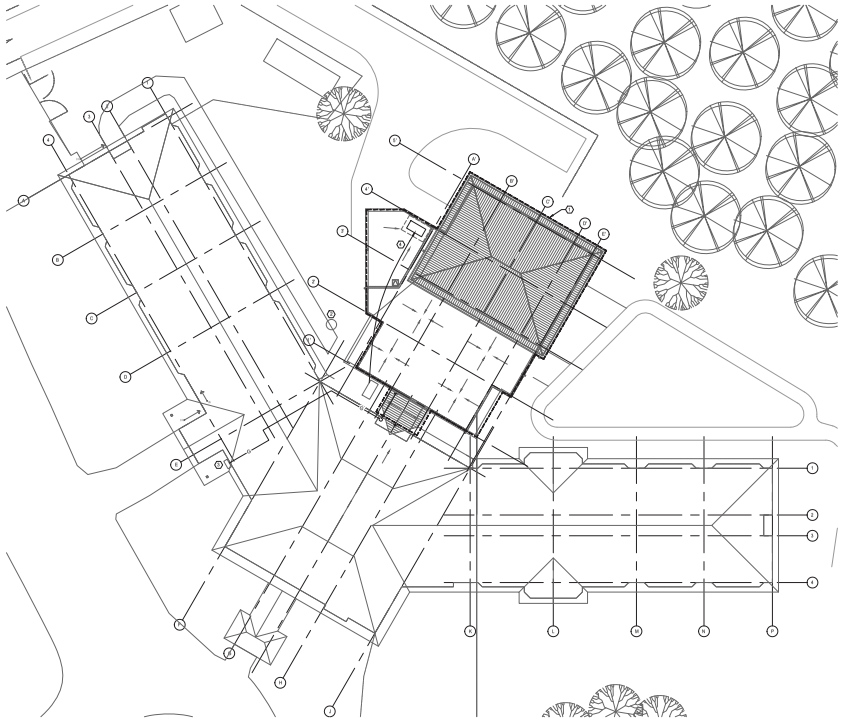

SITE PLAN
M001 SCALE: 1:200

MECHANICAL ABBREVIATIONS

AD	AREA DRAIN	INV	INVERT
AFF	ABOVE FINISHED FLOOR	JS	JANITOR SINK
AHU	AIR HANDLING UNIT	KW	KILOWATT
ARCH	ARCHITECTURAL	KS	KITCHEN SINK
BB	BASEBOARD HEATER	LV	LAVATORY
BDD	BACKDRAFT DAMPER	LAT	LEAVING AIR TEMPERATURE
BF	BOTTLE FILLER	LBS	POUNDS
BFP	BACKFLOW PREVENTER	LWT	LEAVING WATER TEMPERATURE
BHP	BRAKE HORSEPOWER	MAU	MAKE-UP AIR UNIT
BTUH	BRITISH THERMAL UNIT / HOUR	MAX	MAXIMUM
CD	CONTROL DAMPER	MH	MANHOLE
CB	CATCH BASIN	MBH	1000 BRITISH THERMAL UNITS/HOUR
CFM	CUBIC FEET PER MINUTE	MD	MOTORIZED DAMPER
CLG	CEILING	MECH	MECHANICAL
CO	CLEANOUT	MIN	MINIMUM
CONN	CONNECTION	MU	MAKE-UP MECHANICAL WATER
C/W	COMPLETE WITH	NFHB	NON FREEZE WALL HYDRANT
CONT	CONTINUATION	NIC	NOT IN CONTRACT
DB	DRY BULB	NC	NORMALLY CLOSED
CTE	CONNECT TO EXISTING	NO	NORMALLY OPEN
DCW	DOMESTIC COLD WATER	NTS	NOT TO SCALE
DDC	DIRECT DIGITAL CONTROL	OA	OUTDOOR AIR
DEG	DEGREE	OBD	OPPOSED BLADE DAMPER
DF	DRINKING FOUNTAIN	OED	OPEN ENDED DUCT
DHW	DOMESTIC HOT WATER	OD	OUTSIDE DIAMETER
DIA	DIAMETER	PDI	PLUMBING AND DRAINAGE INSTITUTE
DN	DOWN	POC	POINT OF CONNECTION
DW	DISH WASHER	PRV	PRESSURE REDUCING VALVE
DWG	DRAWING	PSI	POUNDS PER SQUARE INCH
DWHR	DOMESTIC HOT WATER RECIRCULATION	RA	RETURN AIR
EA	EXHAUST AIR	RF	RETURN FAN
EAT	ENTERING AIR TEMPERATURE	RM	ROOM
EF	EXHAUST FAN	RPM	REVOLUTIONS PER MINUTE
EFF	EFFICIENCY	RWL	RAIN WATER LEADER
ELEC	ELECTRICAL	S/A	SUPPLY AIR
ENT	ENTERING	SF	SUPPLY FAN
ESP	EXTERNAL STATIC PRESSURE	SH	SHOWER
EWT	ENTERING WATER TEMPERATURE	SK	SINK DRAIN ABOVE
EXH	EXHAUST	SS	STAINLESS STEEL
F	FIRE MAIN	SP	STATIC PRESSURE
FD	FLOOR DRAIN	SPEC	SPECIFICATION
FE	FIRE EXTINGUISHER	SR	SANITARY RISER
FLA	FULL LOAD AMPS	ST	STORM MAIN
FLR	FLOOR	T/A	TRANSFER AIR
FPM	FEET PER MINUTE	TAD	TRANSFER AIR DUCT
FT	FEET/FOOT	TEC	TO BE CONFIRMED
GAL	GALLONS	TBD	TO BE DETERMINED
GPM	GALLONS PER MINUTE	TD	TRENCH DRAIN
GWB	GYPSUM WALL BOARD	THRU	THROUGH
HD	HUB DRAIN	TS	TAMPER SWITCH
HB	HOSE BIB	TSP	TOTAL STATIC PRESSURE
HP	HORSEPOWER	TYP	TYPICAL
HCR	HEATING COIL RETURN	UR	URINAL
HCS	HEATING COIL SUPPLY	V	VENT
HRR	HEAT RECOVERY RETURN	VFD	VARIABLE FREQUENCY DRIVE
HRS	HEAT RECOVERY SUPPLY	VTR	VENT THROUGH ROOF
HWR	HEATING WATER RETURN	W	WATER MAIN
HWS	HEATING WATER SUPPLY	WB	WET BULB
ID	INSIDE DIAMETER	WC	WATER CLOSET
IE	INVERT ELEVATION	WCO	WALL CLEANOUT
IN	INCH	WG	WATER GAUGE

SYMBOL SCHEDULE

PIPING

DEMOLITION / EXISTING / NEW

- DOMESTIC COLD WATER (DCW)
- DOMESTIC HOT WATER (DHW)
- DOMESTIC HOT WATER RECIRC. (DHWR)
- SANITARY VENT
- SANITARY SEWER ABOVE GRADE
- SANITARY SEWER BELOW GRADE
- STORM SEWER ABOVE GRADE
- STORM SEWER BELOW GRADE
- PIPE CLEAN-OUT
- PIPE CLEAN-OUT TO GRADE
- FIRE LINE
- WET SPRINKLER LINE
- DRY SPRINKLER LINE
- HYDRONIC HEATING WATER SUPPLY
- HYDRONIC HEATING WATER RETURN
- CHILLED WATER SUPPLY
- CHILLED WATER RETURN
- CONDENSATE DRAIN
- HEAT RECOVERY SUPPLY
- HEAT RECOVERY RETURN
- CONDENSER WATER SUPPLY
- CONDENSER WATER RETURN

FITTINGS AND VALVES

- DIRECTION OF FLOW
- PIPE DROP
- PIPE RISE
- PIPE TEE UP
- PIPE TEE DOWN
- PIPE UNION
- ISOLATION VALVE (NORMALLY OPEN)
- ISOLATION VALVE (NORMALLY CLOSED)
- CHECK VALVE
- 3-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- BALANCING VALVE
- PRESSURE REDUCING VALVE (PRV)
- POOL FLOW CONTROL VALVE
- STRAINER
- RELIEF VALVE
- BACKFLOW PREVENTOR (BFP)
- AUTOMATIC AIR VENT (AAV)
- SEISMIC GAS SHUT OFF VALVE
- TEMPERATURE GAUGE
- PRESSURE GAUGE
- THERMOMETER
- PUMP
- ENERGY METER
- STRAINER

OUTLETS AND DRAINS

- OPEN DRAIN
- HOSE BIBB (HB)
- FLOOR DRAIN (FD)
- FUNNEL FLOOR DRAIN
- ROOF DRAIN (RD)
- AREA DRAIN

SYSTEM MONITORING

DEMOLITION / EXISTING / NEW

- ROOM TEMPERATURE SENSOR
- REVERSE ACTING TEMPERATURE SENSOR
- SLAB TEMPERATURE SENSOR
- HUMIDITY SENSOR
- CO2 SENSOR
- AIR FLOW METER
- FLOW SWITCH
- PIPE TEMPERATURE SENSOR
- PRESSURE SENSOR

DUCT WORK

- SUPPLY OR OUTDOOR AIR DUCT UP
- SUPPLY OR OUTDOOR AIR DUCT DOWN
- RETURN AIR DUCT UP
- RETURN AIR DUCT DOWN
- EXHAUST AIR DUCT UP
- EXHAUST AIR DUCT DOWN
- TURNING VANES
- ACOUSTIC INSULATION
- BALANCING DAMPER (BD)
- BACKDRAFT DAMPER (BDD)
- MOTOR ED DAMPER (MD)
- FIRE DAMPER - VERTICAL (FD)
- FIRE DAMPER - HORIZONTAL (FD)
- DUCT DROPPED CAP OFF
- RETURN OR EXHAUST AIR GRILLE
- UNDER DUCT DOOR

FIRE PROTECTION

- FIRE EXTINGUISHER
- FIRE DEPARTMENT SIAMESE CONNECTION
- PENDANT SPRINKLER HEAD
- UPRIGHT SPRINKLER HEAD
- CONCEALED SPRINKLER HEAD
- SIDEWALL SPRINKLER HEAD
- EXT. COVERAGE SIDEWALL HEAD
- DRY SPRINKLER ALARM VALVE
- WET SPRINKLER SUPPLY LINE
- DRY SPRINKLER SUPPLY LINE
- PRE-ACTION SPRINKLER LINE
- FIRE LINE TO STANDPIPE

EQUIPMENT TAGS

- GRILLE TYPE
- NECK (GRILLE IS E AIR VOLUME (L/s))
- EQUIPMENT FIXTURE TYPE
- GENERAL NOTE
- DRAWING REVISION
- DETAIL NUMBER / DRAWING NUMBER
- SECTION NUMBER / DRAWING NUMBER

KEY NOTES

1. EXTENT OF ADDITION
2. EXISTING SEDIMENT SUMP.
3. EXISTING 9"Ø GAS METER (336P A 560CFH) PROVIDED BY PACIFIC NORTHERN GAS TO BE UPGRADED TO SUIT THE INCREASE OF ATS MECH GAS LOAD. CONTRACTOR TO CONTACT CRAIG BEARS OF PNG @ 250-613 - 8225 FOR GAS METER UPGRADE WORK. CONTRACTOR TO PROVIDE NEW 150MM NEW INSIDE DIAMETER (MIN OF SR9) PRV. CONNECT EXISTING 3/4Ø GAS LINE AND NEW 038 GAS LINE TO ANOTHER OPEN'S NOT OFF VALVES. REFER TO M001 FOR CONTINUATION. PROVIDE 6.89MBH C/W 6 VALVE MANIFOLD HEADER
4. EXISTING AIR COOLED CHILLER TO BE RELOCATED. PROVIDE NEW WEATHERIGENANT PIPING TO EXISTING AHU AND RE-CHARGE SYSTEM AS REQUIRED. LIRIED. LOCATE ON CONCRETE HOUSEKEEPING PAD. THIS WORK TO BE PART OF SEPARATE PRICE SP1&1. REFER TO MA01 FOR CONTINUATION

MECHANICAL DRAWING LIST

DRAWING NO	DESCRIPTION	SCALE
M001	MECHANICAL COVER SHEET, SITE PLAN, E / UIPMENT SCHEDULES	AS NOTED
M002	MECHANICAL SCHEDULES	AS NOTED
M101	FOUNDATION PLAN	1:50
M102	PLUMBING PLAN	1:50
M103	ROOF PLAN	1:50
M201	FIRE PROTECTION PLAN	1:50
M401	HVAC PLAN, DETAILS AND SCHEDULE	1:50
M501	PARTIAL PLANS	AS NOTED
M502	BASEMENT PARTIAL PLANS	AS NOTED
M601	MECHANICAL DETAILS	N.T.S.
M602	MECHANICAL DETAILS	N.T.S.
M701	MECHANICAL SPECIFICATIONS	N.T.S.

DIFFUSER, GRILLE AND REGISTER SCHEDULE

E / UIPMENT TAG	DESCRIPTION	TYPE	OVERALL DIMENSIONS	MANUFACTURER	MODEL NUMBER	REMARKS
S-1	SUPPLY DIFFUSER	S / UARE PLA / UE	600 /600	A S SHOWN	PRICE	1
S-2	SUPPLY DIFFUSER	LINEAR SLOT	A S SHOWN	PRICE	1200 / 300/910 / 218, OTT / 300/ 8112	2
S-3	SUPPLY DIFFUSER	LINEAR BAR GRILLE	A S SHOWN	PRICE	1200 / 300/ UBP/218 / 600/ 00V/ 8112	3
R-1	RETURN GRILLE	LOUVERED	A S SHOWN	PRICE	530 / F / L / A / 8112	
R-2	RETURN GRILLE	PERFORATED	A S SHOWN	PRICE	10 / F / A / 0B 10	
E-1	EXHAUST GRILLE	LOUVERED	A S SHOWN	PRICE	530 / F / L / A / 8112	
T-1	TRANSFER GRILLE	LOUVERED	A S SHOWN	PRICE	530 / F / L / A / 8112	

NOTES :
1. NECK SI E 4Ø PER DRAWINGS
2. PROVIDE WITH 1200 / SDA100 / 2 / 1 TR PLENUM
3. PROVIDE FIELD FABRICATED PLENUM

MECHANICAL MOTORLIST

UNIT NUMBER	TY	UNIT DESCRIPTION	UNIT LOCATION	EMD PWR RE : UIRED IT ERRO	ELECTRICAL LOAD MCA	KW	HP	VOLT	PH	E : UIPMENT S	I	C	STARTER S	I	C	TYPE	DISCONNECT S	I	C	CONTROL S	I	C	TYPE	NOTES
		HVAC																						
RTU-1	1	GAS FIRED ROOFTOP UNIT	ROOF	NO	70A		5HP	20 /	3	MECH	MECH	ELEC	MECH	MECH	ELEC	PCS	ELEC	ELEC	ELEC	MECH	MECH	MECH	DDC	4
EFF-1	3	ELECTRIC FORCE DFLOW HEATER	PANTRY 100S (CONNECT CORRIDOR	NO		2		20 /	1	MECH	MECH	ELEC				INT	ELEC	ELEC	ELEC	MECH	MECH	MECH	DDC	
BBH-1	12	ELECTRIC BASEBOARD HEATER	SPRING HALL 100F, VESTIBULE 1000	NO		0.75		20 /	1	EUEC	ELEC	ELEC	-	-	-	INT	ELEC	ELEC	ELEC	MECH	MECH	MECH	DDC	2
										-	-	-	-	-	-	-	-	-	-	-	-	-		
EF-1	1	WASHROOM EXHAUST FAN	ROOF	NO		110	120	1	1	MECH	MECH	ELEC	ELEC	ELEC	ELEC	MRR	ELEC	ELEC	ELEC	MECH	MECH	MECH	DDC	
EF-2	1	DISHWASHER EXHAUST FAN	ROOF	NO		110	120	1	1	MECH	MECH	ELEC	ELEC	ELEC	ELEC	MRR	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	SW	3
EF-1	1	PRESURI ATION FAN	PANTRY 100I	NO		FRAC		120	1	MECH	MECH	ELEC	ELEC	ELEC	ELEC	MRR	ELEC	ELEC	ELEC	MECH	MECH	MECH	DDC	
										-	-	-	-	-	-	-	-	-	-	-	-	-		
		PLUMBING								-	-	-	-	-	-	-	-	-	-	-	-	-		
DHWT-1	1	DOMESTIC HOT WATER TANK	CLOSET 100A	NO				120	1	MECH	MECH	ELEC	-	-	-	-	ELEC	ELEC	ELEC	-	-	-		
HT-1	1	DOMESTIC HOT WATER TEMPERATURE MAINTENANCE	BUFER TO PLANS	NO		15A		20 /	1	MECH	MECH	ELEC	-	-	-	-	ELEC	ELEC	ELEC	MECH	MECH	ELEC	PCS	
										-	-	-	-	-	-	-	-	-	-	-	-	-		
		FIRE PROTECTION								-	-	-	-	-	-	-	-	-	-	-	-	-		
TS	2	NEW SPRINKLER - ONE TAMPER SWITCH	WATER ENTRY ROOM	YES				120	1	MECH	MECH	ELEC	-	-	-	-	-	-	-	MECH	MECH	ELEC		1
FS	2	NEW SPRINKLER - ONE FLOW SWITCH	WATER ENTRY ROOM	YES				120	1	MECH	MECH	ELEC	-	-	-	-	-	-	-	MECH	MECH	ELEC		1
PS	1	DRY SYSTEM LOW AIR PRESSURE SWITCH	WATER ENTRY ROOM	YES	15A			120	1	MECH	MECH	ELEC	-	-	-	-	-	-	-	MECH	MECH	ELEC		
COMP	1	DRY SYSTEM AIR COMPRESSOR	WATER ENTRY ROOM	YES				120	1	MECH	MECH	ELEC	-	-	-	-	-	-	-	MECH	MECH	ELEC		

NEMA STARTER SIZE : IDENTIFIES THE ELECTRICAL DRY TAG CONTRACTOR SCOPE OF WORK
MECH : ITE MIS IN THE MECHANICAL (DRY TS) SCOPE OF WORK
S : SUPPLIED BY
I : INSTALLED BY
C : CONNECTED BY
HOA : MA ONTIC STARTER C/W HAND/OFF/AUTO SWITCH & AUXIS TUS CONTACTS
MAN : MANUAL STARTER
MRR : MOTOR RATED RELAY
MAG : MAGNETIC STARTER C/W AUX STATUS CONTACTS
VFD : VARIABLE FREQUENCY DRIVE, TO UNIT (BY MANUFACTURER)
A / UA : PUMP CONTROLLED BY A / UASTAT
PH : POWER PHASE
S/W : WIRED TO SWITCH STAT WE TA
HSW : EXHAUST HOOD MOUNTED START AND STOP S WITCH
PCS : PACKAGED CONTROL SY STEM
V S : REFER TO DRAWINGS FOR : U ANTITY OF UNITS

RSTAT : RE VERSE ACTING THERMOSTAT SUPPLIED BY SEY TS AND INSTALLED WIRED BY DIV 16
TSTAT : CONTROLLED BY THERMOSTAT
VFD : VARIABLE FRE / UENCY DRIVE
OS : OCCUPANT SENSOR
VOLT : RE / UIRED SUPPLY VOLTAGE
BCP : BOILER CONTROL PANEL
FRAC : FRACTIONAL HORSEPOWER
MCA : MINIMUM CIRCUIT AMPS
KW : KILOWATTS OF HEATING
FLA : UNIT FULL LOAD AMPS
MOP : MAXIMUM OVERCURRENT PROTECTION
HP : UNIT OR MOTOR HORSE POWER
DDC : DIRECT DIGITAL CONTROL SY STEM
O : OTHER (REFER TO NOTES)
V S : VARIABLE SPEED SWITCH ON WALL SUPPLIED BY DIV. 15 AND WIRED BY INSTALL BY DIV. 16
FACP : FIRE ALARM PANEL BY ELECTRICAL, DIV. 16

NOTES :
1. TO BE MONITORED ON FIRE ALARM PANEL.
2. E / ECTRICAL TO PROVIDE AND INSTALL LINE V / OLTAGE RELAY S C/W PLETE WITH 24V TRANSFORMERS FOR CONNECTION FOR DDC CONTROL. REFER TO MECHANICAL DRAWINGS FOR ELECTRIC BASEBOARD LOCATIONS.
3. WALL MOUNTED 120V SWITCH TO START / STOP FAN. SWITCH TO BE SUPPLIED AND INSTALLED BY ELECTRICAL. LABEL SWITCH AS SCBW WASHER EXHAUST FAN.
4. SEPARATE 120V CIRCUIT FOR CONVENIENCE POWER OUTLET ON UNIT.

PACKAGED GAS FIRED ROOFTOP UNIT

E / UIPMENT TAG	RTU-1
LOCATION	ROOF
SERVICE	DINING HALL ADDITION
MANUFACTURER	TRANE
MODEL	VOYAGER YSD150E3RVA
UNIT WEIGHT (KGS)	99
SUPPLY FAN	
TOTAL VOLUME (L/S)	2,160
OUTDOOR AIR (L/S)	800
EXTERNAL STATIC (PA)	1.7.5
TOTAL STATIC (PA)	
MOTOR TYPE	BELT DRIVE
ACTUAL FAN SPEED (RPM)	905
MOTOR HORSE POWER (HP)	5
MOTOR RATING HORSEPOWER (HP)	
DX COOLING CAPACITY	
NET COOLING (KW)	47.5
SENSIBLE COOLING (KW)	36
EA T DB MB (DEG C)	26.7 / 19.4
LAT DB WB (DEG C)	15.1 / 14.2
AMBIENT TEMPERATURE (DEG C)	35
GAS HEATING CAPACITY	
TOTAL HEATING INPUT (KW)	102.6
TOTAL HEATING OUTPUT (MBH)	2.1
TEMPERATURE RISE (DEG C)	21.7
BURNER TURNDOWN RATIO	4:1
WATER RE / UIREMENTS	
AREA	70
VOLT / PH / HI	20 /3/60
NOTES :	ALL

NOTES :
1. FACTORY ASSEMBLED, SINGLE PACKAGE, GAS ELEC, OUTDOOR UNIT CONSTRUCTION
2. 100 : ECONOMIER CAPABILITY
3. SINGLE POINT POWER CONNECTION TO UNIT
4. SUPPLY FAN TO BE C/W HIGH STATIC DRIVE
5. C/W MODULATING GAS VALVE TO ACHIEVE 4:1 TURNDOWN RATIO ON BURNER
6. C/W 200 : - : FACTORY ROOF CURB
7. BOTTOM SUPPLY AND RETURN
: : C/W POWER EXHAUST
8. C/W MERV : : FILTER
10. UNIT CHARGED AND TESTED WITH R-FRIGERANT R 410A PRIOR TO SHIPMENT
11. COOLING PERFORMANCE WITH AHRI TEST PROCEDURES AND MEETASHRAE 90.1-2010
12. DIRECT DRIVE, HERMETIC, SCROLL TYPE COMPRESSORS WITH CENTRIFUGAL TYPE OIL PUMPS
13. GAS HEATING SECTION WITH TUBULAR TYPE STAINLESS STEEL HEAT EXCHANGER
14. ALL ALUMINUM CONSTRUCTION CONDENSER COIL
15. UNIT SHALL BE FACTORY WIRED WITH NECESSARY CONTROLS C/W LOW V / OLTAGE 24V CONTROL FUNCTIONS.
16. REFER TO CONTROLS SPECIFICATIONS
17. CONVENIENCE OUTLET ON SEPARATE 120V CIRCUIT.
11. PROVIDE TERMINAL STRIP FOR DDC SYSTEM TO CONTROL FAN START/STOP, 2 STAGES OF HEATING AND 2 STAGES OF COOLING.
19. CONTRACTOR TO ADJUST AND/OR CHANGE BELTS AND SHEAVES TO OBTAIN RE : UIRED AIR VOLUMES AS SHOWN ON DRAWINGS.

FAN SCHEDULE

E / UIPMENT TAG	TY	SERVICE	LOCATION	TYPE	MANUFACTURER	MODEL	AIR FLOW (L/S)	E.S.P (PA)	FAN RPM	MOTOR (HP)	POWER VP / NODE H :	DRIVE TYPE	SOUND LE VEL (SONES)	REMARKS
EF-1	1	WASHROOM EXHAUST FAN	ROOF	CENTRIFUGAL, DIRECT DRIVE	GREENHECK	G-B-VG	200	75	1,661	1/10	120/1/60	DIRECT	: .0	1-6
EF-2	1	DISHWASHER EXHAUST FAN	ROOF	CENTRIFUGAL, DIRECT DRIVE	GREENHECK	G-B-VG	100	75	1,543	1/10	120/1/60	DIRECT	1.3	1-6
SF-1	1	PRESURI ATION FAN	PANTRY 100I	IN-LINE, DIRECT DRIVE	GREENHECK	CSP-A100	75	75	1,400	FRAC	120/1/60	DIRECT	2.5	1, 5, 4, 7 : :

NOTES :
1. REFER TO SPECIFICATIONS FOR FURTHER RE : UIREMENTS
2. E / ECTRICAL 0-10 VDC INPUT SIGNAL IN FACTORY MOUNTED TRANSFORMER
3. C/W LOW V / OLTAGE RELAY FOR CONNECTION TO DDC
4. JUNCTION BOX MOUNTED & WIRED
5. FACTORY ALUMINUM GRAVITY DAMPER
6. PROVIDE MIN. 350 : : ROOF CURB
7. C/W FACTORY MOUNTED SPEED CONTROL BAL ON FAN FOR BALANCING
: : FACTORY INSULATED HOUSING

DOMESTIC HOT WATER HEATER (GAS FIRED)

E / UIPMENT TAG	TY	LOCATION	SERVICE	TANK DESCRIPTION	MANUFACTURER	MODEL	VOLUME (L)	GAS INPUT (KW)	EFF (E / F)	RECOVERY CAPACITY (L/H)	TEMP. RISE (DEG C)	POWER (VPH/HZ)	OPERATING WEIGHT (KG)	NOTES
DHWT-1	1	CLOSET 100A	DOMESTIC HOT WATER	GAS FIRED WATER HEATER	BRADFORD WHITE	EF-50T-12E-3N(A)	227	50.8	94	90	120/1/60	2.5A	295	ALL

NOTES :
1. GLASS LINED TANK
2. PROVIDE TEMP AND PRESSURE VALVE WITH A LOW WATER CUT-OFF.
3. LIC LISTED BURNER C/W PRESSURE REGULATING VALVE, AND IGNITION TRANSFORMER.
4. MEETS OR EXCEEDS INSULATION RE : UIREMENT AS PER ASHRAE 90.1
5. ASIBE RATED
6. REFER TO SPECIFICATIONS FOR FURTHER RE : UIREMENTS
7. C/W ACID NEUTRAL E ER
: : BURNER TO HAVE 3:1 TURNDOWN RATIO
9. C/W CONCENTRIC VENT KIT FOR COMBUSTION AIR INTAKE AND FLUE VENT

OIL INTERCEPTOR SCHEDULE

UNIT TAG	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	SI E	INLET SI E (mm)	OUTLET SI E (mm)	WATER CAPACITY L / GAL*	FLOWRATE L/S (GPM)	DIMENSIONS W - L - H (mm)	NOTES
OI-1	LOADING BAY OIL INTERCEPTOR	LOADING BAY	URN	: 1 : 6	: 00	100		113 (30)	5.16 (82)	972 - 67 - 616	ALL

NOTES :
1. ACID RESISTANT COATED FABRICATED STEEL
2. DURA-COATED EXTENSION SECTION. FIELD VERIFY EXTENSION HEIGHT PRIOR TO ORDERING. COVER TO BE FLUSHED WITH PARKADE SLAB.
3. HEAVY DUTY REINFORCED COVER WITH HOLD DOWN BOLTS.
4. FILL WITH CLEAN WATER PRIOR TO START-UP OF SY STEM.

GREASE INTERCEPTOR SCHEDULE

UNIT TAG	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	SI E L X W X H (mm)	INLET SI E (mm)	OUTLET SI E (mm)	FLOW RATE L/M (GPM)	GREASE CAPACITY KG (LBS)	NOTES
GI-1	GREASE INTERCEPTOR	PANTRY 100I	URN	: 1152	1251 - 64 - 765	100	100	47 (12)	1 (4.5)	ALL

NOTES :
1. OIL INTERCEPTOR TO BE C/W DUAL INLET.
2. REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS
3. C/W HEAVY DUTY COVER RATED FOR 10,000LBS
4. DURA COATED EXTERIOR FABRICATED STEEL EXTENSION SECTION TO SUIT GRADE.

ELECTRIC FORCED FLOW HEATER SCHEDULE

E / UIPMENT TAG	TY	LOCATION	MANUFACTURER	MODEL	V / OLTAGE (VOLT/PH/CY)	HEATING CAPACITY (KW)	AIR FLOW (L/S)	MOTOR (HP)	DIMENSIONS (H - W - D)	WEIGHT (KGS)	NOTES
EFF-1	3	PANTRY 100I	CABLE T	CM2020E : T	20 / 1/60	2.0	70.0	1/20	410 - 381 - 35	11	ALL

NOTES :
1. C/W FACTORY SUPPLIED LOW VOLTAGE WALL MOUNTED THERMOSTAT.
2. C/W RECESSED CABINET

DGBK

NO.	DESCRIPTION	DATE
1	ISSUED FOR DESIGN DEVELOPMENT	09.28.2017
2	ISSUED FOR TENDER	04.24.2018
3	ISSUED FOR BUILDING PERMIT	04.25.2018
4	ISSUED FOR CONSTRUCTION	06.27.2018

TO BE

THE PINES
DINING HALL &
SERVERY ADDITION

BURNS LAKE, BC

GBGroup
VICTORIA, BC V9W 5N8
KAMLOOPS, BC V2C 2P4
KELOWNA, BC V1Y 4Z3
MACKENZIE, BC V0C 2H0
PRINCE GEORGE, BC V2L 3Z5
CALGARY, AB T2P 0A3

TITLE

MECHANICAL COVER SHEET, SITE PLAN, AND EQUIPMENT SCHEDULES

SCALE AS NOTED
DATE JUN 27, 2018
DRAWN TLO
CHECKED JM
PROJECT NO. 158B-004-17
DRAWING NO. M001
REVISION NO. 4

PLUMBING FIXTURE SCHEDULE

TAG	DESCRIPTION	MANUFACTURER/MODEL	TRIM AND ACCESSORIES
LAV-1	BARRIER FREE LAVATORY	AMERICAN STANDARD MURRO	AMERICAN STANDARD MURRO 0.954.804/EC/0355.020/EC. WALL-HUNG BASIN, 540MM X 520MM X 165MM HIGH NOMINAL DIMENSIONS, 3 HOLES, 102MM CENTRES, VITREOUS CHINA, NO OVERFLOW, C/W SEMI-PEDESTAL P-TRAP COVER. FAUCET: AMERICAN STANDARD 75.00.170.002 MONTERREY, TWO HANDLES FAUCET, POLISHE CHROME FINISH, BRASS, 1.9 LPM (0.5 GPM) LAMINAR FLOW OUTLET, RIGID GOOSENECK SPOUT WITH 127MM (5") PROJECTION, 102 MM (4") WRIST BLADE HANDLES. PROVIDE MCGUIRE 4155A OPEN GRID DRAIN, MCGUIRE 4LFH1708WRB CHROME PLATED POLISHED BRASS SUPPLIES, 1/4 TURN BALL VALVE ANGLE STOPS, ESCUTCHEON AND STAINLESS STEEL BRAIDED FLEXIBLE RISERS, MCGUIRE #8872C P-TRAP. WALL CARRIER: WATTS WCA-41-CA-4/81 BASIN CARRIER WITH CONCEALED ARMS.
WC-1	BARRIER FREE WATER CLOSET	AMERICAN STANDARD CADET	AMERICAN STANDARD CADET 3497.600.020, FLOOR MOUNTED TOILET, VITREOUS CHINA WITH EVERCLEAN ANTIMICROBIAL SURFACE, ELONGATED BOWL WITH FULLY GLAZED INTERNAL TRAPWAY, BOLT CAPS. FLUSH TANK: 3483.001 BOWL AND 4142.600 BOLTED TANK COVER, MINIMUM WORKING PRESSURE RANGE OF 20 PSI TO 80 PSI MAXIMUM, 6 L (1.6 GAL) PER FLUSH. SEAT: CENTOCO 5015TSCC.001 TOILET SEAT, HEAVY DUTY, ELONGATED BOWL, OPEN FRONT LESS COVER, STAINLESS STEEL CHECK HINGES, METAL FLAT WASHERS, STAINLESS STEEL POSTS AND NUTS.
FD-1	FLOOR DRAIN	WATTS FD-100-C-OD	WATTS FD-100-C-OD, EPOXY COATED CAST IRON FLOOR DRAIN WITH ANCHOR FLANGE, REVERSIBLE MEMBRANE CLAMP WITH PRIMARY AND SECONDARY WEEPHOLES, 6MM (1/4") THICK 178MM (7") ADJUSTABLE NICKEL BRONZE STRAINER WITH SURFACE MEMBRANE CLAMP, 13MM (1/2") TRAP PRIMER CONNECTION.
FD-2	FLOOR DRAIN WITH FUNNEL	WATTS FD-100-C-OD	WATTS FD-100-C-OD, EPOXY COATED CAST IRON FLOOR DRAIN WITH ANCHOR FLANGE, REVERSIBLE MEMBRANE CLAMP WITH PRIMARY AND SECONDARY WEEPHOLES, 6MM (1/4") THICK 178MM (7") ADJUSTABLE NICKEL BRONZE STRAINER WITH SURFACE MEMBRANE CLAMP, 13MM (1/2") TRAP PRIMER CONNECTION, C/W 102MM (4") ROUND NICKEL BRONZE FUNNEL.
RD-1	ROOF DRAIN	ZURN Z-121-DP	ZURN Z-121-DP, 305MM (12") DIAMETER ROOF DRAIN, DURA-COATED CAST IRON BODY WITH COMBINATION MEMBRANE FLASHING CLAMP, TOP-SET DECK PLATE, AND POLY-DOME, 76MM (3") PIPE OUTLET.
RD-2	GUTTER DRAIN	ZURN Z-185	ZURN Z185, 152MM (6") DIAMETER CORNICE DRAIN, DURA-COATED CAST IRON WITH 90 DEGREE SIDE OUTLET BODY, PLAIN BRONZE DOME AND MEMBRANE FLASHING CLAMP, 76MM (3") PIPE OUTLET
RD-3	GUTTER DRAIN	ZURN Z-181	ZURN Z-181, 152MM (6") DIAMETER CORNICE DRAIN, DURA-COATED CAST IRON BOTTOM OUTLET BODY, PLAIN BRONZE DOME AND MEMBRANE FLASHING CLAMP, 76MM (3") PIPE OUTLET.
TD-1	TRENCH DRAIN	ACO-KS100	ACO-KS100, 100MM WIDTH, 0.5% SLOPED SECTIONS, POLYMER CONCRETE, V-SHAPED WITH GALVANIZED STEEL EDGES C/W 447.0X.48D STAINLESS STEEL, HEEL SAFE AND K1-90LG END CATCH BASIN PIT WITH SAME GRATE AS TRENCH. REFER TO DRAWINGS FOR OVERALL TRENCH LENGTH.
BFP-1	REDUCED PRESSURE BACKFLOW PREVENTER	WATTS 009	WATTS 009, 1.2MM REDUCED PRESSURE, ALL BRONZE BODY AND SEATS, STAINLESS STEEL INTERNAL PARTS. C/W SOFT SEAT CHECK VALVES AND UNIONS.
BFP-2	DOUBLE CHECK BACKFLOW PREVENTER	WATTS 007	WATTS 007, 2.0MM DOUBLE CHECK VALVE, ALL BRONZE BODY AND SEATS, STAINLESS STEEL INTERNAL PARTS. C/W SOFT SEAT CHECK VALVES AND UNIONS.

DGBK

revision / issue	date
1 ISSUED FOR DESIGN DEVELOPMENT	09.28.2017
2 ISSUED FOR TENDER	04.24.2018
3 ISSUED FOR BUILDING PERMIT	04.25.2018
4 ISSUED FOR CONSTRUCTION	06.27.2018

project

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title

MECHANICAL COVER SHEET, SITE PLAN, AND EQUIPMENT SCHEDULES

scale AS NOTED
date JUN 27, 2018
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checked JM
project no. 158B-004-17
seal

drawing no.

M002

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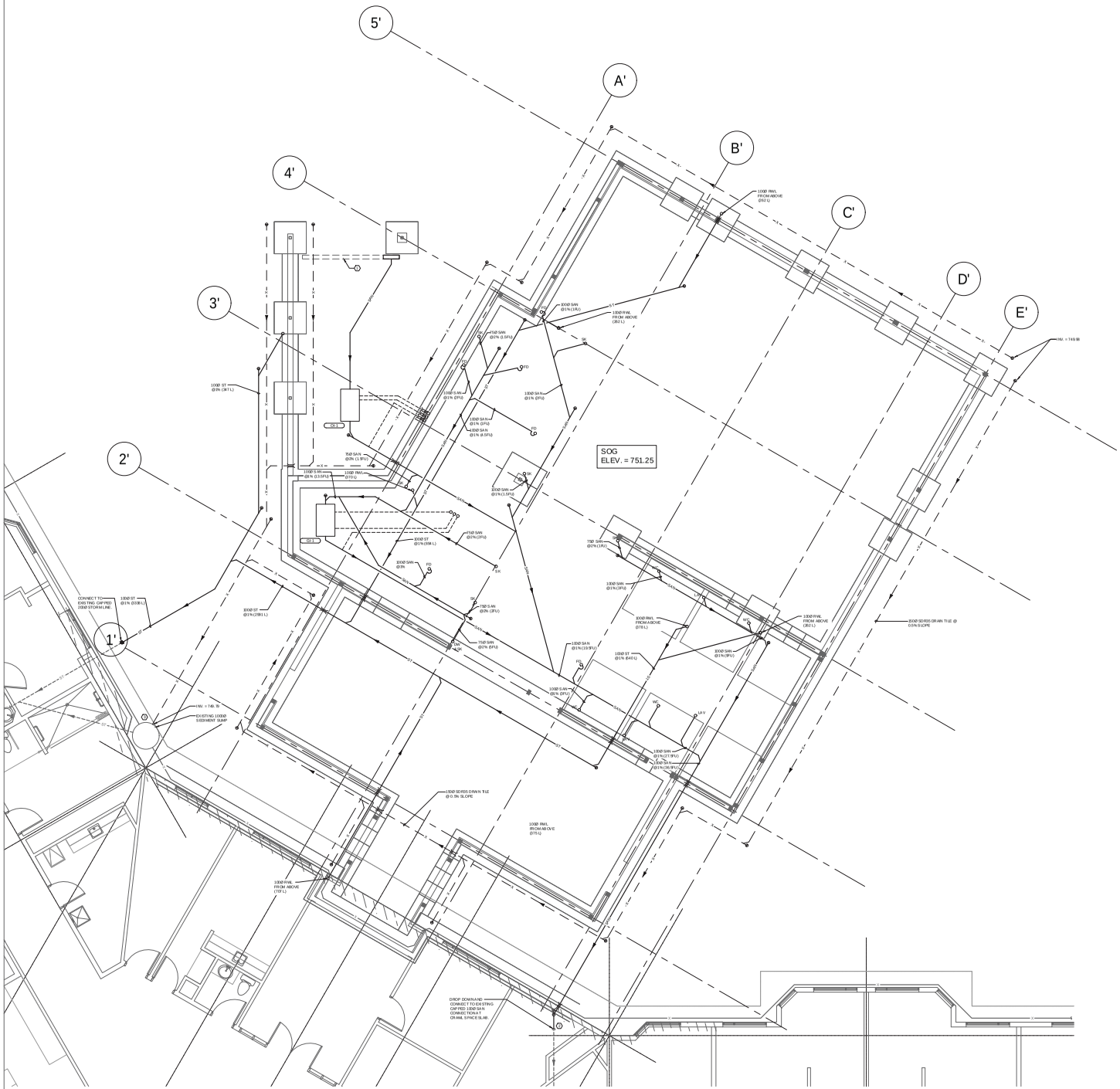

1 FOUNDATION PLAN
M101 SCALE: 1:50

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project

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FOUNDATION PLAN

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project no.	158B-004-17

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drawing no.

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SERVERY E UIPMENT CONNECTION SCHEDULE

NO.	TY	E UIPMENT CATEGORY	SUPPLY	INSTALL	PLUMBING RE UIREMENTS				MECHANICAL RE UIREMENTS			COMMENTS
					WATER		DRAIN	GAS				
					HOT	COLD	DIRECT	MBH	DUCT	CFM	ESP	
					( )	( )	( )					
2		JANITOR'S CABINET	OWNER	MECH	15	15	50					
3		HAND SINK	OWNER	MECH	15	15	40					
4		SINK UNIT	OWNER	MECH	20	20	50 2					
5		PRE RINSE	OWNER	MECH	15	15						
6		DISPOSAL	OWNER	MECH		15	50					
7		DISHWASHER	OWNER	MECH	20		75					
		CONDENSATE CANOPY	OWNER	MECH					160 160	600		
17		HAND SINK	OWNER	MECH	15	15	40					
11		WORK COUNTER W INTEGRAL SINK	OWNER	MECH	15	15	40 2					
19		SWELL UNIT (3 WELL)	OWNER	MECH			25					TO HUB DRAIN
20		SOUP WELL	OWNER	MECH			25					TO HUB DRAIN
24		REFRERM UNIT	OWNER	MECH		20	40					TO HUB DRAIN CAP FOR FUTURE
25		HOT WATER DISPENSER	OWNER	MECH		15						
26		ICE / WATER DISPENSER	OWNER	MECH		15	20					TO HUB DRAIN C/W RPBP
02		COFFEE BREWER	OWNER	MECH		15						C/W FILTER SYSTEM C/W DCVA

COMMENTS:

1. ALL E UIPMENT TO BE SUPPLIED BY GENERAL CONTRACTOR, INSTALLED AND CONNECTED BY MECHANICAL CONTRACTOR.

GENERAL NOTES

1. HEAT TRACE ALL DHW PIPING UP TO CEILING FIXTURE SUPPLY TAKE-OFFS.

KEY NOTES

1. PROVIDE 20Ø CONDENSATE DRAIN FROM DISHWASHER CONDENSATE CANOPY TO SE-8 & CONNECT ABOVE P-TRAP
2. OFFSET 50Ø LAVATORY / SINK DRAIN IN STUD WALL AND DROP DOWN TO AVOID FOOTING BELOW
3. CAP DCW / HW AT LL FOR FUTURE SE-3A (RETHERM UNIT)
4. 15Ø DCW SUPPLY TO SE-2E (ICE/WATER DISPENSER) C/W UPSTREAM RPBP MOUNTED ON WALL ABOVE COUNTER. PIPE DRAIN PORT TO ADJACENT HUB DRAIN IN DINING ROOM.
5. 20Ø DCW TO SE-2E/02 (HOT WATER DISPENSER / COFFEE BREWER) C/W UPSTREAM DCVA MOUNTED ON WALL ABOVE COUNTER.
6. GREASE INTERCEPTOR GI-1 BELOW.
7. CAPPED DCW / DHW / VENT FOR FUTURE WASHROOM GROUP.
8. 50Ø VENTS FROM GREASE INTERCEPTOR GI-1.
9. OIL INTERCEPTOR OI-1 BELOW.
10. 25Ø GAS LINE (150 MBH) TO RTU-1 ON ROOF ABOVE.
11. EXISTING HOSE BIBB TO REMAIN.
12. 100Ø PIPE FROM ABOVE TO DROP DOWN IN DEMISING WALL
13. 50Ø VENTS FROM OIL INTERCEPTOR OI-1.
14. INSTALL C/W BALL TYPE VALVE, PRV WITH RELIEF VENT THRU ROOF & DRIP LEG ON GAS SERVICE TO SHAFT 1.
15. PROVIDE 20Ø CPVC CONDENSATE DRAIN FROM DHMT C/W AGD INDUSTRIAL DR. PIPE TO FLOOR DRAIN.
16. PIPE TO RUN WITHIN PERIMETER WALL AND BE INSULATED PER SPECIFICATIONS.

1 PLUMBING PLAN
M102 SCALE: 1:50

DGBK

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1	ISSUED FOR DESIGN DEVELOPMENT	09.28.2017
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Project:

THE PINES
DINING HALL &
SERVERY ADDITION

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Drawing:

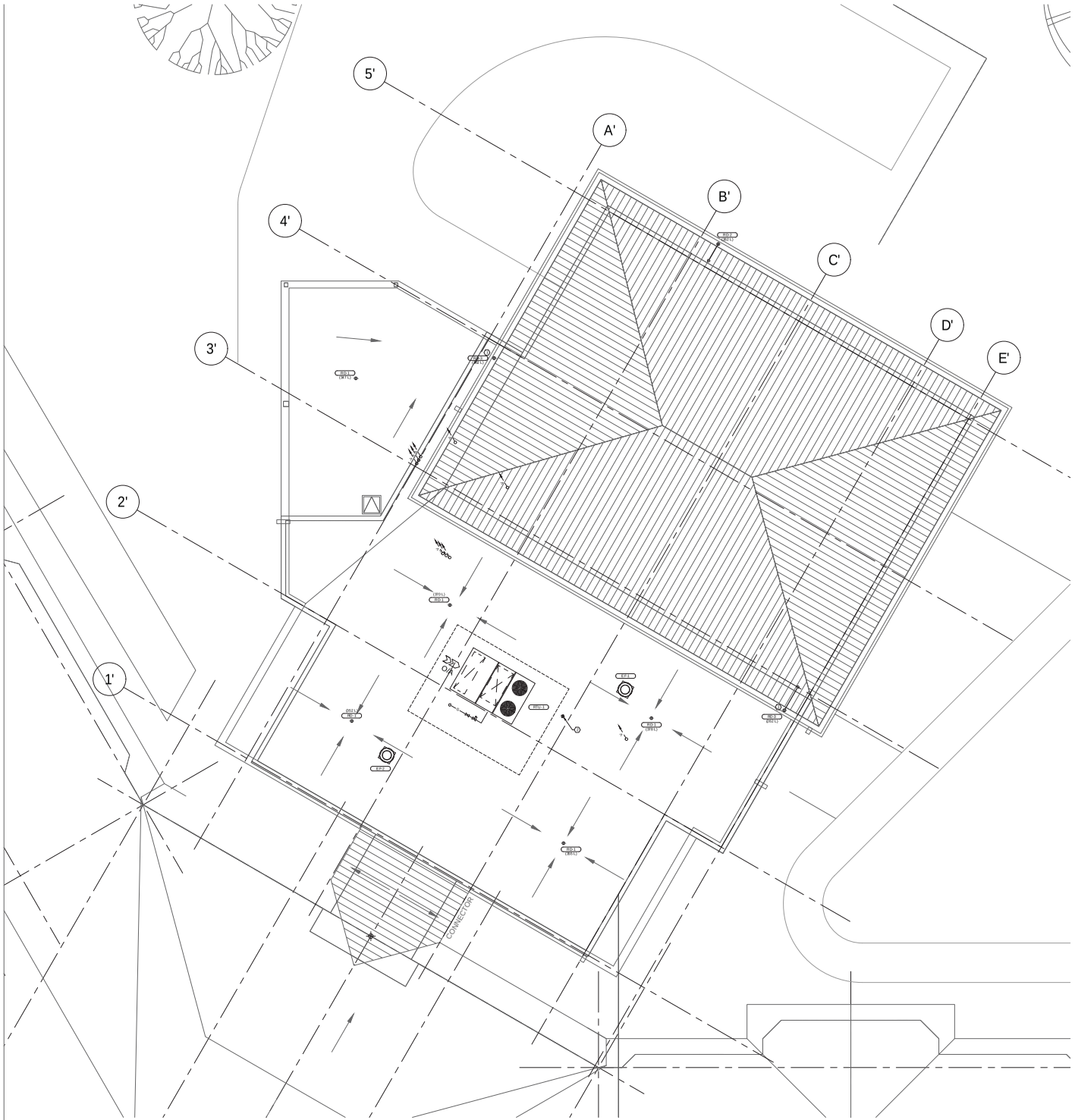
PLUMBING PLAN

Scale: AS NOTED
Drawn: TLO
Checked: JM
Project No.: 158B-004-17

Drawing No.:

M102

Revision No.: 4



1 M103 ROOF PLAN
SCALE: 1:50

KEY NOTES

1 1000 RWL DN

2 CONCENTRIC VENT KIT FROM DHWT-1 BELOW FOR COMBUSTION AIR AND FLUE VENT. REFER TO M401.

DGBK

	revision / issue	date
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4	ISSUED FOR CONSTRUCTION	06.27.2018

project

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title

ROOF PLAN

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drawn TLO
checked JM
project no. 158B-004-17
drawing no. M103
latest revision no.

1 FIRE PROTECTION PLAN
SCALE: 1:50

GENERAL NOTES

1. SPRINKLER HEAD LOCATIONS SHOWN FOR COORDINATION PURPOSES. CONTRACTOR IS RESPONSIBLE FOR PROVIDING HEADS TO MEET NFPA 13.
2. SPRINKLER SYSTEM FOR ALL AREAS TO BE A DESIGN BUILD BY SPRINKLER CONTRACTOR. SPRINKLER SYSTEM TO BE DESIGNED TO NFPA 13 2007 EDITION.
3. SPRINKLER CONTRACTOR TO BE RESPONSIBLE FOR PROVIDING THE HYDRAULIC CALCULATIONS AND SPRINKLER SHOP DRAWINGS AND PROVIDING THE LETTERS OF ASSURANCE FOR THE FIRE PROTECTION SYSTEM.
4. RUN SPRINKLERS IN CEILING SPACE. COORDINATE ROUTING WITH JOIST, LIGHTING, AND HVAC LOCATIONS.
5. PROJECT IS A WOOD FRAMED BUILDING WITH A COMBUSTIBLE CEILING SPACE. PROVIDE UP/DOWN HEADS TO SERVE BOTH OCCUPIED SPACES & COMBUSTIBLE CEILING SPACES.

KEYNOTES

1. SPRINKLER LINE FROM WATER ENTRY ROOM TO SERVE NEW WET SPRINKLER ZONE.
2. SPRINKLER LINE FROM WATER ENTRY ROOM TO SERVE NEW DRY SPRINKLER ZONE.
3. REMOVE EXISTING SIDEWALL SPRINKLER HEAD AND CAP OFF IN WALL. PATCH AND MAKE GOOD WALL.

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project

THE PINES
DINING HALL &
SERVERY ADDITION

BURNS LAKE, BC

Group

title

FIRE PROTECTION PLAN

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M201

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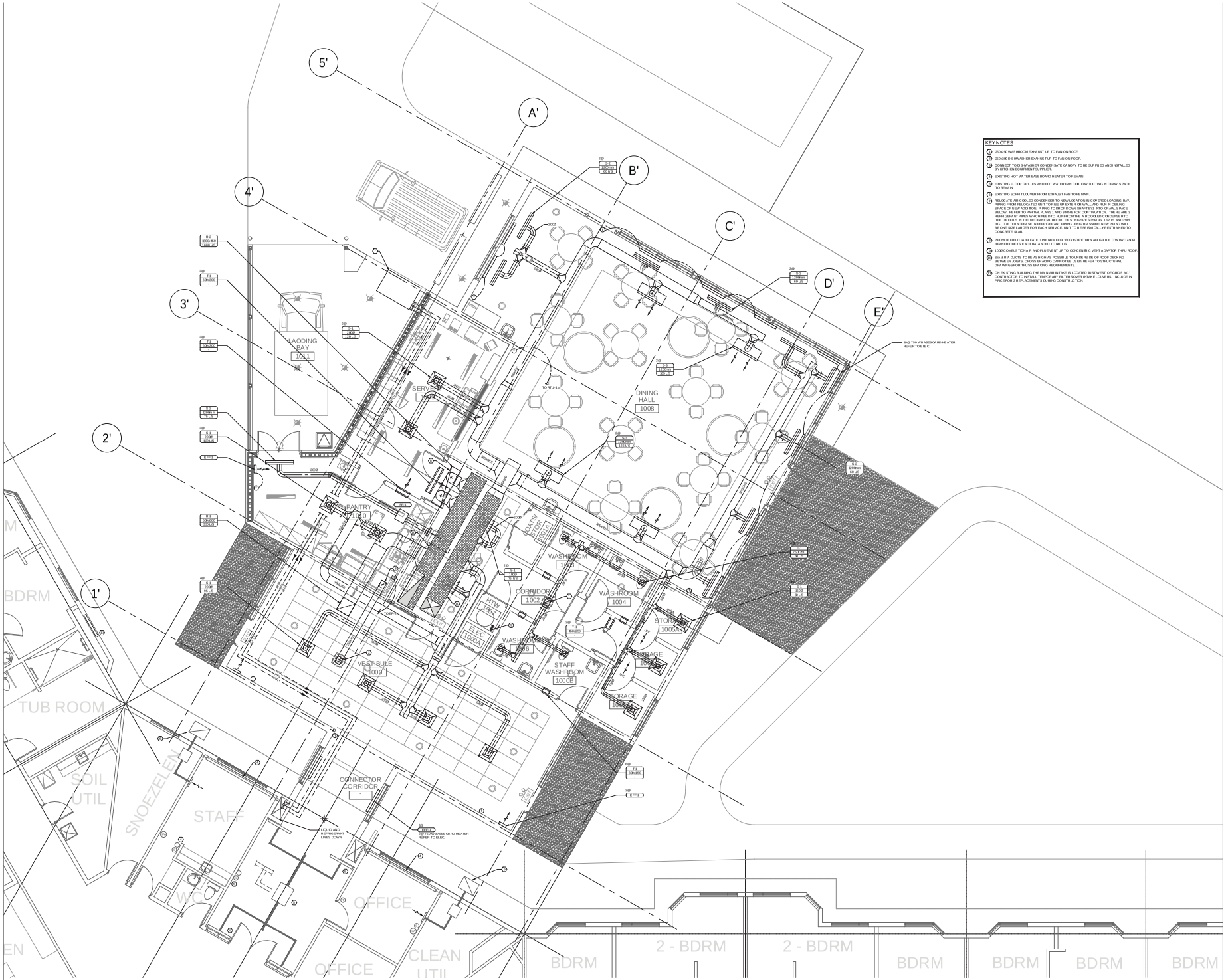

1 HVAC PLAN
SCALE: 1:50

DGBK

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1	ISSUED FOR DESIGN DEVELOPMENT	09.28.2017
2	ISSUED FOR TENDER	04.24.2018
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project
THE PINES
DINING HALL &
SERVERY ADDITION

BURNS LAKE, BC

Group

title
HVAC PLAN

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checked JM
seal
project no. 158B-004-17
drawing no. M401
latest revision no.

GENERAL NOTES

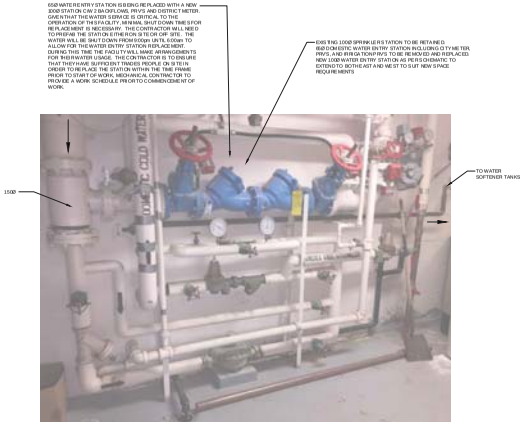
1. COORDINATE PIPE ROUTING WITH THE EXISTING SERVICES IN THE BASEMENT CRAWLSPACE AND THE MECHANICAL ROOM. REFER TO EXISTING DRAWINGS ON MSDS.

1 M501 EXISTING PLAN
SCALE 1:100

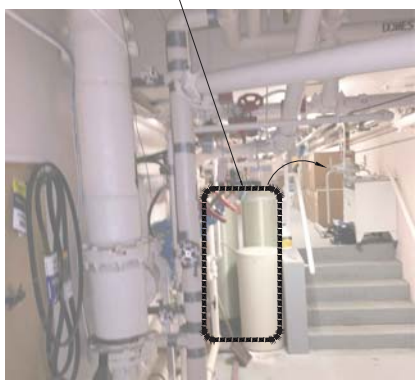
2 M501 SECTION 2
SCALE N.T.S.

3 M501 SECTION 3
SCALE N.T.S.

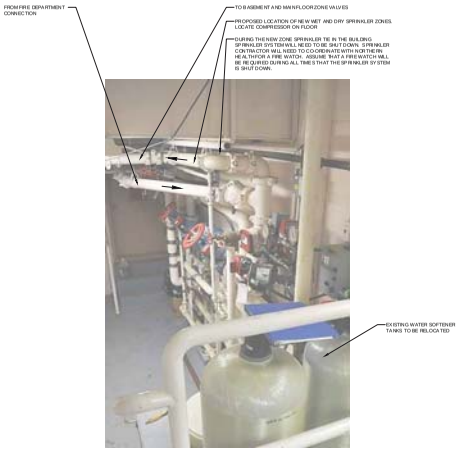
4 M501 SECTION 4
SCALE N.T.S.



5 M501 WATER ENTRY AND SPRINKLER STATION
SCALE: N.T.S.



6 M501 EXISTING WATER SOFTENER TANKS
SCALE N.T.S.



7 M501 NEW WET AND DRY SPRINKLER ZONES TIE-IN
SCALE N.T.S.

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	revision / issue	date
1	ISSUED FOR DESIGN DEVELOPMENT	09.28.2017
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project

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DINING HALL &
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title

PARTIAL PLANS

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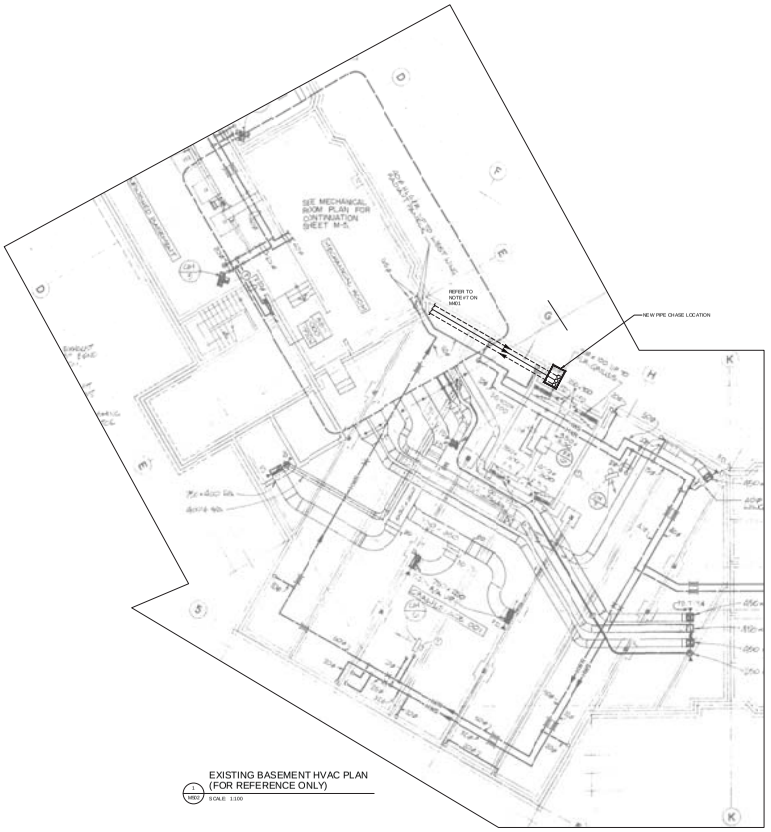
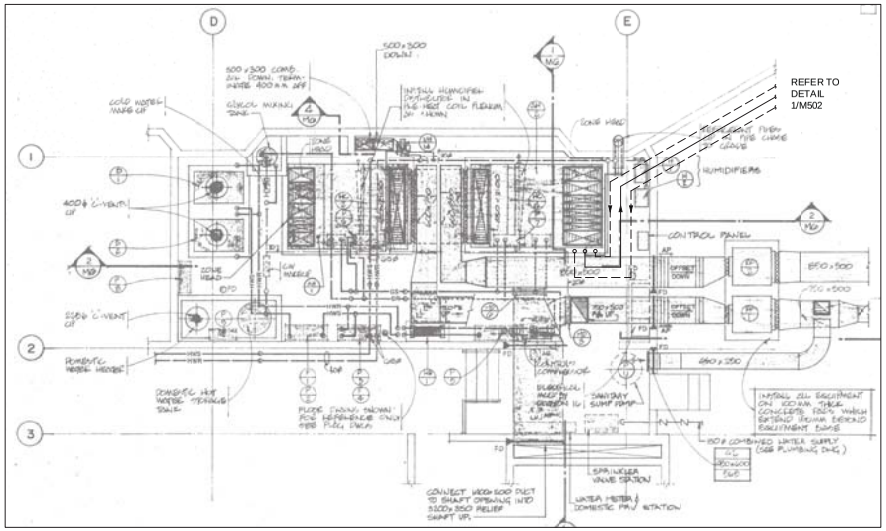


EXISTING BASEMENT HVAC PLAN
(FOR REFERENCE ONLY)
SCALE 1:100

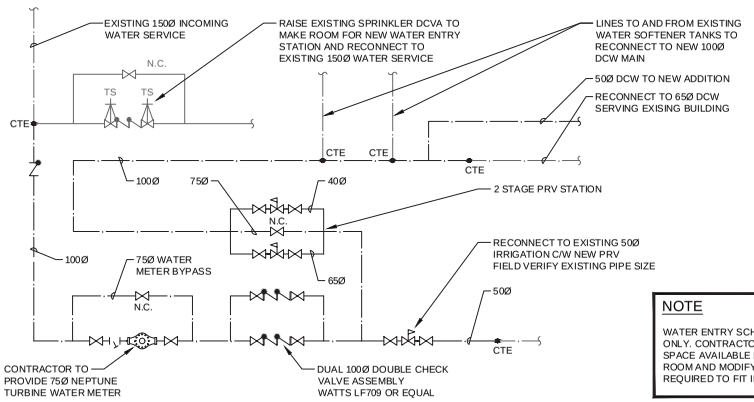
EXISTING BASEMENT PLUMBING PLAN
(FOR REFERENCE ONLY)
SCALE 1:100



EXISTING BASEMENT MECHANICAL ROOM PLAN
(FOR REFERENCE ONLY)
SCALE 1:50

NOTE

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH PIPE ROUTING AS SHOWN ON DRAWING M501. PIPING TO OFFSET AS REQUIRED TO AVOID EXISTING DUCTING, FANS AND PIPING. PIPING TO BE MOUNTED ON UNISTRUT ON SLAB IF POSSIBLE. IF NOT, PIPING TO BE SUPPORTED FROM MAIN FLOOR SLAB.



WATER ENTRY SCHEMATIC
SCALE N.T.S.

NOTE

WATER ENTRY SCHEMATIC IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD VERIFY SPACE AVAILABLE IN EXISTING WATER ENTRY ROOM AND MODIFY PIPE CONFIGURATION AS REQUIRED TO FIT IN AVAILABLE SPACE.

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project

THE PINES
DINING HALL &
SERVERY ADDITION

BURNS LAKE, BC

title

BASEMENT PARTIAL PLANS

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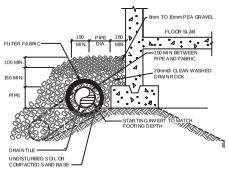
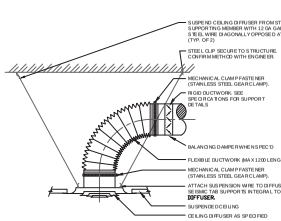


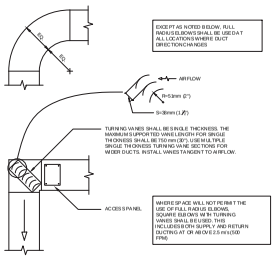
1 M601 NOT TO SCALE

PERIMETER DRAIN DETAIL



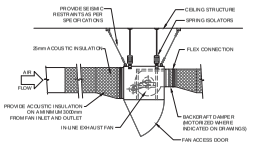
4 M601 NOT TO SCALE

SUPPLY AIR DIFFUSER



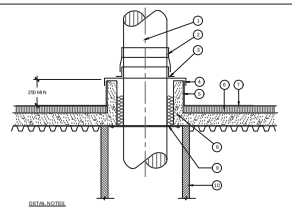
M601 NOT TO SCALE

DUCT ELBOW DETAILS



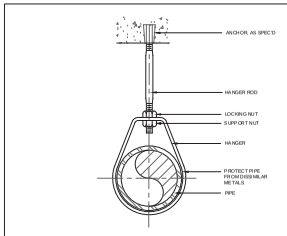
10 M601 NOT TO SCALE

EXHAUST FAN DETAIL



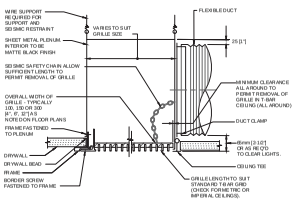
12 M601 NOT TO SCALE

DUCT PENETRATION THRU ROOF



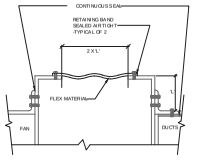
3 M601 NOT TO SCALE

NON-INSULATED PIPE HANGER



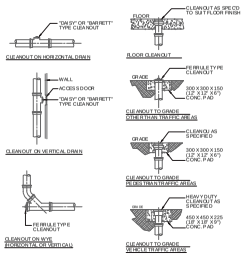
5 M601 NOT TO SCALE

RETURN / EXHAUST GRILLE WITH PLENUM



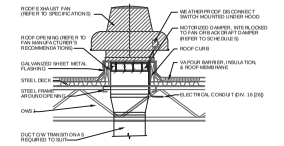
8 M601 NOT TO SCALE

FAN/DUCT FLEXIBLE CONNECTION



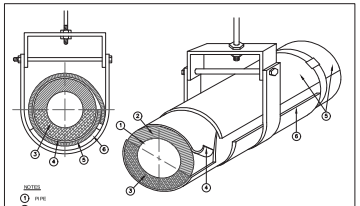
11 M601 NOT TO SCALE

CLEANOUT DETAILS



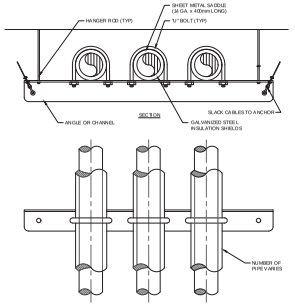
14 M601 NOT TO SCALE

ROOF MOUNTED EXHAUST FAN



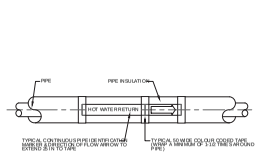
3 M601 NOT TO SCALE

INSULATED PIPE HANGER



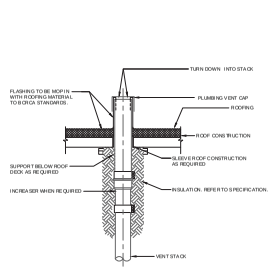
6 M601 NOT TO SCALE

TRAPEZE PIPE HANGER



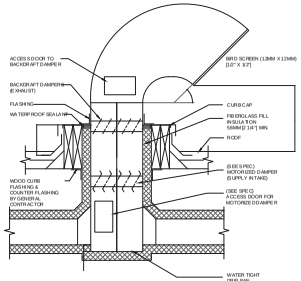
9 M601 NOT TO SCALE

PIPE IDENTIFICATION



12 M601 NOT TO SCALE

VENT PENETRATION



15 M601 NOT TO SCALE

GOOSENECK EXHAUST OR INTAKE

DGBK

no.	revision / issue	date
1	ISSUED FOR DESIGN DEVELOPMENT	09.28.2017
2	ISSUED FOR TENDER	04.24.2018
3	ISSUED FOR BUILDING PERMIT	04.25.2018
4	ISSUED FOR CONSTRUCTION	06.27.2018

project

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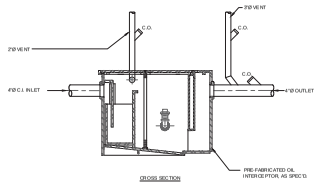
MECHANICAL DETAILS

scale	AS NOTED
date	JUN 27, 2018
drawn	TLO
checked	JM
project no.	158B-004-17
drawing no.	M601
latest revision no.	4

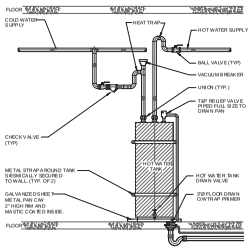
seal



NOTES:

1. ALL VENT PIPES FROM INTERCEPTOR SHALL RISE UP ON INSIDE OF BUILDING TO ROOF.
2. TRENCH DRAINS AND FLOOR DRAINS UPSTREAM OF INTERCEPTOR SHALL NOT BE TRAPPED.
3. ABS PIPING NOT ALLOWED UPSTREAM OF INTERCEPTOR
4. THE TWO 2"Ø VENT TERMINATIONS AT THE ROOF SHALL BE STAGGERED IN HEIGHT, ONE 12" ABOVE THE OTHER.

1 M602 OIL INTERCEPTOR DETAIL
NOT TO SCALE



2 M602 DOMESTIC HOT WATER TANK DETAIL
NOT TO SCALE

DGBK

	revision / issue	date
1	ISSUED FOR DESIGN DEVELOPMENT	09.28.2017
2	ISSUED FOR TENDER	04.24.2018
3	ISSUED FOR BUILDING PERMIT	04.25.2018
4	ISSUED FOR CONSTRUCTION	06.27.2018

project

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title

MECHANICAL DETAILS

scale AS NOTED
date JUN 27, 2018
drawn TLO
checked JM
project no. 158B-004-17
drawing no. M602
latest revision no.
seal

1. GENERAL

1.1 Intent

.1 The intent of this specification and the drawings is to provide a complete and fully operating mechanical system in complete accord with applicable codes. The Mechanical Contractor shall make provisions for labour, material, and equipment necessary to complete the mechanical work.

.2 Drawings and specifications are complementary to each other and what is called for in one is binding as if called for by both. Should any discrepancy appear between drawings and specifications which leaves doubt as to the true intent and meaning, obtain a ruling from the Consultant ten (10) days before submitting tender. Failing this, allow for most expensive alternative.

.3 Contract documents are diagrammatic only. They are to establish scope, material and quality. They are not detailed installation drawings. Minor details usually not shown or specified and any incidental accessories required for proper installation of the system are to be included in the work.

.4 Contractor is to ensure that all intended equipment will fit within given spaces. Make reference to the electrical, mechanical, architectural and structural drawings, when setting out work and before ordering equipment.

.5 The Contractor shall visit the site prior to tender and verify existing conditions. New piping, ductwork and insulation standards shall at least match the existing installation or be higher if specified herein.

.6 Consultant is defined as the AME Representative administering the project.

1.2 Code Compliance

.1 All work shall conform to current edition of National, Provincial and Municipal Codes, Standards and Acts; and will meet the requirements of Authorities having jurisdiction.

1.3 Liability

.1 Assume responsibility for layout of work; and for any damage caused to the Owner or other Tenants by improper execution of work.

.2 Protect finished and unfinished work from damage.

.3 Take responsibility for condition of materials and equipment supplied and protect until work is completed and accepted. Coordinate deliveries with the general contractor.

1.4 Certificates

.1 Give notices, obtain permits and approvals, and pay fees so work specified may be carried out. Furnish certificates if requested, as evidence that work conforms with laws and regulations of the authorities having jurisdiction.

1.5 Cutting And Patching

.1 All work shall be co-ordinated with other trades especially that related to cutting and patching of required openings; and locations and installation of sleeves, inserts, support, curbs, frames and access doors.

.2 Obtain approval from structural and electrical engineers before drilling and coring of existing structure.

.3 Provide X-ray of all required penetrations of the floor. X-ray use for locating in floor rebar and conduit to be done after normal working hours. Take necessary precautions to protect computer equipment when X-raying floors. Coordinate with Owner.

1.6 Compliance with Energy By-Law

.1 All equipment installed on this project shall comply with the 1992 performance recommendations of ASHRAE Standard 90.1 (2010).

1.7 Alternative Materials And Equipment

.1 Contract price shall be based on materials and equipment specified. Approval by Consultant of equipment submitted by the mechanical trade as equal to that specified does not relieve the mechanical trade of any responsibility.

.2 Revisions required to adapt accepted equals and alternatives shall be included in the contract price. No increase in the contract price will be considered to accommodate the use of equipment other than that specified.

.3 Certain items of equipment and items of work (such as balancing, water treatment) may not have an approved equal due to the need to have a consistent type or source of maintenance. Refer to specific clauses in this specification.

.4 Acceptable Equipment List:

Equipment	Manufacturer
Acoustical and Thermal Insulation	Fiberglas, Certain Teed, Knauf, Manson
Air Outlets	E.H. Price, Titus, Tuttle & Bailey, Nailor Industries
Architectural Access Doors	Maxam, Acudor
Autoflow Balancing Valves	Tour and Anderson
Backflow Preventers	Watts, Wilkins, Conbraco
Cabinet and Unit Heaters	Trane, Rosemax, Sterling, Engineered Air, Sigma
Circuit Balancing Valves	Armstrong, Bell & Gossett, Tour and Anderson, Preso
Domestic Hot Water Tanks (Gas Fired)	Rheem Ruud, AO Smith, State, PVI
Duct Access Panels	E.H. Price, Titus, Nailor Industries
Exhaust Fans (Centrifugal, Spun Aluminum)	Acme, Penn-Domex, Greenheck, Loren Cook, Carnes, Jenn-Air
Fire/Smoke Dampers	Controlled Air (NCA), Nailor Industries, Ruskin, Maxam
Fixture Carriers	Ancon, Zurn, Enpoco, Mifab
Flexible Ductwork	Flexaust, Flexmaster, Thermaflex, Wiremold
Floor Drains	Ancon, Zurn, Enpoco, Jay R. Smith, Mifab, Menzies
Flush Valves (Diaphragm Type)	Sloan, Zurn, Crane, Chicago, Delta
Force Flows (Hot Water)	Trane, McQuay, EngAir, Rosemex
Grooved Couplings/Valves/Fittings	Victaulic, Gruvlok
Line Strainers (HVAC / Plumbing)	Armstrong, Red & White/Toyo, Victaulic, Kitz
Louvers	Airolite, Alumavent, Nailor Industries, Ruskin
Plumbing Brass	Delta, American Standard, Crane, Chicago
Plumbing Fixtures	American Standard, Crane, Kohler, Mansfield, Eljer
Radiation Valves	Crane, Red & White/Toyo, Kitz
Relief Valves (HVAC / Plumbing)	Watts, Farris, Singer, Lonergan
Rooftop Units (Gas Fired, Electric Cooled)	Trane, York (Johnson), McQuay, EngAir
Stainless Steel Sinks	Kindred Industries, American Standard, Aristoline, AMI, Elkay
Strainers (HVAC / Plumbing)	Kitz, Red & White/Toyo, Mueller Locxend, Sarco
Terminal Variable Air Volume Units	E.H. Price, Titus
Thermostatic Mixing Valves	Symmons, Lawler, Leonard
Vacuum Breakers	Watts, Febco
Valves (HVAC / Plumbing)	Kitz, Red & White/Toyo, Apollo, Mueller Locxend, Crane/Jenkins, Victaulic
Water Hammer Arrestors	Sioux Chief, Zurn, Watts

1.8 Shop Drawings

.1 Submit electronic shop drawings to Consultant for all equipment specified in the specification or drawings for review. Do not order equipment or materials until Consultant has reviewed shop drawings.

1.9 Guarantee

.1 Provide the Owner with a written guarantee that the equipment installed and work performed shall remain in serviceable condition for a period of one (1) year from the date of final acceptance by the Owner. The warranty shall cover material as well as labour.

1.10 Standard Of Materials And Workmanship

.1 Make and quality of materials used are subject to approval by the Consultant. Remove unacceptable materials and install suitable materials in their place.

.2 Materials shall be new and of uniform pattern throughout, unless noted otherwise.

.3 Employ only tradesmen properly licensed to perform the specific work. The Consultant may perform spot checks for trade tickets and accreditation.

1.11 Owner's Stock

.1 Where equipment is removed and not re-used it shall be handed over to the Owner, or disposed of if directed by the Owner. Contractor to include all costs for disposal of all materials to be demolished and removed as indicated in these documents.

1.12 Record Drawings

.1 Keep on site an extra set of white prints and specifications, recording changes and deviations daily. These drawings shall be made available on a weekly basis for review by the Consultant.

.2 Upon completion of work, submit final record drawings to the Consultant. These must be submitted within two (2) weeks after acceptance of work. Failure to submit drawings will result in the work being done by the Owner and the cost deducted from the final payment.

.3 The cost of transferring as-builts onto reproducible media and AutoCAD files are this contractor's responsibility.

.4 If the contractor chooses to retain this consultant to produce as-builts, allow $400/sheet to cover costs of drafting and printing as-builts.

1.13 Substantial Completion Inspection

.1 Advise Consultant five (5) days prior to the date inspection is desired. All systems to be fully operational and any deficiencies should be noted to the Consultant.

.2 All deficiencies shall be completed within two (2) weeks after substantial completion and letter submitted to Consultant within that time advising that the work is complete. Failure to complete work will result in work being done by the Owner and the costs deducted from final payment.

.3 The following shall be an outline checklist of the minimum requirements to be met by the contractor prior to the Consultants' Substantial Performance by the contractor.

Inspection:

- ☐ Complete Balancing Reports
- ☐ Complete Commissioning Checklists
- ☐ Final Plumbing Inspection Certificate from local plumbing inspector
- ☐ Final Gas Inspection Certificate from local gas inspector
- ☐ Final Sprinkler Materials and Test Certificates
- ☐ Final Backflow Prevention test reports for all backflow devices
- ☐ Controls Commissioning, Checklist
- ☐ Fire alarm test certificate (via DIV.16)
- ☐ Fire stopping and Fire Damper test letter
- ☐ Seismic Engineers inspection of all Seismic restraints and schedules SB & SC
- ☐ Pressure Test Reports for all piping systems
- ☐ Sprinkler Contractors Engineer of record inspection and Schedule B & C letters of assurance
- ☐ Potable water main's flushing and chlorination test certificate
- ☐ Major equipment - suppliers start-up test sheets and letters certifying start up. (boilers, chillers, packaged equipment)
- ☐ Final As-Built Drawings ready for review
- ☐ Maintenance and operation manuals, ready for review

1.14 Examination of Work

.1 This project involves renovations to existing building, therefore, examine the site and local conditions to determine the difficulties in carrying out the work indicated and specified prior to submitting final price. Extras will not be considered based on the grounds of differences on site.

1.15 Coordination With Electrical Division

.1 Contractor shall review all equipment requiring electrical hook-up with Electrical Contractor and electrical drawings prior to ordering equipment. Ensure proper electrical characteristics are determined for all affected and related work. This is part of the contractors shop drawing review and no extras will be considered for Div. 16/16 power mismatches.

1.16 Coordination of Services

.1 Coordinate with proper utilities for services such as water, sewer, natural gas, and assume all charges.

.2 Coordinate with the owner to shutdown, disconnect, reroute, or make connection to existing services. Provide written 24 hour notice for all service shutdowns.

1.17 Performance Tests

.1 Operate each mechanical system after mechanical and electrical work has been completed, to demonstrate that each system fulfills the requirements of the contract and operates satisfactorily. These are performance tests and must be completed before work can be finally accepted. Coordinate with packaged equipment suppliers and the commissioning agent.

1.18 Operation and Maintenance Manuals

.1 Provide four (4) copies of manuals prepared by qualified and experienced personnel for use by Owner. Manuals form part of the contract and must be delivered to the Consultant before work will be considered complete. Each manual shall provide the following:

.1 Layman's description of all mechanical systems including operating maintenance and lubrication instructions,
.2 Certification of all equipment where required by local codes and authorities,
.3 Shop drawings and maintenance bulletins,
.4 List address and telephone numbers of all equipment suppliers and contractors.
.5 Performance details for all equipment including curves for fans and pumps with actual operating points noted.

.2 Provide this maintenance manual in electronic format documents, scanned drawings, AutoCAD files, Microsoft powerpoint…etc.

1.19 Balancing

.1 The approved balancing agencies are: Western Mechanical; K.D. Engineering.

.2 Balance terminal boxes, exhaust fans, and air outlets to air quantities indicated on the drawings and in this specification. Where outlet quantities are not indicated, divide box capacity equally among all outlets.

.3 Completely balance the hydronic system including pumps, terminal devices, boilers, heat exchangers, etc.

.4 Submit two (2) copies of the report to Engineer within two (2) weeks after substantial completion. Failure to submit the report within the specified time will result in the work being done by the Owner and the costs deducted from final payment.

.5 Balancing shall be performed to the following accuracies:

Air-Terminal Outlets	±10%
Air-Central Equipment	± 5%
Hydronic-Terminals	±10%

.6 Provide a drop test of all fire dampers and a letter/certificate attesting to this work.

1.20 Cooperate with the Balancing Agency as follows:

.1 Make any corrections as required by Balancing Agency.

.2 Allow Balancing Agency free access to site during construction phase. Inform Balancing Agency of any major changes made to systems during construction and provide a complete set of record drawings and specifications for their use.

.3 Operate automatic control system and verify set points during balancing.

.4 Provide and install balancing valves, dampers, and other materials requested by the Balancing Agency and/or necessary to properly adjust or correct the systems to design flows, without additional cost to Owner.

.5 Provide and install pulleys and sheaves for rotating equipment, as required to properly balance the systems to design flows, without additional cost to Owner.

.6 Allow in the contract price shaving of impellers as required to balance the pumps to design flow at operating condition.

1.21 System Cleaning

.1 Flush and disinfect all domestic cold, and hot water systems, provide a certificate for this work.

1.22 Painting and Identification

.1 Paint all exposed ducts and pipes with colours to match interior finishes or in colours as directed by the Architect.

.2 Identify piping with labels and flow arrows. Provide identification at 50 ft. 15 m maximum intervals, before and after pipes passing through walls, at all sides of tees, behind access doors. Use Brady B-500 vinyl cloth labels for non insulated pipes and B-350 for insulated pipes.

.3 Provide 3/4" 20 mm diameter brass tags, secure to valve stems with key chain. Provide typed valve directories at all mechanical rooms in addition to computer copy as integrated into controls.

.4 Identify electric starting switches, thermostats controlling motors and equipment supplied under this division with lamacoid plates having 1/4" 6 mm minimum letter size.

1.23 Fire-Stopping

.1 Fire-stop all pipe penetrations through floors and walls, designated as fire and/or smoke separations.

.2 Fire-stopping materials to meet ULC CAN 2S115. Acceptable Materials: by "Tremco" or "Hilti".

.3 Preparation of surfaces and installation of fire-stopping materials shall be carried out as per manufacturer's instructions.

.4 Provide fire stop shop drawings.

1.24 Flashing and Roof Curbs

.1 Provide curbs, flash and counter flash where mechanical equipment passes through weather or waterproofed walls, floors and roofs. Install roof mounted equipment on factory supplied roof curbs.

1.25 Seismic Control

.1 Provide seismic restraint on all piping, ductwork and equipment to satisfy all codes and authorities having jurisdiction.

.2 Submit shop drawings of all seismic restraint details prepared and sealed by a professional engineer. Prior to substantial completion, this professional engineer for seismic design shall visit the site to verify seismic restraint installation and provide a letter of conformance in accordance with the applicable Building Code.

.3 Piping ductwork and equipment shall be restrained in accordance with the latest edition of the Seismic Restraints Manual for Mechanical Systems produced by SMACNA, and the latest edition of the ASHRAE Application Handbook Chapter 49, Seismic Restraints.

.4 The contractor shall obtain approval for the location of all restraint fixing points from the structural engineer, on site, prior to installation.

.5 Where equipment is mounted on spring or R.I.S. mounts for vibration isolation it shall be the responsibility of the manufacturer of the mount to incorporate seismic restraint. These restraints shall be multi-directional as described in the guidelines specified above. Provide steel frame bases where necessary to achieve this and also avoid overturning. The manufacturer shall supply certificates, signed by a Professional Engineer registered within the jurisdiction, verifying the design of the seismic restraints in accordance with this section.

.6 Where equipment is located without vibration isolation fittings all such equipment shall be rigidly fixed with holding down bolts of sufficient strength to restrain seismic action. Holding down bolts shall be packed within slots to prevent movement prior to restraint commencing. Bolts shall be of sufficient strength to withstand overturning of the equipment during seismic disturbance.

1.26 Metric Conversion

.1 All units in this division are expressed in SI units. Soft metric conversions are used throughout.

.2 Equivalent Nominal Diameters of Pipes - Metric and Imperial.

.1 Where pipes are specified with metric dimensions and only Imperial sized pipes are available, provide equivalent nominal Imperial sized pipe as indicated in the table, and provide at no extra cost adapters to ensure compatible connections to all metric sized fittings, equipment and piping.

.2 When CSA approved SI Metric pipes are available and are provided, the contractor shall provide at no extra cost adapters to ensure compatible connections between the SI Metric pipes and all new and existing pipes, fittings and equipment.

EQUIVALENT NOMINAL DIAMETERS OF PIPE

mm	Inch	mm	Inch	mm	Inch
3	1/8	50	2	300	12
6	1/4	65	2½	375	15
10	3/8	75	3	450	18
15	1/2	100	4	500	20
20	3/4	125	5	600	24
25	1	150	6	750	30
30	1¼	200	8		
40	1½	250	10		

.3 Metric Duct Sizes

.1 The metric duct sizes are expressed as 25 mm = 1 inch.

2. DUCTWORK AND ACCESSORIES

2.1 General

.1 Fabricate ductwork in accordance with SMACNA Duct Manual and ASHRAE Handbooks. Ductwork shall meet the requirements of NFPA 90A and 90B and conform to applicable codes. Kitchen exhaust ductwork shall conform to NFPA 96.

.2 Prior to fabrication of ductwork, check all ceiling spaces and heights and conflicts with other trades.

.3 Duct sizes indicated are inside clear dimensions. For acoustically lined or internally insulated ducts maintains size inside ducts.

.4 Provide fire dampers where ducts cross fire separations. Fire dampers shall be ULC listed and constructed in accordance with ULC Standard S112 "Fire Dampers". Fusible links shall be constructed to ULC Standard S505.

.5 Provide balancing dampers where indicated on drawings and at points on low pressure supply, return and exhaust ducts where branches are taken from larger ducts.

.6 Provide adequately sized access panels for dampers, equipment, fire dampers, valves, radiation valves, and any other equipment requiring servicing.

.7 Provide return air openings and/or insulated sound traps where indicated.

.8 Provide acoustical seal around ducts and sound traps at penetration through sound baffles.

.9 Modify ceiling system where required to accommodate grilles and diffusers.

.10 Size round ducts, installed in place of rectangular ducts, from ASHRAE table of equivalent rectangular and round ducts. No variation of duct configuration or sizes permitted except by permission from Engineer.

.11 Exposed round ductwork to be spiral lock seam type only.

.12 Provide duct hangers and supports in accordance with SMACNA manuals.

.13 Identify ductwork as per the base building standards. Confirm these prior to submitting tender.

2.2 Low Velocity Ductwork

.1 Ductwork shall be galvanized steel. The minimum sheet metal thickness for ducts including fittings, access doors, and other accessories shall be as per SMACNA duct manual for Low Velocity Ductwork.

.2 Low velocity insulated flexible ductwork shall be equal to Thermaflex Type M-KC.

.3 Connect diffusers or troffer boots to low pressure ducts with 36" 900 mm maximum length of stretched flexible duct. Hold in place with caulking compound and strap or clamp. Do not use flexible duct to change directions.

.4 Where low pressure ducts are connected to fan equipment, terminal boxes or any other apparatus, a screwed or bolted flexible gasketed joint shall be provided between the ductwork and the equipment, minimum 2" (50mm) wide.

.5 Snaplock ductwork is not permitted. If round ductwork is used, it must be spiral with equivalent free area as specified rectangular ducts.

2.3 Dishwasher Exhaust Ducts

.1 Dishwasher Exhaust: Minimum 18 gauge 1.22 mm stainless steel, welded at seams and joints.

.2 Protect ductwork exposed to outside elements by painting or coating with suitable weather resistant material or by aluminum cladding.

.3 Slope dishwasher exhaust back to hood.

2.4 Duct Sealing

.1 All supply, return and exhaust duct joints, longitudinal as well as transverse, shall be sealed using.

.1 Low Pressure Ductwork:

Slip Joints: Apply heavy brush-on high pressure duct sealant. Apply second application after the first application has completely dried out. Where metal clearance exceeds 1/16" 1.5 mm use heavy mastic type sealant.

Flanged Joints: Soft elastomer butyl or extruded form of sealant between flanges followed by an application of heavy brush-on high pressure duct sealant.

Other Joints: Heavy mastic type sealant.

.2 Duct tapes as sealing method are not permitted, except on residential ductwork - minimum 2 wraps of 2" wide (50mm) duct tape is acceptable.

.3 Surfaces to receive sealant should be free from oil, dust, dirt, moisture, rust and other substances that inhibit or prevent bonding.

.4 Do not insulate any section of the ductwork until it has been inspected and approved of duct sealant application, by the Consultant.

3. PIPING

3.1 Pipe Material

.1 Service: Sanitary and Storm Drainage, and Vent (above grade).
Material: DWV Copper; Cast Iron.

.2 Service: Sanitary and Storm Drainage and Vent (below grade inside building).
Material: Cast Iron; PVC-DWV.

.3 Service: Sanitary and Storm Drain (outside service).
Material: Cast Iron; PVC SDR-35 to 12" 300 mm; Concrete over 12" 300 mm.

.4 Service: Domestic Water (above grade inside building).
Material: Type "K" Hard Copper for Hot and Cold Piping; Cast Steel for cold water main size 4" 100 mm and larger. No steel piping permitted for Domestic Hot Water.

.5 Service: Domestic Water (buried, inside building).
Material: Type "K" Soft Copper.

.6 Service: Domestic Water Service (below ground, outside building).
Material: Type "K" Soft Copper; PVC class 150.

.7 Service: Hot Water Heating; Glycol Heating; Chilled Water.
Material: Steel Schedule 40, A53 Grade B; Type "L" Hard Copper; Type "K" Soft Copper buried.

.8 Service: Natural Gas; Propane.
Material: Steel Schedule 40, A53 Grade B.

.9 Service: Refrigerant.
Material: ACR Copper.

.10 Service: Equipment drains and overflows.
Material: Steel Schedule 40, Galvanized, A120.

.11 Service: Fire Protection.
Material: Per latest edition NFPA 13 for Sprinkler Systems; per latest edition NFPA 14 for Standpipe Systems.

.12 Service: Footing Drains.
Material: SDR 35.

3.2 Pipe Connections

.1 Screwed joint steel piping up to and including 1½" 40 mm. Weld piping 2½" 65 mm and larger including branch connections. Screw 2" 50 mm piping for liquid systems, weld 2" 50 mm piping for air or gas systems. Use dielectric type couplings when joining dissimilar metal pipes.

.2 Use lead free solder for soldering domestic water copper pipe.

3.3 Pipe Hangers And Supports

.1 All piping shall be firmly supported and securely braced. Provide copper plated hangers and supports for copper piping and galvanized hangers and supports for galvanized piping.

.2 Use of perforated straps is not permitted for pipe hangers.

.3 Provide ring type hangers for piping up to 1½" 40 mm and clevis type hangers for piping over 1½" 40 mm.

3.4 Pipe Support Spacing

Pipe Size (in.)	Pipe Size (mm)	Rod Diameter (in.)	Rod Diameter (mm)	Spacing (ft.)	Spacing (m)
1/2	15	3/8	9	6	1.8
3/4 to 1½	20-40	3/8	9	8	2.4
2 to 2½	50-65	3/8	9	10	3.0
3 to 4	75-100	5/8	16	12	3.6
6 to 12	150-300	7/8	22	14	4.3

3.5 Expansion Compensation

.1 Provide expansion compensators, guide and anchors where required and where indicated.

3.6 Gas Distribution Piping

.1 Install gas piping in open or ventilated spaces. Pitch lines and provide drip legs at condensation collection points. Where gas piping is run in concealed space provide ventilation grilles, as required.

3.7 Testing

.1 Heating Water Piping	- 125psi for 8 hours.
.2 Domestic Water Piping	- 125psi for 8 hours.
.3 Storm & Sanitary Piping	- Hydraulic Test of 3 meters for 8 hours.
.4 Refrigerant Piping	- Per CSA B52
.5 Gas Piping	- Per CSA B149.1 (50psi for 3 hours for piping between 2psi & 33psi)

4. VALVES

4.1 Hot Water Heating Valves

.1 Ball valves up to 2" 50 mm. Bronze body, bronze ball, threaded ends, twin-seal EPDM seats and seal, "O ring", lever handle, rating 300 psi 2070 kPa at 250°F 121°C water. Toyo/Red & White 5044A or equal.

.2 Gate valves up to 2" 50 mm shall be bronze, solid wedge, rising spindle, 200 psi 1378 kPa W.O.G., threaded ends, Jenkins Fig. 810. Solder ends, Jenkins Fig. 813. Valves 2½" 65 mm and up shall be iron body bronze mounted, outside screw and yoke, solid wedge design, with flanged ends, 150 psi 1033 kPa, W.O.G. Toyo/Red & White 421A or equal.

.3 Globe valves up to 2" 50 mm shall be bronze composition disc type, 150 psi 1033 kPa steam, threaded ends toyo/Red & White 221, solder ends Toyo/Red & White 212. Valves 2½" 65 mm and up shall be iron body, bonze mounted outside screw and yoke, renewable composition disc type 200 psi 1378 kPa W.O.GToyo/Red & White 400A.

.4 Check valves up to 2" 50 mm shall be bronze swing check with bronze disc capable of being reground, 250 psi 1722 kPa W.O.G., threaded ends, Toyo/Red & White 236. Solder ends, Toyo/Red & White 237. Valves 2½" 65 mm and up shall be iron body bronze mounted swing checks with flanged ends 150 psi 1033 kPa W.O.G., Toyo/Red & White 435A.

4.2 Domestic Hot And Cold Water System Valves

.1 Ball valves up to 2" 50 mm; bronze body, chrome plated, bronze ball, threaded or solder ends, TFE seat and packing. 600 psi 4134 kPa non shock W.O.G. rating, Toyo/Red & White 5044A/5049A.

.2 Gate valves up to 2" 50 mm shall be bonze, solid wedge, rising spindle, 200 psi 1378 kPa W.O.G., threaded endsToyo/Red & White 293. Solder ends Fig. 299.

.3 Globe valves up to 2" 50 mm shall be bronze compositon disc type fitted with No. 294-S disc for cold water; and No. 110 disc for hot water service. toyo/Red & White 221 for threaded ends; and Fig. 212 for solder ends.

.4 Inside hose bibbs shall be bronze body, globe valve, renewable disc, garden hose outlet, 300 psi 2070 kPa rating.

.5 Outside hose bibb shall be non-freeze type with bronze recessed box and polished bronze cover, hose thread spout vacuum breaker, removable key. ROTO-TECH-SMITH-RS-5500VB.

5. HOT WATER SPECIALITIES

5.1 Manual Air Vents

.1 Provide manual air vents from short vertical section of line diameter pipe to form air chamber. Provide 1/8" 3 mm brass needle valve at top of chamber.

5.2 Air Separators

.1 Provide centrifugal type 125 psi 861 kPa WSP steel tank, galvanized steel 1/5" 5 mm perforated strainer, perforated stainless steel air collector tube and drain connection.

5.3 Relief Valves

.1 Provide ASME rated direct spring loaded type, lever operated non-adjustable factory set, discharge pressure as indicated.

System Relief Pressure: psi kPa

5.4 Radiator Valves

.1 Heavy pattern brass body valve, wheel handle, rising stem, inside screw, renewable composition swivel, straight or angle globe, threaded or union ends, positive back seating. Dahl Series 11040.

5.5 Memory Radiator Balancing Valve

.1 Removable cap-key, screw set memory bonnet for balancing, brass body, rising stem, inside screw, renewable composition swivel disc, straight or angle globe, threaded or union ends, positive back seating. Dahl Series 13000-M.

5.6 Pressure Reducing Valves

.1 3/4" 20 mm pressure reducing valve complete with low inlet pressure check valve, removable strainer. Brass body and adjustable pressure of 27 psi to 66 psi 175 kPa to 415 kPa. Bell & Gossett.

System Operating Pressure: psi kPa

6. INSULATION

6.1 Duct And Breeching Insulation

.1 Exposed Rectangular Ducts: Rigid fibrous glass insulation, 'K' value at 75°F (24°C) maximum 0.24 Btu.in/ft²hr°F (0.035 W/m°C) with factory applied reinforced aluminum foil vapour barrier.

.2 Round Ducts and Concealed Rectangular Ducts: Flexible fibrous glass insulation, 'K' value 75°F (24°C) maximum 0.24 Btu.in/ft²hr°F (0.035 W/m°C) with factory applied reinforced aluminum foil vapour barrier.

.3 Acoustic Lining: Fibrous insulation with 'K' value at 75°F (24°C) maximum 0.24 Btu.in/ft²hr°F (0.035 W/m°C) absolute roughness of exposed surface not to exceed 0.023 in (0.58 mm) coated to prevent fibre erosion at air velocities up to 5000 fpm (254 m/s), 1.5 lb/ft³ (24 kg/m³) minimum density for ductwork and 4.7 lbf/ft³ (75 kg/m³) for plenums.

.4 Breeching Insulation: Semi-rigid mineral fibre, insulation with glass mat, 'K' value 0.24 Btu.in/ft²hr°F (0.035 W/m°C) maximum at 75°F (24°C). Service temperature 150°F to 850°F (65°C to 450°C).

.5 Recovery Jackets: ULC labelled thermocanvas.

.6 Ensure surface and insulation is clean and dry prior to and during installation.

.7 Ensure insulation is continuous through inside partitions.

.8 Finish and seal insulation neatly at hangers, supports, access doors, fire dampers and other protrusions.

.9 Recover all insulation except in ceiling spaces, crawl spaces, and mechanical shafts.

.10 Insulation Installation Thickness Schedule

Duct & Equipment	Insulation Thickness (in)	(mm)
Outside Air Intake, Combustion Air, and Relief Duct	1 1/4	40
Exhaust Ducts within 10 ft 3000mm of Exterior Walls or Openings	1	25
Supply Ducts	1 1/2	40
Acoustic Lining (where indicated)	1	25
Breeching for Boilers, Domestic Hot Water Heaters, Gas Furnaces, Unit Heaters (atmospheric gas burners)	1	25

6.2 Piping Insulation

.1 All cold piping to be insulated with fine fibrous glass insulation with factory applied vapour barrier jacket, moulded to conform to piping, "K" value at 75°F24°C maximum 0.24 btu.in/ft² hr.°F0.035 w/m °C. Recover with ULC labelled thermocanvas.

.2 All hot piping to be insulated with fine fibrous glass insulation with factory applied general purpose jacket, moulded to conform to piping, "K" value at 75°F24°C maximum 0.24 btu.in/ft² hr°F0.035 w/m°C. Recover with ULC labelled thermocanvas.

Piping to be Insulated	Pipe Size	Insulation Thickness (in)	(mm)
Domestic Cold Water	All	1	25
Domestic Hot and Recirc	to 1 1/4" 30mm	1	25
	1 1/4" 30mm & Over	1½	40
Hot Water Heating (Do not insulate within radiation enclosures, except for mains)	All Sizes	1½	40
Refrigeration Suction & Liquid	All Sizes	1	25
Vents within 10 linear feet 3 linear metres and Roof Outlet	All Sizes	1	25
Condensate drains from indoor air conditioning and heat pump units	All Sizes	1	25

7. PLUMBING

7.1 Plumbing General

.1 Bury outside sewer and water piping below the frost line.

.2 Install vacuum breakers, water hammer arrestors, trap primers and backflow preventers on plumbing lines as required by code.

.3 Check invert elevations prior to sanitary and drainage connections.

.4 Grade drainage lines 2% per foot, unless noted otherwise.

.5 Provide heat trap loop in domestic hot water supply piping at the domestic hot water storage tank.

8. FIRE PROTECTION

8.1 Scope

.1 Provide a complete fire protection system as a design build format for the entire facility addition in conformance to the BC Building Code, NFPA and Building By-Laws. The plans and specifications indicate the minimum requirements for the project only and should not be consider as the complete scope.

.2 The design build contractor shall retain, on behalf of the Owner, a registered professional engineer in the Province of British Columbia for the complete design in accordance with all codes and standards. The Contractor's Engineer shall be the "Registered Professional of Record" for the fire suppression systems (Part 5 of the Letters of Assurance).

.3 The contractors engineer shall review all work on a minimum of a monthly basis and provide field review reports with 10 days of the review. Review reposts shall be made available to the Owner's consultant team and Certifying Professional (CP).

.4 The entire addition shall be fully sprinklered.

.5 Provide piping, sprinkler heads, alarm check valve, zone valves, excess pressure pump and all other devices and accessories required to provide a completely functional system.

.6 Tender documents do not contain complete sprinkler drawings. The sprinkler contractor shall prepare his own drawings. Where sprinkler head locations are shown, this is to indicate general intent only. It is the responsibility of the contractor to allow for in his bid and to install all heads required to satisfy the code. In laying out sprinkler system, the contractor shall review the contract documents and site conditions to ensure that piping systems do not conflict with other building elements. Any serious interferences shall be reported to the consultant prior to commencement of work.

.7 Sprinkler system shall be hydraulically designed by the sprinkler subtrade with shop drawings (sealed and signed by a professional engineer practicing in the Province of BC and assuming full responsibility for the installed system) submitted showing all piping and sprinkler head locations. The contractor shall submit detailed installation drawings and design calculations for approval to the authorities having jurisdiction and to the Consultant to review, prior to commencing work. No work shall commence prior to obtaining approved drawings from authorities having jurisdiction. The sprinkler contractor shall supply letters of assurance for the fire protection systems, and submit same to the Consultant as well as the local authorities.

.8 Contractor to confirm the flow and pressure available by conducting a hydrant flow test. Sprinkler system design to be based on the final flow test information.

.9 Provide dry sprinkler zones where indicated on drawings for remote access subject to freezing.

.10 Provide signed and sealed letters of assurance, as required by the authority having jurisdiction, taking responsibility for the seismic restraints.

8.2 Intent

.1 The fire suppression system information shown on the provided plans are for general scope of work and coordination during design. The system is a design-build contract as outlined here.

.2 Provide complete, fully tested and operational fire protection (wet & dry sprinklers, extinguishers, etc.) systems to meet the requirements described herein and in complete accord with applicable codes and ordinances.

.3 Contract documents and drawings of this Division are diagrammatic and approximately to scale unless detailed otherwise. They establish minimum scope, material and installation quality and are not detailed installation instructions.

.4 Should inconsistencies exist such as the drawings disagreeing within themselves, or with the specifications, the better quality and/or greater quantity of work or of materials shall be estimated upon, performed and furnished unless otherwise ordered by the Consultant in writing during the bidding period.

.5 Follow manufacturers' recommended installation details and procedures for equipment, supplemented by requirements of Contract Documents.

.6 Install equipment generally in locations and routes shown. Run piping close to building structure, parallel to building lines to maximize head room, and with minimum interference with other services and free space. Remove and replace improperly-installed equipment to satisfaction of the Consultant at no extra cost.

.7 Install equipment to provide access and ease of maintenance.

.8 Provide seismic restraints for all required equipment and piping.

.9 Furnish a written guarantee stating that all work executed in this contract will be free from defective workmanship and materials for a period of one (1) year from the date of Substantial Performance. The Contractor shall, at his own expense, repair and replace any work which fails or becomes defective during the term of the guarantee/warranty, providing such work is not due to improper usage. The period of guarantee specified shall not in any way supplant any other guarantees of a longer period but shall be binding on work not otherwise covered.

.10 If the equipment is used during construction, the guarantee or guarantee period shall not be shortened or altered.

.11 'Provide' shall mean; 'supply and install'.

8.3 General Requirements

.1 T.1Run piping concealed above furred ceilings and in joist to minimize obstructions. Expose only heads.

.2 Prior to preparing shop drawings, sprinkler contractor shall review contract drawings of all disciplines and site conditions to ensure the piping systems do not conflict with other building systems. Report any serious interferences to engineer prior to commencement of work.

.3 All inspections and tests required by the Authorities shall be arranged and paid for by the contractor.

9. CONTROLS - Reliable Controls

9.1 Acceptable Contractors

.1 All controls work is to be done by Reliable Controls installed by an Authorized Reliable Controls Contractor.

.1 Examination of Existing System: This project involves renovation to an existing control system. The contractor shall inspect the system prior to tender close and include in his bid all control components required to provide a fully operational system including replacement of existing defective components where noted in the project documents.

.2 The addition's HVAC system is to be controlled by the base building reliable Controls system. Provide new panels or expansion to existing panels to suit the new equipment in the addition. Provide graphics. Locate any new panels adjacent to existing panels.

.3 All sensors to match base building system

.4 Sequence of Operation

.1 EFF-1 Electric Force Flow: Heater comes with 24volt transformer. Heater to be energized based upon space temperature sensor input

.2 BBH-1 Electric Base Board Heater: Base board heaters come with 24volt transformer. Heaters to be energized based upon space temperature sensor input. Refer to drawings for number of heaters to be controlled by single thermostat/sensor.

.3 EF-1 Washroom Exhaust Fan: Provide start/stop and status for fan

.4 EF-2 Dishwasher Canopy Exhaust Fan: Local line voltage switch to control fan. All work by Electrical Contractor

.5 SF-1 Pressurization Fan: Provide start/stop and status for fan

.6 RTU-1 Constant Volume Gas Fired Electric Cooled Roof Top Unit

- Unit comes with a terminal strip for DDC system to control fan start/stop, 2 stages of cooling and 2 stages of heating.
- Disconnect existing economizer controls on unit and provide DDC control of existing actuators.
- Provide new Outdoor Air sensor to control economizer controls for free cooling.
- Provide CO2 sensor in space to control outdoor air volumes during nonfree cooling times. During heating season CO2 sensor to control outdoor air damper - damper to open to maximum 30%.
- Provide current sensor on each compressor for status input point.
- Provide current sensor on supply fan for status input point
- Provide dirty filter pressure sensor and input point.
- Provide supply air temperature sensor and input point.
- Provide space temperature sensor to provide input point.
- Provide unitary controller to new and existing points.
- Provide controls strategy to ensure perimeter electric baseboard heaters are not energized when RTU in cooling mode.
- At the end of the project provide end to end testing, controls commissioning report and a demonstration to the Owner.

9.2 Thermostats

.1 Relocate and reconnect existing thermostats as shown the drawings.

.2 Provide new thermostats where indicated of building standard type. Ensure operating characteristics are compatible with control components (ie direct/reverse acting).

.3 All thermostats to be wall or column mounted at normal mounting height unless specifically noted otherwise.

.4 All thermostats, existing and new, are to be calibrated prior to air balancing. Contact building owner if an existing thermostat needs replacing.

.5 Contractor to review with owner's maintenance staff thermostat connections to equipment and control air lines.

9.3 Control Components

.1 Control valves and dampers shall be equal to base building standard type unless noted otherwise.

10. SEPARATE PRICES

.1 Separate prices are an ADD to the base tender price.

.2 SP-M1 to relocate existing air cooled condenser from exterior location at grid O/B to covered loading bay. Seismically restrain unit to slab. Recover existing refrigerant and reuse once unit relocated. New liquid and suction lines to run from ACC to existing coil in basement mechanical room. Recharge lines and provide all required accessories.

END OF SECTION

DGBK

revision / issue	date
1 ISSUED FOR DESIGN DEVELOPMENT	09.28.2017
2 ISSUED FOR TENDER	04.24.2018
3 ISSUED FOR BUILDING PERMIT	04.25.2018
4 ISSUED FOR CONSTRUCTION	06.27.2018

project
THE PINES
DINING HALL &
SERVERY ADDITION

BURNS LAKE, BC

AME Group
consulting mechanical engineers

VICTORIA T. 250-382-5999 F. 250-382-5998 721 JOHNSON ST VICTORIA, BC V8W 1M8
VANCOUVER T. 604-684-5995 F. 604-684-5993 1100 - 808 W HASTINGS ST VANCOUVER, BC V6C 2X4
CALGARY T. 403-252-2333 F. 403-253-3324 710 - 1122 4TH STREET SW CALGARY, AB T2R 1M1

dgbk architects | design • planning • interiors

title
SPECIFICATIONS

scale AS NOTED
date JUN 27, 2018
drawn TLO
checked JLF
seal
project no. 158B-004-17
drawing no. M701
latest revision no.

THE PINES
DINING HALL & SERVERY ADDITION

LEGEND & SYMBOL SCHEDULE

LIGHTING

- SURFACE MOUNTED LUMINAIRE
- CEILING RECESSED LUMINAIRE
- CEILING SUSPENDED LINEAR LUMINAIRE
- WALL MOUNTED LINEAR LUMINAIRE
- SURFACE MOUNTED LUMINAIRE
- RECESSED DOWN LIGHT
- WALL MOUNTED DOWN LIGHT
- RECESSED STEP LIGHT
- PENDANT LUMINAIRE
- UNDER CABINET LED STRIP LIGHT
- UPLIGHT
- POLE LUMINAIRE
- TWIN HEAD POLE LUMINAIRE
- GRAPHICAL USER INTERFACE - LIGHTING CONTROL
- TIME CLOCK
- DIMMER SWITCH
- PHOTOCELL
- THREE WAY TOGGLE SWITCH
- SINGLE POLE TOGGLE SWITCH, GANGED AS SHOWN
- LOW VOLTAGE SWITCH, GANGED AS SHOWN
- DUAL TECHNOLOGY LOW VOLTAGE VACANCY SENSOR, CEILING
- DUAL TECHNOLOGY LOW VOLTAGE VACANCY SENSOR, WALL
- DUAL TECHNOLOGY LINE VOLTAGE VACANCY SENSOR, CEILING
- DUAL TECHNOLOGY LINE VOLTAGE VACANCY SENSOR, WALL
- DAYLIGHT SENSOR, CEILING MOUNTED
- LOW VOLTAGE LIGHTING ROOM CONTROLLER C/W RELAYS
- PLUG LOAD CONTROL AND RELAYS / RECEPTACLE SWITCHING
- SYMBOL DENOTES RECEPTACLE MH CH IS TO BE SWITCHED
- PICTOGRAM EXIT SIGN - ARROWS AS INDICATED
- PICTOGRAM EXIT SIGN - HEAVY LINE DENOTES LIT SIDE
- EMERGENCY BATTERY PACK
- DUAL REMOTE EMERGENCY HEADS, CEILING MOUNTED
- DUAL REMOTE EMERGENCY HEADS, WALL MOUNTED

POWER

- SINGLE RECEPTACLE
- DUPLEX RECEPTACLE
- FOUR PLEX RECEPTACLE
- 400 VE CO UNTER DUPLEX RECEPTACLE
- 400 VE CO UNTER FOUR PLEX RECEPTACLE
- 520 R DUPLEX RECEPTACLE (1 SLOT)
- 400 VE CO UNTER 3-20 R DUPLEX RECEPTACLE (T ISLOT)
- GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE
- 400 VE CO UNTER R CO DU PLEX RECEPTACLE
- FLOOR MOUNTED DUPLEX RECEPTACLE
- FLOOR MOUNTED FOUR PLEX RECEPTACLE
- CEILING MOUNTED DUPLEX RECEPTACLE
- CEILING MOUNTED FOUR PLEX RECEPTACLE
- SYSTEMS FURNITURE POWER WHIP CONNECTION
- SERVICE PAC POLE
- JUNCTION BOX
- MECHANICAL EQUIPMENT DIRECTCONNE TION
- KITCHEN EQUIPMENTCONNECTION
- VARIABLE SPEED SWITCH
- THERMOSTAT
- REVERSE ACTING THERMOSTAT
- BASEBOARD HEATER, WATTAGE AS NOTED ON PLANS
- FORCED FLOW HEATER
- MECHANICAL MOTOR CONNECTION
- DISCONNECT SWITCH
- MAGNETIC STARTER
- CONTACTOR
- MANUAL STARTER
- GROUND BUS
- PANEL BOARD
- CONDUIT RUN UP
- CONDUIT RUN DOWN
- PUSH BUTTON
- EMERGENCY PUSH BUTTON
- AUTOMATIC DOOR OPERATOR PUSH BUTTON

COMMUNICATION

- TELEPHONE OUTLET
- FLOOR MOUNTED TELEPHONE OUTLET
- CATV OUTLET
- FLOOR MOUNTED CATV OUTLET
- CEILING MOUNTED CATV OUTLET
- COMBINATION COAXIAL/RJ45 OUTLET
- COMBINATION TELEPHONE AND DATA OUTLET WALL
- QUANTITY OF PHONE / QUANTITY OF DATA (2/1) PHONE SHOWN
- COMBINATION TELEPHONE AND DATA OUTLET ABOVE COUNTER
- COMBINATION TELEPHONE AND DATA OUTLET CEILING
- COMBINATION TELEPHONE AND DATA OUTLET FLOOR
- WIREMOLD MOUNTED DATA/TEL
- WIREMOLD MOUNTED TEL OUTLET
- WIREMOLD MOUNTED TV OUTLET
- COMBINATION OUTLET
- WIRELESS ACCESS POINT
- HDMI OUTLET
- FLOOR MOUNTED HDMI OUTLET
- CEILING MOUNTED SPEAKER
- WALL MOUNTED SPEAKER
- PUBLIC ADDRESS HORN
- PROJECTOR
- SYSTEM FURNITURE COMMUNICATION WALL BOX
- BELL
- BUZZER
- HORN
- CLOCK OUTLET

FIRE ALARM

- MAGNETIC DOOR HOLD OPEN DEVICE
- SMOKE DETECTOR
- THERMAL DETECTOR
- FIRE ALARM PULL STATION
- FIRE ALARM GONG
- FIRE ALARM PANEL
- FIRE ALARM ANNUNCIATOR
- SPRINKLER FLOW SWITCH
- SPRINKLER VALVE SUPERVISORY

SECURITY

- PERIMETER DOOR ALARM
- SPECIAL PERIMETER DOOR ALARM
- CCTV
- DOOR CONTACT
- CARD READER
- ELECTRIC STRIKE
- KEY PAD
- REQUEST TO EXIT BAR SWITCH
- INTRUSION ALARM PANEL
- INTRUSION ALARM BEAM/PIR DETECTOR
- MAGNETIC LOCK
- OHD DELAY ALARM ALERT
- ELECTRIC HINGE
- STATUS INDICATOR
- PRESENCE SENSOR
- ELECTRIFIED LOCK/UNLOCK

NURSE CALL

- EMERGENCY STATION PULL CORD
- NURSE CALL PUSH BUTTON
- NURSE CALL INDICATOR DOME LIGHT

SINGLE LINE

- FEEDER CONDUCTOR
- BUSBAR/CPP
- MOULDED CIRCUIT BREAKER (VACUUM OR SF6)
- DRAW OUT BREAKER
- BREAKER
- KEY INTERLOCK SWITCH
- GANG OPERATED LOAD BREAK SWITCH
- MOTORIZED GANG OPERATED LOAD BREAK SWITCH
- GANG OPERATED FUSED DISCONNECT SWITCH
- FUSE
- RELAY
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- CABLE RETREAD
- LIGHTNING ARRESTER
- GROUND
- METERING TRANSFORMER
- SERVICE PROVIDER METER
- DIGITAL METERING UNIT
- OVERCURRENT/GROUND RELAY
- OVERCURRENT PHASE RELAY
- TRANSFORMER (DRY TYPE)
- DELTA - WYE TRANSFORMER
- GENERATOR
- TRANSFER SWITCH
- LONG, SHORT, INSTANTANEOUS, & GROUND TRIP UNIT
- REED THROUGH
- TIME DELAY
- LOW VOLTAGE LIGHTING RELAY CABINET
- DOUBLE NEUTRAL
- PHASE SHIFT

ABBREVIATIONS

NOTE	EQUIPMENT SHOWN DOTTED IS EXISTING AND TO REMAIN UNLESS INDICATED O THERWISE
AC	400 VAC CONVERTER
D	INDICATES CIRCUIT TO BE DEDICATED
RI	INDICATES ROUGH-IN ONLY
NL	NIGHT LIGHT
R	EXISTING DEVICE TO BE REMOVED
RR	EXISTING DEVICE TO BE REMOVED AND RELOCATED
RE	EXISTING DEVICE IN NEW RELOCATED POSITION
RP	EXISTING DEVICE TO BE REPLACED WITH NEW
WP	WEATHER PROOF
IG	ISOLATED GROUND
E	EXISTING DEVICE TO REMAIN

*NOT ALL SYMBOLS ARE USED.

DRAWING LIST

DWG. No.	DESCRIPTION
E000	LEGEND & SYMBOL SCHEDULE, AND DRAWING LIST
E100	DEMOLITION AND NEW AREA SERVICING PLAN
E101	SINGLE LINE DIAGRAM & ELECTRICAL ROOM LAYOUT
E102	ELECTRICAL SCHEDULES
E200	AREA OF ADDITION: RCP PLAN
E201	AREA OF ADDITION: LOW TENSION PLAN
E301	AREA OF ADDITION: LIGHTING PLAN
E401	SPECIFICATIONS

CIVIC ADDRESS

BURNS LAKE, BC

LEGAL DESCRIPTION

-

GENERAL NOTES

1. INSTALLATIONS SHALL BE IN ACCORDANCE WITH CANADIAN ELECTRICAL CODE 2015, BC BUILDING CODE, AND MUNICIPAL GUIDELINES AND REQUIREMENTS WHERE APPLICABLE.

Electrical Power, Lighting, Other Equipment Design Criteria:

Applicable Building Code:	BCBC 2012
Electrical Design:	
Energy Standard Code:	ASHRAE 90.1-2 010
Lighting Compliance Path:	Prescriptive
Lighting Design Method:	Space-by-Space Method
In accordance with:	8.4.1
Power & Motors Compliance Path:	Prescriptive
In accordance with:	8.4.2

DGBK
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Designing A Better Tomorrow
CALGARY | EDMONTON
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1	Issue for Addendum #1	2018-05-09
	Issued for Tender	2018-04-24
	Issued for B.P.	2018-04-25
	Issued for Construction	2018-06-25

project

THE PINES DINNING HALL & SERVERY ADDITION

BURNS LAKE, BC

title

LEGEND & SYMBOL SCHEDULE, AND DRAWING LIST

scale AS NOTED

date 2017.06.21

drawn

checked

project no. **2-17-174**

drawing no.

E000

latest revision no.

UPDATED 2018.03.11

MAIN FLOOR PLAN
1:100

DEMOLITION NOTES:

A. ALL REDUNDANT AND UNUSED WIRING INCLUDING ANY WIRING IN THE CEILING SPACE IS TO BE REMOVED BY THIS CONTRACTOR.

B. FOR ALL EXISTING DEVICES INDICATED TO REMAIN "E", OR NOT INDICATED TO REMOVE, REINSTALL TO ALLOW CONSTRUCTION AS NECESSARY.

C. FOR ALL ITEMS INDICATED AS REMOVE, REMOVE ITEMS INCLUDING CONDUIT AND WIRING ALL THE WAY TO THE SOURCE AND MAKE IT SAFE. DISPOSE OF ALL WASTE MATERIALS. FIRE STOP ALL OPENINGS. THE CONTRACTOR IS TO ALLOW FOR SITE VISITS, PRIOR TO SUBMITTING TENDER, TO VERIFY ALL ITEMS THAT ARE TO BE REMOVED.

D. THE INTENT OF THESE DRAWINGS IS TO AID BIDDING CONTRACTORS IN DETERMINING THE APPROXIMATE EXTENT OF THE EXISTING EQUIPMENT TO BE REMOVED AND THE EQUIPMENT TO BE RE-USED. EXACT COUNTS AND EXTENT OF WIRING TO BE REMOVED, RE-USED, RELOCATED IS TO BE DETERMINED ON SITE BY THE CONTRACTOR. CONTRACTOR SHALL ALLOW FOR RELOCATION, RE-WIRING OF OUTLETS AND DEVICES WHICH ARE NOT SHOWN ON DRAWINGS BUT WHICH MAY BE FOUND AS WORK PROCEEDS. CONTRACTOR TO USE HIS EXPERIENCE AND BEST JUDGMENT FROM SITE VISIT AND WORK OF A SIMILAR NATURE TO DETERMINE HOW MUCH WORK THIS WILL ENTAIL. MAKE ALLOWANCE IN TENDER PRICE AS NECESSARY.

E. CONTRACTOR IS TO BE AWARE THAT CONSIDERABLE COORDINATION WITH OTHER TRADES IS REQUIRED AND TO THAT END PRIOR TO COMMENCE WORK IN AN AREA, A SITE MEETING SHALL BE HELD ATTENDED BY ALL MAJOR TRADES TOGETHER WITH THE OWNER TO DEAL WITH COORDINATION, CEILING HEIGHTS, STRUCTURE, WALL TYPES, DUCT DROPS/RUNS ETC. BEFORE THEY BECOME AN ISSUE AT TIME OF INSTALLATION. PRIOR TO THIS MEETING, CONTRACTOR IS TO CHECK AVAILABLE CEILING SPACE FOR CONFLICT BETWEEN SERVICES REQUIRED TO BE INSTALLED AND AVAILABLE SPACE FOR LUMINAIRES, DUCTS, ETC. & INFORM THE GENERAL CONTRACTOR IN ADVANCE OF THE WORK OF OTHER TRADES.

F. CONTRACTOR SHALL LAY OUT CAREFULLY FOR TRADESMAN ON SITE, WHAT IS TO BE DONE WITH EACH AND EVERY EXISTING OUTLET, DEVICE, ETC. TO PRECLUDE MISUNDERSTANDINGS REGARDING EQUIPMENT TO BE RETAINED IN OPERATION, RE-FED, RELOCATED, ETC. FURTHER, OUTLETS TO BE INSTALLED IN EXISTING WALLS RETAINED SHALL BE INDICATED TO ENSURE COMPLETE UNDERSTANDING OF CONCEALMENT OF WIRING ETC., PER SPECIFICATION AND THE NEED TO CUT AND PATCH EXISTING WALLS.

G. CONTRACTOR SHALL REVIEW THE MECHANICAL DRAWINGS & BE AWARE OF REQUIREMENTS FOR THE REVISED LAYOUT ESPECIALLY WITH REGARD TO INSTALLATION OF MECHANICAL DUCTS IN CEILING SPACES. WHERE EXISTING CONDUITS OBSTRUCT THE PROPOSED ROUTING THESE OBSTRUCTING CONDUITS SHALL BE RELOCATED IF IT IS DESIRED TO RE-USE THEM. THAT IS, LAYOUTS FOR RENOVATIONS TO THE AREA SHALL GOVERN AND EXISTING CONDUITS SHALL BE RELOCATED TO SUIT RENOVATIONS. THIS WORK SHOULD BE ALLOWED FOR IN THE CONTRACT.

KEYED NOTES:

(1) APPROXIMATE LOCATION OF THE MAIN ELECTRICAL LOCATED ON THE BASEMENT LEVEL BELOW

(2) 1 x 53mm CONDUIT FOR DELAYED VITAL KITCHEN POWER C/W 4c#4/0AWG+G
1 x 53mm CONDUIT FOR DELAYED VITAL GENERAL POWER C/W 4c#4/0AWG+G
1 x 53mm CONDUIT FOR COMMUNICATIONS C/W POLY PULL STRING
1 x 53mm CONDUIT FOR FIRE ALARM
SURFACE RUN ALONG CEILING OF BASEMENT LEVEL THROUGH CRAWL SPACE TO RISER LOCATION AS INDICATED. FIRESTOP PENETRATIONS AS REQUIRED

(3) CONDUITS TO RISE UP TO THE GROUND FLOOR LEVEL (UNDER SLAB) AT THIS LOCATION. FIRESTOP PENETRATIONS AS REQUIRED.
WEATHER SEAL EXTERIOR PENETRATIONS AND PROVIDE T-DRAIN TO BUILDING DRAINAGE SYSTEM AS REQUIRED.

(4) 1 x 53mm CONDUIT FOR DELAYED VITAL GENERAL POWER C/W 4c#4/0AWG+G
1 x 53mm CONDUIT FOR COMMUNICATIONS AND POLY PULL STRING
1 x 53mm CONDUIT FOR FIRE ALARM
RUN UNDER SLAB OF NEW GROUND FLOOR LEVEL ADDITION AREA TO ELECTRICAL CLOSET. FIRESTOP PENETRATIONS AS REQUIRED.

(5) AREA OF ADDITION ON THE GROUND FLOOR LEVEL.

(6) AREA OF ADDITION ELECTRICAL CLOSET.

(7) ALLOW FOR REMOVAL AND REINSTALLATION OF EXISTING ELECTRICAL DEVICES, INCLUDING BUT NOT LIMITED TO LIGHTING, POWER RECEPTACLES, FIRE ALARM DEVICES, CONDUITS AND WIRING SERVICING OTHER AREAS ALONG THE EXISTING EXTERIOR WALL. ALLOW FOR REVERIFICATION OF ALL FIRE ALARM DEVICES THAT ARE DISTURBED AS A RESULT OF WORK ALONG THIS AREA.

(8) EXISTING ACTIVE GRAPHIC DISPLAY FIRE ALARM ANNUNCIATOR WITH LED INDICATORS. CONTRACTOR IS TO ALLOW FOR SUPPLY AND INSTALL OF NEW ACTIVE GRAPHIC DISPLAY WITH LED INDICATORS OF THE NEW FLOOR PLAN.

(9) EXISTING LCD DISPLAY FIRE ALARM ANNUNCIATOR. ALLOW FOR PROGRAMMING UPDATE TO SUIT.

(10) ALLOW FOR PATCH AND REPAIR OF EXISTING WALL AND WALLPAPER/WALL FINISH AFTER DEVICE REMOVAL. FOR DEVICES BEING RELOCATED, REFER TO NEW FLOOR PLANS FOR NEW LOCATIONS

(11) 1 x 53mm CONDUIT FOR DELAYED VITAL KITCHEN POWER C/W 4c#4/0AWG+G
RUN UNDER SLAB OF NEW GROUND FLOOR LEVEL ADDITION AREA TO KITCHEN. FIRESTOP PENETRATIONS AS REQUIRED.

(12) WATER ENTRY ROOM ON BASEMENT LEVEL.

(13) 1 x 53mm CONDUIT FOR ESSENTIAL VITAL POWER FROM PANEL ED FOR POWER TO FIRE PROTECTION TS, FS, PS, AND COMP

(14) RELOCATE EXISTING SPRINKLER FLOW SWITCHES TO BE SUITABLE IN RELATION TO RAISING THE SPRINKLER DOUBLE CHECK VALVE ASSEMBLY. ELECTRICAL TO COORDINATE WITH MECHANICAL ON SITE FOR EXACT HEIGHT RELOCATION. ALLOW FOR REVERIFICATION.

DGBK

Issue	Date
Issue for Addendum #1	2018-05-09
Issued for Tender	2018-04-24
Issued for B.P.	2018-04-25
Issued for Construction	2018-06-25

project
THE PINES
DINNING HALL &
SERVERY ADDITION

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title
DEMOLITION AND
NEW AREA
SERVICING PLAN

scale: AS NOTED
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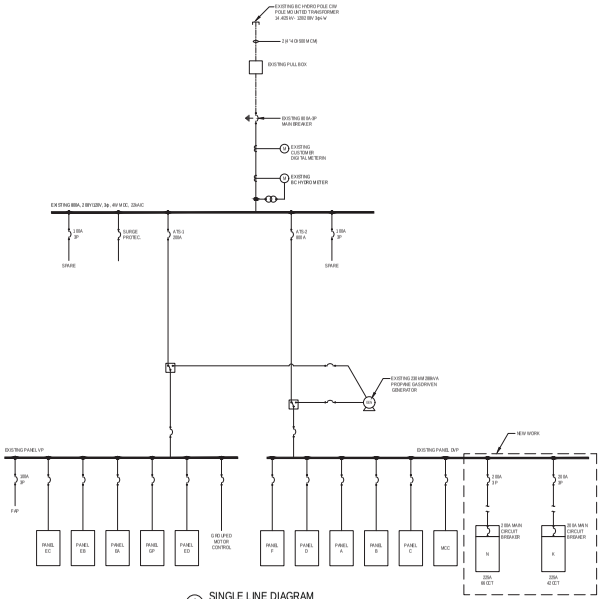

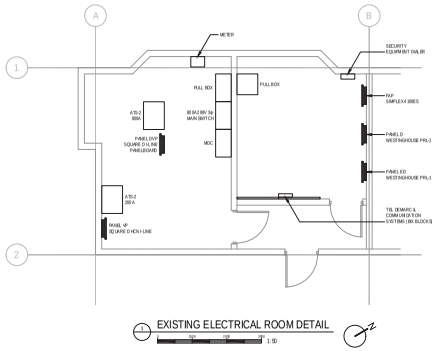

MECHANICAL SCHEDULE

UNIT No.	UNIT DESCRIPTION	LOCATION	V	Ph	Load	MCA	Breaker	Feeder		Conduit	Panel And Circuit	STARTER TYPE	STARTER SUPPLIED	STARTER INTEGRAL	STARTER WIRED	DISC. TYPE	DISC. SUPPLIED	DISC. INTEGRAL	DISC. WIRED	PILOT DEVICE TYPE	PILOT DEVICE SUPPLIED	PILOT DEVICE INTEGRAL	PILOT DEVICE WIRED	EIW REQUIRED	SMART NODES	STANDBY	NOTES
RTU-1	GAS FIRED ROOFTOP UNIT	ROOF	208	3	5 HP	70 A	3P-80A	3c	#4	41mm	N-22.24.26	PCS	M	M	E	E	E	E	DOC	M	M	M	N	N		
EFF-1	ELECTRIC FORCED FLOW HEATER	PANTRY 1009, CONNECT CORRIDOR	208	1	2 kW		2P-15A	2c	#12	21mm	N-28,30	INT	-	-	-	E	E	E	DOC	M	M	M	N	N		
EFF-2	ELECTRIC FORCED FLOW HEATER	PANTRY 1009, CONNECT CORRIDOR	208	1	2 kW		2P-15A	2c	#12	21mm	N-43,45	INT	-	-	-	E	E	E	DOC	M	M	M	N	N		
EFF-3	ELECTRIC FORCED FLOW HEATER	PANTRY 1009, CONNECT CORRIDOR	208	1	2 kW		2P-15A	2c	#12	21mm	N-67,69	INT	-	-	-	E	E	E	DOC	M	M	M	N	N		
BBH-1	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-36,38	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-2	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-36,38	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-3	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-40,42	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-4	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-40,42	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-5	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-44,46	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-6	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-44,46	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-7	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-15,17	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-8	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-15,17	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-9	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-19,21	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-10	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-19,21	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-11	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-23,25	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
BBH-12	ELECTRIC BASEBOARD HEATER	DINING HALL 1007, VESTIBULE 1000	208	1	0.75kW		2P-15A	2c	#12	21mm	N-23,25	INT	-	-	-	E	E	E	DOC	M	M	M	N	N	2	
EF-1	WASHROOM EXHAUST FAN	ROOF	120	1	1/10 HP		1P-15A	2c	#12	21mm	N-56	MRR	E	E	E	E	E	E	DOC	M	M	M	N	N		
EF-2	DISHWASHER CANOPY EXHAUST FAN	ROOF	120	1	1/10 HP		1P-15A	2c	#12	21mm	N-58	MRR	E	E	E	E	E	E	O	E	E	E	N	N	S	
EF-3	PRESSURIZATION FAN	PANTRY 1009	120	1	FRAC HP		1P-15A	2c	#12	21mm	N-60	MRR	E	E	E	E	E	E	DOC	M	M	M	N	N		
DHWT-1	DOMESTIC HOT WATER TANK	CLOSET 1002A	120	1			1P-15A	2c	#12	21mm	N-62	-	-	-	-	E	E	E	-	-	-	-	N	N		
HT-1	DOMESTIC HOT WATER TEMPERATURE MAINTENANCE	AS PER MECHANICAL PLANS	208	1		15A	2P-15A	2c	#12	21mm		-	-	-	-	E	E	E	PCS	M	M	E	N	N		
TS	NEW SPRINKLER ZONE TAMPER SWITCH	WATER ENTRY ROOM	120	1			1P-15A	2c	#12	21mm	PANEL ED	-	-	-	-	-	-	-		M	M	E	Y	1		
TS	NEW SPRINKLER ZONE TAMPER SWITCH	WATER ENTRY ROOM	120	1			1P-15A	2c	#12	21mm	PANEL ED	-	-	-	-	-	-	-		M	M	E	Y	1		
FS	NEW SPRINKLER ZONE FLOW SWITCH	WATER ENTRY ROOM	120	1			1P-15A	2c	#12	21mm	PANEL ED	-	-	-	-	-	-	-		M	M	E	Y	1		
FS	NEW SPRINKLER ZONE FLOW SWITCH	WATER ENTRY ROOM	120	1			1P-15A	2c	#12	21mm	PANEL ED	-	-	-	-	-	-	-		M	M	E	Y	1		
PS	DRY SYSTEM LOW AIR PRESSURE SWITCH	WATER ENTRY ROOM	120	1		15A	1P-15A	2c	#12	21mm	PANEL ED	-	-	-	-	-	-	-		M	M	E	Y	1		
COMP	DRY SYSTEM AIR COMPRESSOR	WATER ENTRY ROOM	120	1			1P-15A	2c	#12	21mm	PANEL ED	-	-	-	-	-	-	-		M	M	E	Y			

NOTES:

1 TO BE MONITORED ON FIRE ALARM PANEL

2 SUPPLY AND INSTALL LINE VOLTAGE RELAYS COMLETE WITH 24V TRANSOFRMERS FOR CONNECTION TO ODC CONTROL

3 SUPPLY AND INSTALL WALL MOUNTED 120V SWITCH TO START/STOP FAN . LABEL SWITCH AS DISHWASHER EXHAUST FAN.

GENERAL NOTES FOR MECH EQUIPMENT SCHEDULE:

A. CONTRACTOR TO OBTAIN AND REVIEW MECHANICAL DRAWINGS AND SCHEDULES DURING TENDER TO ENSURE ALL SCOPE REQUIRED FOR ELECTRICAL CONNECTION TO MECHANICAL UNITS HAS BEEN ALLOWED FOR. NO EXTRAS WILL BE ALLOWED FOR STARTERS, DISCONNECTS, OR ANY OTHER EQUIPMENT F IT IS SHOWN ON THE MECHANICAL TENDER DRAWINGS TO BE SUPPLIED BY ELECTRICAL.

B. CONTRACTOR TO REVIEW MECH SHOP DRAWINGS AND CONFIRM ALL EQUIPMENT LOADS, OVERCURRENT PROTECTION, WIRE AND CONDUIT SIZES AND MOUNTING HEIGHTS PRIOR TO ROUGH-IN.

C. CONTRACTOR TO INSPECT ALL MECH EQUIPMENT LABELS ON SITE PRIOR TO INSTALLATION AND INFORM THE CONSULTANT OF ANY DISCREPANCIES. FOLLOW THE MECH LABELS FOR FINAL SIZE OF THE BREAKERS AS PER C.E.C.

D. ALL MOTORS LOCATED OUTSIDE TO BE C/W WEATHER PROOF DISCONNECT SWITCHES & RAIN TIGHT CONNECTIONS.

MECH MOTOR SCHEDULE ABBREVIATIONS:

(a) Supplied By:
E = Electrical
M = MECH

(b) Starter Type:
PCS = Packaged Control System
INT = Integral to Unit
MRR = Motor Rated Relay C/W 24VAL Coil , HOA switch, and Motor Protection Switch
VFD = Variable Frequency Drive Complete with Bypass and HOA Magnetic Starter.
MG = Magnetic Starter Complete with HOA switch and aux status contact

(c) Control Device:
T = Thermostat
DDC =Direct Digital Control System
C = Continuous Operation
SW = Speed Switch
FAP = Fire alarm panel
RT = Reverse Acting Thermostat
TC=Time Clock
A=Aquastat
O=Other

MECHANICAL SCHEDULE
NTS

UPDATED 2018.03.11

DGBK

1	Issue for Addendum #1	2018-05-09
	Issued for Tender	2018-04-24
	Issued for B.P.	2018-04-25
	Issued for Construction	2018-06-25

project

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Designing A Better Tomorrow
CALGARY | EDMONTON
VANCOUVER | VICTORIA

title

SINGLE LINE DIAGRAM & ELECTRICAL ROOM LAYOUT

scale AS NOTED

date 2017.06.21

drawn

checked

project no. **2-17-174**

drawing no.

E101

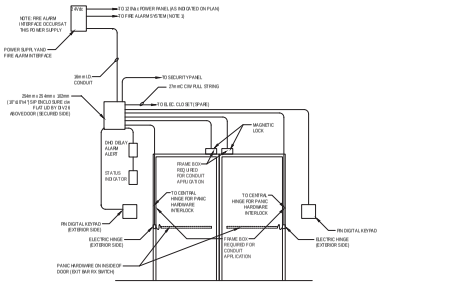
latest revision no.

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LOCATION	PRE-APPROVED PRODUCTS	MOUNTING	WATTS (W)	LAMP TYPE	LAMP LED LUMENS	LAMP COLOR	LAMP MIN CRI	LAMP QTY	BALLAST/DRIVER	VOLTAGE	REMARKS	NOTES
A	4" LED DOWNLIGHT	VESTIBULE & LOBBY	GOTHAM 4" EVO-30-20-4xx-xx-WD-xx-MVOLT	RECESSED	23.5	LED	2169	3000K	80+		0-10V DIMMING	120		
B	4" LED DOWNLIGHT	WASHROOMS	GOTHAM 4" EVO-30-10-4xx-xx-MD-xx-MVOLT	RECESSED	12.8	LED	1189	3000K	80+		0-10V DIMMING	120		
C	2' LINEAR LED	WASHROOM VANITIES	ACUITY AVONIA HAV224-ADJ-MVOLT-LED30-DIM-XX	WALL MOUNT	12	LED	920	3000K	80+		0-10V DIMMING	120		
D	1x4 LINEAR LED	SERVERY & PANTRY	BEGHELLI PLNX-14-WT35-120-227V-SM	SURFACE	40	LED	4640	3500K	80+		0-10V DIMMING	120		
E	PENDANT	DINNING HALL	VZ CORE 300 CX C2CP-D-V-D-28-83-30-60-N-xx-SS	SWIVEL STEM		LED								
F	2' LINEAR LED	WASH BASIN	ACUITY AVONIA HAV224-ADJ-MVOLT-LED30-DIM-XX	WALL MOUNT	12	LED	920	3000K	80+		0-10V DIMMING	120		
G	DECORATIVE CHANDLIER	DINING HALL	EUREKA COMPASS 4802-72-LED 100-30-120V-DV-RDP-AC-XK-24750-RCA-CHR-WHE-WH-3981D	AIRCRAFT CABLE	114	LED	12393	3000K	80+		0-10V DIMMING	120		1,2
H	OUTDOOR FLUSH MOUNT	EXTERIOR CANOPY	LITHONIA OLCFM-15-4000K-120V-XX	SURFACE	16.6	LED	1029	4000K	85+		0-10V DIMMING	120		
J	OUTDOOR WALL SCONCE	EXTERIOR WALL	LITHONIA OSWXI LED-10C-700-40K-T4W-MVOLT-XK	WALL MOUNT	27	LED	2,701	4000K	80+		0-10V DIMMING	120		
EM	EMERGENCY TWIN LED LIGHTING HEADS	THROUGHOUT	READY-LITE RM SERIES LED REMOTE HEADS	CEILING MOUNTED	10	MR16 LED						120		
BP	BATTERY PACKS	THROUGHOUT	READY-LITE LDNC SERIES BATTERY UNIT CAN TWO EMERGENCY LIGHTING HEADS	SURFACE	10	MR16 LED						120		
EX	PICTOGRAM EXIT SIGNS	THROUGHOUT	EXTRUDED ALUMINUM PICTOGRAM SELF POWERED EXIT SIGN	SURFACE	3	LED						120		

LUMINAIRE NOTE
1. PROVIDE CORRECT MOUNTING BASE FOR TYPE AND SLOPE OF CEILING.
2. LUMINAIRES TO BE SUSPENDED AT HEIGHT AS PER ARCHITECT. CEILING IS SLOPED-ADJUST AIR CRAFT CABLE LENGTH ACCORDINGLY.
3. -

GENERAL NOTES
A. DUE TO CONSTANT CHANGES IN CATALOGUE NUMBERS, ALL NUMBERS INDICATED MUST BE VERIFIED WITH THE MANUFACTURER PRIOR TO ORDERING.
B. ALL LUMINAIRE FINISHES TO BE APPROVED BY ARCHITECT PRIOR TO ORDERING.
C. TYPE OF CONSTRUCTION FOR ALL CEILINGS TO BE COORDINATED WITH ARCHITECTURAL DRAWINGS PRIOR TO ORDERING MOUNTING KITS. CONTRACTOR TO OBTAIN A SET OF IFC ARCHITECTURAL DRAWINGS AND COORDINATE MOUNTING WITH CEILING TYPES SHOWN. NO EXTRAS WILL BE ALLOWED FOR RE-ORDERING OF LUMINAIRES OR MOUNTING KITS TO MATCH CEILING TYPES SHOWN ON ARCHITECTURAL PLANS. MOUNTING HEIGHT OF ALL SUSPENDED LUMINAIRES TO BE ADJUSTABLE ON SITE, AND CONTRACTOR TO COORDINATE ON SITE UNDER DIRECTION OF CONSULTANT.
D. CONTRACTOR TO ALLOW A MINIMUM 2 WEEKS FOR INITIAL REVIEW OF ENTIRE LIGHTING SHOP DRAWING PACKAGE. NO DELAY CLAIMS WILL BE ALLOWED FOR ANY SUBSEQUENT REVIEW TIME REQUIRED DUE TO INCORRECT SHOP DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE LUMINAIRES ARE DELIVERED IN A TIMELY MANNER TO THE SITE. NO EXTRAS WILL BE ALLOWED FOR SUBSTITUTIONS OR RUSH CHARGES REQUIRED TO MEET PROJECT SCHEDULE AND MUST BE ALLOWED FOR IN TENDER PRICE.
E. ALL CONTROLS INTEGRATED WITH LUMINAIRES TO BE COMMISSIONED ON SITE AFTER INSTALL. CONTRACTOR TO ENSURE THAT ALLOWANCE IS MADE FOR ADJUSTING AND COMMISSIONING OF ALL CONTROLS AS REQUIRED.
F. COORDINATE MOUNTING HEIGHT OF ALL WALL MOUNTED LUMINAIRES WITH ARCHITECT PRIOR TO ROUGH-IN. COORDINATE SUSPENSION HEIGHT OF ALL SUSPENDED LUMINAIRES WITH ARCHITECT PRIOR TO INSTALLATION.
G. ALL JUNCTION BOXES FOR SURFACE MOUNT LUMINAIRES SHALL NOT BE WIDER THAN THE LUMINAIRE MOUNTING PLATE.
H. ALL LED LUMINAIRES ARE BE INCLUDED WITH CONSTANT CURRENT DRIVERS UNLESS SPECIFIED.
I. ALL LUMINAIRES SHALL BE APPROVED AS DEFINED IN CURRENT CANADIAN ELECTRICAL CODE (CEC).



NOTES
1. PROVIDE FIRE ALARM INTERLOCK TO RELEASE EC DRS UPON ACTIVATION OF FIRE ALARM.
2. PROVIDE 2/#14 CONDUITS UNLESS OTHERWISE NOTED (TYPICAL)

NOTE
DOOR DETAIL AND SEQUENCE OF OPERATIONS IS TYPICAL AND MAY VARY ON PER BRIDGE. REFER TO ARCHITECTURAL AND DOOR HARDWARE DRAWINGS AND SPECIFICATIONS FOR ALL SPECIFIC DOOR DETAILS AND SEQUENCE OF OPERATIONS. MAKE ALLOWANCES AS NECESSARY FOR ELECTRICAL WORK REQUIRED BY DV. SI.

1 TYPICAL SECURITY DOOR DETAIL
SCALE: N.T.S.

SEQUENCE OF OPERATIONS:

1. DOD RE-ARELATCHED AND LOCKED BY A MAGNETIC LOCK. ENTRY ACCESS IS ABLE DOD IS BY KEYPAD CODE (BUT M THOUT ACCESS TO THE DOOR HANDLE) OR BY PROXIMITY CARD. ACCESS IS ONLY GRANTED DURING THE HOURS SET AT TER AUTHORIZED WITH STAFF USING A KEYPAD PASS (AMBULANT CODE THE DOORSWILL RELOCK AFTER PASSAGE PROVIDED BY THE KEYPAD SYSTEM PROGRAMMING. IN THE EVENT A FIRE SYSTEM ACTIVATION OCCURS THE LOORING SYSTEM WILL BE DEFAILED TED (DE-ENERGIZED) AND THE DOORS WILL OPEN IN T FOR UNAFFECTED ZONES OR ENTRY.
2. DELAYED EXIT SYSTEM (DES) ACTIVATED BY PUSHING ON THE DOOR TIMES TO BREAK, ALARM WILL SOUND AND DELAY COUNT WILL COMMENCE AT THE END OF 10 SECONDS THE DOOR LOCKS WILL BE DEFAILED TED OR ENERGIZED, THEN SYSTEM SOUND ALERT (DHA RECOMMENDED TO SHUT OFF AT THIS POINT OR CONTINUE) WILL THE "RESET" CODE IS ENTERED INTO THE KEYPAD. THE DOOR WILL THEN BE LOCKED AND THE SYSTEM WILL RESET TO NORMAL.
3. DOD HCL OSERS ARE PROVIDED WITH A MANUAL HOLD OPEN FEATURE THAT WHEN ACTIVATED WILL HOLD THE DOORS OPEN AT 120 DEGREES. TO ENABLE THE HOLD OPEN SEQUENCE THE DELAY EXIT SYSTEM MUST BE DEFEATED BY ENTERING A SEPARATE HORRESETPIN CODE USING THE SYSTEM KEYPAD. ONCE THE SYSTEM IS DEFEATED, THE MANUAL HOLD FEATURE ON THE DOOR CLOSER ARM CAN BE ENABLED. THE DELAY EXIT ALARM ACTIVITY WILL BE DEFEATED UNTIL THE HORESET PIN IS ENTERED AGAIN TO RESET THE SYSTEM, DOSING SYSTEM AND ALARM ACTIVITY SOUNDER.
4. DELAYED EXIT SYSTEM (DES) ACTIVATION SHOULD BE KEPT AT THE PORTAL LOCATION BY IMPLEMENTING THE HORRESET PIN CODE USING THE SYSTEM KEYPAD.
5. DOOR POSITION SWITCH IN THE MAGNETIC LOCKS CAN PROVIDED UNIT DOOR STATUS TO THE FIA ENTERING SYSTEM.

DESCRIPTION	kW	BKR	CIRCUIT NO.		BKR	kW	DESCRIPTION
EXIT SIGNS	-	20A	1	2	1.5A	-	HOUSE KEEPING
LIGHTING		20A	3	4	1.5A		EXTERIOR MPOFI
MISTOR L TOS		20A	5	6	1.5A		WASHROOM GR
STAIRS WELL LIGHTS		20A	7	8	1.5A		ELEC CUSTQUAD
EXTERIOR LIGHTING *		20A	9	10	1.5A		DINING ROOM 'N'
KITCHEN LIGHTS		20A	11	12	1.5A		DINING ROOM 'N'
LOADING AREA LIGHTING		20A	13	14	1.5A		DINING ROOM COUNTER RR
BBH 1, BBH 4		3P	15	16	1.5A		TELEPHONE
		20A	17	18	1.5A		DINING ROOM GR
BBH 8, BBH 10		3P	19	20	1.5A		HOUSE KEEPING
		30A	21	22	1P		
BBH 11, BBH 12		3P	23	24			RTU 1
		30A	25	26	1.5A		
EFF 2		3P	27	28	1P		
		30A	29	30	1.5A		EFF-1
EFF 3		3P	31	32	1.5A		ELECTRIC DOOR HARDWARE
		30A	33	34	1.5A		ELECTRIC DOOR HARDWARE
SPACE		-	35	36	1P		BBH-1, BBH 2
SPACE		-	37	38	1.5A		
SPACE		-	39	40	1P		BBH-3, BBH 4
SPACE		-	41	42	1.5A		
SPACE		-	43	44	1P		BBH5, BBH 6
SPACE		-	45	46	1.5A		
SPACE		-	47	48	-		SPACE
KITCHEN OVERHEAD DOOR		2.5A	49	50	-		SPACE
PATENT LIFT		2.5A	51	52	-		SPACE
PATENT LIFT		2.5A	53	54	-		SPACE
PATENT LIFT		2.5A	55	56	20 A		EF-1
SPARE		1.5A	57	58	20 A		EF-2
SPARE		1.5A	59	60	20 A		SF-1
SPARE		1.5A	61	62	20 A		SHWT-1
SPARE		1.5A	63	64	20 A		ROOF TOP GFI WPRECEPTACLE
SPARE		1.5A	65	66	20 A		-

BUS RATING: 225A
MOUNTING: SURFACE
MAIN BKR.: 200A

VOLTS: 120/208 3ø, 4W
LOCATION: B456M BHT ELECTRICAL ROOM
FED FROM: B456M BHT 208V CDP

*: DENOTES PHOTOCELL/TIME CLOCK CONTROL
**: DENOTES LOCK ON 'RED PAINTED' CIRCUIT BREAKER

PANEL 'K'

DESCRIPTION	kW	BKR	CIRCUIT NO.		BKR	kW	DESCRIPTION
RETHERM UNIT		3P	1	2	1P		
			3	4	20 A		DISPOSAL
		20A	5	6	1P		
HOTWATER DISPENSER		20A	7	8			DISHWASHERW BOOSTER
ICEWATER DISPENSER		20A	9	10	30 A		
ICE PREE BREWER		3P	11	12	20 A		RR N RREZER - 2DR
		30A	13	14	20 A		RR N RERRG - 2DR
CD MENSNECE RECEPTACLE		20A	15	16	20 A		WORK COUNTER
CD MENSNECE GR RECEPTACLE		20A	17	18	20 A		WORK COUNTER
TELEPHONE		20A	19	20	20 A		WORK COUNTER
CD MENSNECE RECEPTACLE		20A	21	22	20 A		WORK COUNTER
WORK COUNTER		20A	23	24	20 A		HEATED BASE
SPACE			25	26	1P		
SPACE			27	28			HWELL UNIT (3 WELL)
SPACE			29	30	20 A		
SPACE			31	32	1P		SOUP WELL
SPARE		20A	33	34	20 A		
SPARE		20A	35	36	20 A		HEATLAMP
SPARE		20A	37	38	20 A		TOASTER - ROTARY
SPARE		20A	39	40	1P		
SPARE		20A	41	42	20 A		MICROWAVED VEN

BUS RATING: 225A
MOUNTING: SURFACE
MAIN BKR.: 200A

VOLTS: 120/208 3ø, 4W
LOCATION: B456M BHT ELECTRICAL ROOM
FED FROM: B456M BHT 208V CDP

*: DENOTES PHOTOCELL/TIME CLOCK CONTROL
**: DENOTES LOCK ON 'RED PAINTED' CIRCUIT BREAKER

EXISTING PANEL 'ED'

DESCRIPTION	kW	BKR	CIRCUIT NO.		BKR	kW	DESCRIPTION
EXISTING		-	1	2			EXISTING
EXISTING		-	3	4			EXISTING
EXISTING		-	5	6			EXISTING
EXISTING		-	7	8			EXISTING
EXISTING		-	9	10			EXISTING
EXISTING		-	11	12			EXISTING
EXISTING		-	13	14			EXISTING
SPACE		-	15	16	15A		DRY SYSTEM AIR COMPRESSOR
EXISTING		-	17	18			SPACE
EXISTING		-	19	20			SPACE
EXISTING		-	21	22			SPACE
EXISTING		-	23	24			SPACE
EXISTING		-	25	26			SPACE
EXISTING		-	27	28			SPACE
EXISTING		-	29	30			SPACE
EXISTING		-	31	32			SPACE
EXISTING		-	33	34			SPACE
EXISTING		-	35	36			SPACE
EXISTING		-	37	38			SPACE
EXISTING		-	39	40			SPACE
EXISTING		-	41	42			SPACE

NEW CIRCUIT EXISTING PANEL

BUS RATING: 225A
MOUNTING: SURFACE
MAIN BKR.: 200A

VOLTS: 120/208 3ø, 4W
LOCATION: B456M BHT ELECTRICAL ROOM
FED FROM: B456M BHT 208V CDP

*: DENOTES PHOTOCELL/TIME CLOCK CONTROL
**: DENOTES LOCK ON 'RED PAINTED' CIRCUIT BREAKER

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ARCHITECTS

1	Issue for Addendum #1	2018-05-09
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project
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CALGARY | EDMONTON
VANCOUVER | VICTORIA

title
ELECTRICAL SCHEDULES

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MAIN FLOOR - POWER & COMMUNICATION PLAN

1:50

PRELIMINARY EQUIPMENT LIST

PRELIMINARY ELECTRICAL SERVICES

No.	Description	Qty.	Load	Voltage 120 V	Voltage 208 V	Ph	Junc	Rec	NEMA	Conn Ht.	Prd Cct No.	Breaker
6	DISPOSAL	1	9.8A		X	1	X			450	K-2,4	3P15A
7	DISHWASHER W/BOOSTER	1	40A		X	3	X			1454	K-6,8,10	3P50A
15	R/IN FREEZER - 10ft	1	7.2A	X		1		W	5-15R	915	K-12	1P15A
18	R/IN REFRIG. - 20ft	1	9.6A	X		1		W	5-15R	915	K-14	1P15A
18	WORK COUNTER	1	15A CKT	X		1		W	5-20R	1200	K-16	1P20A
			15A CKT	X		1		W	5-20R	1200	K-18	1P20A
			15A CKT	X		1		W	5-20R	1200	K-20	1P15A
			30A	X		1		F		860	K-22	1P20A
	HEATED BASE	1	1.5KW	X		1	X			250	K-24	1P20A
19	HWELL UNIT (3 WELL)	1	3.72KW		X	3	X			860	K-26,28,30	3P15A
20	SOUP WELL	1	6A		X	1	X			860	K-32,34	2P15A
21	HEAT LAMP	1	850W	X		1	X			1295	K-35	1P15A
22	TOASTER - ROTARY	1	14.8A	X		1		W	5-20R	1200	K-38	1P20A
23	MICROWAVE OVEN	1	2.1KW		X	1		W	6-30R	1220	K-40,42	2P30A
24	BETHERM UNIT	1	5.46W		X	3	X			1220	K-1,3,5	3P20A
25	HOT WATER DISP.	1	1.8KW	X		1		W	5-20R	1200	K-7	1P15A
26	H/S/WATER DISP.	1	7A	X		1		W	5-15R	1200	K-9	1P15A
BD2	COFFEE BREWER	1	25A	X	X	1		W	TRC	1200	K-11,13	
	TELEPHONE	1	X	X		1		W				
	MISC ACT EQ.	3		X		1						
	CONV. OUTLETS	LOT	CVO	X		1		W				
				X		1		W				
	ELEC. DISCONN. SWT	LOT										

W - WALL MOUNTED REC. BY ELECTRICAL CONTRACTOR
F - FIXTURE MOUNTED REC. BOX AND COVER
* - OUTLET ON OTHER FIXTURE

SERVICES NOTED REMOTE LOADS FOR EQUIPMENT SPECIFIED, APPLICABLE TRADES TO REFER TO FEC SUPPLIED SHOP DRAWINGS AND BROCHURES FOR ACCURATE SERVICE INFORMATION AND CONNECTION POINTS.

KITCHEN EQUIPMENT SCHEDULE

NTS

KEYED NOTES:

1. RUN CAT 6 AND RG6 COAX IN CONDUIT TO CEILING ABOVE/ELEC. CLST. CON. IN CEILING WITH 3m SLACK
   TERMINATE CAT 6 CABLE ON BOTH ENDS WITH RJ45 JACKS AND OUTLETS WITH CONSPYLA RJ45
   TERMINATE COAXIAL CABLE ON BOTH ENDS WITH F TYPE CONNECTORS AND OUTLETS WITH COVER PLATES.
2. RUN CAT 6 IN CONDUIT TO CEILING ABOVE/ELEC. CLST. CON. IN CEILING WITH 3m SLACK
   TERMINATE CABLES ON RED TH ENDS WITH RJ45 JACKS AND OUTLETS WITH COVER PLATES.
3. WIRES TERMINATED IN JUNCTION BOX AND CAPPED FOR FUTURE USE.

DGBK
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project

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AREA OF ADDITION POWER PLAN

scale AS NOTED

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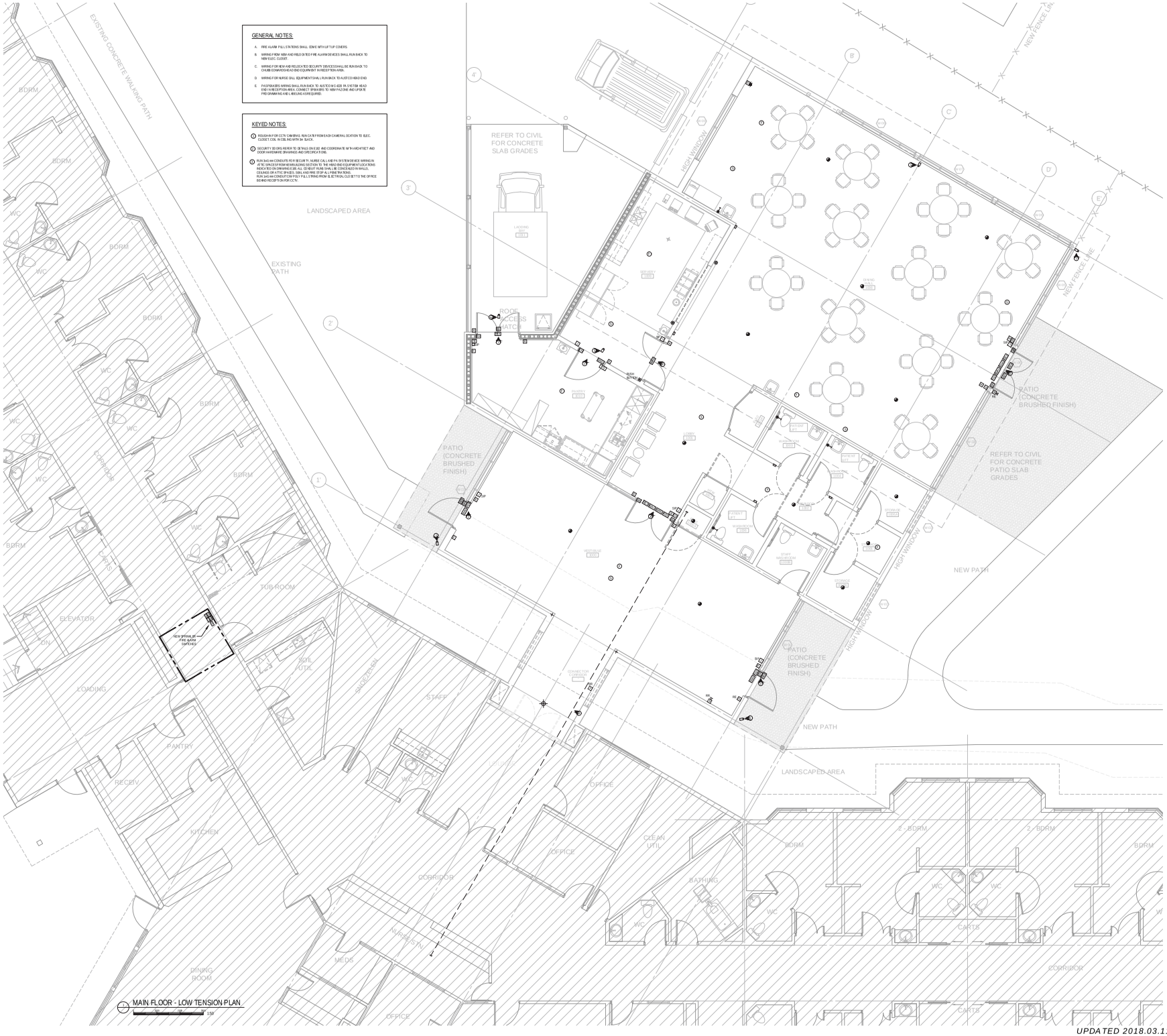

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LOW TENSION PLAN

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MAIN FLOOR - LIGHTING PLAN

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AREA OF ADDITION
LIGHTING PLAN

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ELECTRICAL SPECIFICATION

1. GENERAL

.1 GENERAL REQUIREMENTS, INSTRUCTIONS TO BIDDERS, THIS SPECIFICATION AND ANY ADDENDA HERETO FORM PART OF THE CONTRACT DOCUMENTS AND SHALL BE READ IN CONJUNCTION WITH THEM. WORK TO INCLUDE THE FURNISHING OF ALL LABOR AND MATERIALS, UNLESS SPECIFIED OTHERWISE, TO COMPLETE AND PUT INTO OPERATING CONDITION ALL ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN.

.2 IT IS THE INTENT OF THE WORK TO PROVIDE COMPLETE, NEATLY FINISHED, AND OPERATIONAL SYSTEMS AND ANY LABOR, MATERIAL, PERMITS, LICENSES, APPROVALS AND INSPECTIONS REQUIRED FOR COMPLETION OF THE WORK, WHETHER SPECIFICALLY MENTIONED IN THE DRAWINGS OR SPECIFICATIONS OR NOT, ARE TO BE INCLUDED IN THE TENDERED PRICE.

.3 RESPONSIBILITY AS TO WHICH TRADE PROVIDES REQUIRED ARTICLES OR MATERIALS RESTS SOLELY WITH THE GENERAL CONTRACT TRADE. EXTRAS WILL NOT BE CONSIDERED BASED ON GROUNDS OF DIFFERENCE OF INTERPRETATION OF SPECIFICATIONS AS TO WHICH TRADE INVOLVED SHALL PROVIDE CERTAIN SPECIALTIES OR MATERIALS.

.4 THE DRAWINGS AND SPECIFICATIONS FOR THE COMPLETE WORKS, INCLUDING ALL OF THOSE RELATED TO OTHER TRADES ARE TO BE EXAMINED BEFORE SUBMITTING TENDERS. ALL ELECTRICAL AND COMMUNICATIONS REQUIREMENTS INDICATED ARE TO BE INCLUDED IN THE SCOPE OF THE WORK.

.5 CLEAN UP AND REMOVE ALL UNUSED WIRING AND CONDUITS.

.6 REMOVE AND REINSTALL EXISTING DEVICES TO FACILITATE CONSTRUCTION AS REQUIRED.

.7 CONFIRM OUTLET LOCATIONS AND MOUNTING HEIGHT WITH PROJECT COORDINATOR ON SITE PRIOR TO INSTALLATION.

.8 FIRE PROOF ALL FIRE RATED PENETRATIONS AFTER INSTALLATION AS PER SECTION 39.

.9 COORDINATE WITH AND GET APPROVAL FROM LANDLORD FOR ALL DRILLING, CORING AND CUTTING OF BUILDING STRUCTURE. COORDINATE LOCATIONS ON SITE PRIOR TO CARRYING OUT THE WORK. ALLOW FOR ALL COSTS FOR X-RAYING/SCANNING. CONTRACTOR MUST OBTAIN WRITTEN APPROVAL FROM THE LANDLORD STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.

.10 PROVIDE ALL NECESSARY TEMPORARY POWER AND LIGHTING.

.11 WHERE TENANT SPACES ARE OCCUPIED BY THE CLIENT, ALL NOISY WORK SUCH AS (BUT NOT RESTRICTED TO) WIRING AND CABLING PULLING, INSTALLATION OF CONDUIT SHALL BE DONE AFTER HOURS. WIRING CONNECTIONS TO SYSTEMS FURNITURE TO BE DONE ON WEEKEND, INCLUDING CABLING TERMINATIONS

2. DRAWINGS AND SPECIFICATIONS

.1 DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY TO EACH OTHER AND WHAT IS CALLED FOR BY ONE IS TO BE BINDING AS IF CALLED FOR BY BOTH.

.2 SHOULD ANY DISCREPANCY APPEAR BETWEEN DRAWINGS AND SPECIFICATIONS THAT LEAVES THE ELECTRICAL TRADE IN DOUBT AS TO TRUE INTENT AND MEANING, OBTAIN RULING FROM THE ENGINEER BEFORE SUBMITTING TENDER, OR ALLOW FOR THE MOST EXPENSIVE ALTERNATIVE.

3. EXAMINATION OF OTHER DRAWINGS

.1 THE ELECTRICAL CONTRACTOR IS TO EXAMINE CAREFULLY STRUCTURAL, ARCHITECTURAL AND MECHANICAL DRAWINGS, AND THE WORK OF OTHER TRADES AND SATISFY HIMSELF THAT THE WORK UNDER THIS CONTRACT CAN BE SATISFACTORILY CARRIED OUT WITHOUT CHANGES TO THE BUILDING AS SHOWN ON THE PLANS. SHOULD ANY DIFFICULTY ARISE SHOWING CONFLICT WITH, OR REQUIRING ADDITIONAL WORK BEYOND THE WORK OF THESE DRAWINGS, BRING THIS MATTER TO THE ATTENTION OF THE ENGINEER BEFORE SUBMITTING TENDER.

4. UNIFORMITY OF EQUIPMENT

.1 UNLESS OTHERWISE SPECIFIED, UNIFORMITY OF MANUFACTURE IS TO BE MAINTAINED FOR ANY PARTICULAR ITEM THROUGHOUT.

5. STANDARDS OF MATERIAL AND WORKMANSHIP

.1 ALL MATERIALS ARE TO BE NEW AND OF THE QUALITY SPECIFIED, AND SHALL BE APPROVED BY CSA OR EQUIVALENT AGENCY RECOGNIZED IN BRITISH COLUMBIA.

.2 ALL WORK SHALL BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER BY QUALIFIED TRADESMEN. THE ELECTRICAL CONTRACTOR SHALL KEEP A COMPETENT FOREMAN AND NECESSARY ASSISTANTS ON THE SITE DURING THE PROGRESS OF THE WORK.

.3 ALL MATERIAL AND INSTALLATION SHALL MATCH BUILDING STANDARD UNLESS IT IS NOTED OTHERWISE ON THE DRAWINGS.

6. RECORD PLANS & MAINTENANCE MANUALS

.1 THE ENGINEER WILL FURNISH TO THE ELECTRICAL TRADE ONE SET OF DRAWINGS TO BE USED FOR RECORD PURPOSES. THE ELECTRICAL TRADE IS TO ACCURATELY RECORD ON THESE PRINTS ALL REVISIONS TO THE ORIGINAL PLANS THAT ARE MADE ON SITE DURING CONSTRUCTION.

.2 THE ELECTRICAL TRADE IS TO PRODUCE AT HIS OWN EXPENSE A SET OF RED LINE MARK-UP DRAWINGS, INCLUDING ALL CHANGES TO THE ORIGINAL TENDER DRAWINGS COVERED BY ADDENDA, CHANGE ORDERS, FIELD CHANGES, AND JOB CONDITIONS, AND TURN THESE OVER TO THE ENGINEER IN HARD COPY FORM. COMPLETED RECORD DRAWINGS ARE TO BE CLEARLY MARKED "RECORD DRAWINGS". REFER TO LINE ITEM 3.

.3 THIS CONTRACTOR SHALL ALLOW FOR A COST OF $350 PER DRAWING FOR TRANSFERRING RED LINE MARK-UPS TO ELECTRONIC AUTOCAD RECORD DRAWINGS AND THIS AMOUNT SHALL INCLUDED IN THE TENDER BID. CONTRACTOR MAY HIRE AES TO PRODUCE THE RECORD CAD DRAWINGS IF DESIRED.

.4 THIS CONTRACTOR SHALL PROVIDE 3 THREE-RING BINDERS FOR MAINTENANCE MANUALS. MANUALS SHALL CONTAIN ALL WARRANTIES, SHOP DRAWINGS, INSPECTION LETTERS, PANEL SCHEDULES, ETC.

7. SHOP DRAWINGS

.1 THE ELECTRICAL CONTRACTOR IS TO SUBMIT TO THE ENGINEER, FOR REVIEW, SHOP DRAWINGS OF MAJOR ELECTRICAL EQUIPMENT. SUCH EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO SWITCHGEAR, PANELBOARDS, SERIES-RATED BREAKER COMBINATIONS, FIXTURES AND FITTINGS NOT PROVIDED BY THE OWNER.

.2 ALL DRAWINGS ARE TO BE SUBMITTED IN TRIPLICATE AND TWO COPIES WILL BE RETURNED TO THE ELECTRICAL TRADE. SUBMIT ADDITIONAL COPIES FOR APPROVAL AS MAY BE REQUIRED.

.3 THE ENGINEER'S REVIEW OF SHOP DRAWINGS IS TO BE FOR GENERAL DESIGN ONLY AND WILL NOT RELIEVE THE ELECTRICAL TRADE OR SUPPLIERS FROM RESPONSIBILITY FOR ERRORS, PROPER FITTING, CONSTRUCTION OF WORK, AND FURNISHING OF MATERIALS. REVIEW WILL NOT BE CONSTRUED AS APPROVING DEPARTURES FROM CONTRACT DOCUMENT REQUIREMENTS IF SUCH DEPARTURES ARE NOT SPECIFICALLY NOTED. THE ELECTRICAL TRADE IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS.

.4 DEVIATIONS FROM THE SPECIFIED LUMINAIRE AND CONTROL PACKAGE WILL REQUIRE ASHRAE 90.1-2010 COMPLIANCE FORMS TO BE REVISED AND RESUBMITTED TO THE AUTHORITY HAVING JURISDICTION BY THE ELECTRICAL ENGINEER OF RECORD FOR THE PROJECT. THE COST OF REVISING AND RESUBMITTING THESE FORMS WILL BE AT THE EXPENSE OF THE CONTRACTOR. ALLOW FOR THE FOLLOWING TO BE PAYABLE TO THE ELECTRICAL CONSULTANT, FOR THE WORK TO BE COMPLETED:
- $5,000 PER ALTERNATE PACKAGE SUBMISSION TO REVIEW AND ENSURE ENERGY AND CONTROL TARGETS ARE NOT DEVIATED FROM.
- $8,000 TO COMPLETE THE COMPLIANCE FORMS WITH THE ACCEPTED ALTERNATE LUMINAIRES/CONTROL PACKAGE.

8. GUARANTEE WARRANTY

.1 THE ELECTRICAL TRADE SHALL FURNISH A WRITTEN GUARANTEE WARRANTY, SIGNED BY AUTHORIZED PERSONNEL, STATING:
  .1 THAT ALL WORK EXECUTED UNDER THIS CONTRACT WILL BE FREE FROM DEFECTS OF MATERIAL AND WORKMANSHIP FOR A PERIOD OF 1 YEAR FROM DATE OF FINAL ACCEPTANCE.
  .2 THE ABOVE PARTIES FURTHER AGREE TO, AT THEIR OWN EXPENSE, REPAIR AND REPLACE ALL SUCH DEFECTIVE WORK, AND OTHER WORK DAMAGED THEREBY, WHICH FAILS OR BECOMES DEFECTIVE DURING THE TERM OF THE GUARANTEE WARRANTY PROVIDED THAT SUCH FAILURE IS NOT DUE TO IMPROPER USAGE.
  .3 THE PERIOD OF THE GUARANTEE SPECIFIED WILL IN NO WAY SUPPLANT ANY OTHER GUARANTEE OF A LONGER PERIOD BUT BE BINDING ON WORK NOT OTHERWISE COVERED.

9. SETTING OUT OF THE WORK

.1 THE ELECTRICAL TRADE IS RESPONSIBLE FOR CORRECTING ALL WORK COMPLETED CONTRARY TO THE INTENT OF DRAWINGS AND SPECIFICATIONS AND SHALL BEAR ALL COSTS INVOLVED IN MAKING THE CORRECTIONS. WHERE INTENT OF DRAWINGS AND SPECIFICATIONS IS NOT CLEAR, OBTAIN CLARIFICATION FROM THE ENGINEER BEFORE PROCEEDING WITH WORK.

.2 THE ELECTRICAL TRADE IS TO GIVE WORK HIS PERSONAL SUPERVISION, LAY OUT HIS OWN WORK, DO ALL NECESSARY LEVELING AND MEASURING OR EMPLOY A COMPETENT ENGINEER TO DO SO. FIGURES, FULL SIZE AND DETAIL DRAWINGS TO TAKE PRECEDENCE OVER SCALE MEASUREMENTS.

.3 THE ELECTRICAL TRADE SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE OWNER OR ANY OTHER TRADE BY IMPROPER LOCATION OR CARRYING OUT OF HIS WORK.

.4 THE ELECTRICAL TRADE, IN THE SETTING OUT OF HIS WORK, IS TO MAKE REFERENCE TO ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS, HE SHALL CONSULT WITH ALL RELEVANT TRADES IN SETTING OUT LOCATIONS FOR CONDUIT RUNS, LIGHTING FIXTURES, PANEL ASSEMBLIES, AND ALL OTHER ELECTRICAL EQUIPMENT, SO THAT CONFLICTS ARE AVOIDED AND SYMMETRICAL SPACING IS MAINTAINED.

.5 THE ELECTRICAL TRADE SHALL CONFIRM OUTLET LOCATIONS AND MOUNTING HEIGHTS WITH THE PROJECT COORDINATOR ON SITE PRIOR TO INSTALLATION.

.6 WHERE RECEPTACLES ARE MOUNTED ABOVE COUNTERS, BENCHES, SPLASHBACKS, OR OTHER FIXTURES, THEIR LOCATIONS AND MOUNTING HEIGHTS ARE TO BE COORDINATED WITH THE BUILT-IN UNITS. REFER TO ARCHITECTURAL DETAILS. WHERE RECEPTACLES OCCUR IN OUTSIDE WALLS WHERE HEATING UNITS ALSO OCCUR, RECEPTACLE HEIGHT TO BE ADJUSTED TO COORDINATE WITH THE HEATING UNITS.

.7 SWITCH MOUNTING HEIGHTS ARE TO BE COORDINATED WITH ARCHITECTURAL DETAILS AND SHALL BE ADJUSTED, IF REQUIRED, TO COORDINATE WITH PANELING, DADOS, MASONRY COURSE LINES, OR OTHER RELEVANT BUILDING FEATURES.

.8 WHERE OUTLET BOXES OCCUR IN EXTERIOR WALLS, THE ELECTRICAL TRADE IS TO ENSURE THAT THERE IS INSULATION BEHIND THE OUTLET BOXES TO PREVENT CONDENSATION THROUGH THE BOXES.

.9 ALLOW FOR WORK AFTER HOURS AS REQUIRED AND COORDINATE WITH OWNER/TENANTS IF APPLICABLE.

.10 CONTRACTOR TO COORDINATE ANY INTERRUPTIONS TO ADJOINING TENANTS IN ORDER TO AVOID ANY INCONVENIENCES TO SAID TENANT. IF NECESSARY CONTRACTOR TO DO ANY REQUIRED CONNECTIONS ON OFF HOURS

10. EXAMINATION OF THE SITE

.1 PRIOR TO SUBMITTING TENDER, THE ELECTRICAL TRADE SHALL CAREFULLY EXAMINE THE SITE AND ASCERTAIN ALL CONDITIONS WHICH MAY AFFECT HIS TRADE. NO ADDITIONAL MONEY WILL BE ALLOWED FOR WORK RESULTING FROM CONDITIONS THAT SHOULD HAVE BEEN NOTICED AND ACCOUNTED FOR DURING A THOROUGH EXAMINATION OF THE SITE.CUTTING AND PATCHING

.2 THE GENERAL TRADE WILL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR ELECTRICAL INSTALLATION. STRUCTURAL MEMBERS MUST NOT BE CUT WITHOUT CONSENT OF THE ENGINEER.

.3 WHERE WORK DONE BY THE ELECTRICAL TRADE DAMAGES THE WORK OF OTHER TRADES, THE ELECTRICAL TRADE SHALL REPAIR AND MAKE GOOD SUCH DAMAGE TO THE SATISFACTION OF EACH TRADE CONCERNED AND THE ENGINEER.

.4 ALL PENETRATIONS SHALL BE SEALED WITH APPROVED FIRE STOP MATERIAL.

11. CLEANUP

.1 THE ELECTRICAL TRADE AND HIS SUB-TRADES ARE TO KEEP THE SITE FREE DURING CONSTRUCTION OF DEBRIS, BOXES, PACKING, AND OTHER MATERIALS ASSOCIATED WITH THE WORK OF THIS TRADE. ALL WASTE MATERIAL IS TO BE DISPOSED OF IN A SAFE AND ENVIRONMENTALLY RESPONSIBLE MANNER.

.2 UPON COMPLETION OF WORK, THE ELECTRICAL INSTALLATION SHALL BE LEFT IN A CLEAN AND FINISHED CONDITION TO THE SATISFACTION OF THE ENGINEER.

12. ACCESS DOORS

.1 THE ELECTRICAL TRADE IS TO SUPPLY AND INSTALL ACCESS DOORS AS REQUIRED FOR PROPER SERVICING OF ALL ELECTRICAL WORK. ACCESS DOORS SHALL BE COMPLETE WITH NECESSARY FRAMES AND HINGED DOORS HELD CLOSED WITH CAPTIVE STUDS. ACCESS PANEL TO BE OF NOT LESS THAN 14 GAUGE STEEL, PRIME COAT FINISHED AND PAINTED ON THE JOB TO MATCH THE WALL OR CEILING FINISH.

.2 THE NUMBER OF ACCESS DOORS SHALL BE KEPT TO A MINIMUM.

.3 THE ELECTRICAL TRADE SHALL PROVIDE ACCESS PANELS IN THE DRYWALL CEILINGS FOR ALL ELECTRICAL JUNCTION BOXES AND EQUIPMENT IN ACCORDANCE WITH APPLICABLE CODES.

13. CODES, PERMITS AND INSPECTION

.1 THE ENTIRE INSTALLATION, INCLUSIVE OF MATERIAL AND LABOR, IS TO COMPLY WITH ALL THE REQUIREMENTS OF ALL BUILDING CODES AND AUTHORITIES HAVING JURISDICTION, THE CANADIAN ELECTRICAL CODE, AND REGULATIONS OF THE LOCAL INSPECTION DEPARTMENT.

.2 THE ELECTRICAL TRADE IS TO OBTAIN ALL PERMITS REQUIRED FOR EACH STAGE OF WORK, AND AFTER COMPLETION OF THE ENTIRE INSTALLATION FURNISH TO THE ENGINEER A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTION DEPARTMENT OF THE LOCAL AUTHORITY.

14. MECHANICAL EQUIPMENT

.1 UNLESS SPECIFIED OTHERWISE, THE ELECTRICAL CONTRACTOR IS TO SUPPLY AND INSTALL ALL REQUIRED CONDUIT, WIRING, ELECTRICAL FITTINGS AND CONNECTIONS FOR ALL MOTORS AND OTHER ELECTRICAL EQUIPMENT, EVEN THOUGH SUCH MOTORS AND OTHER ELECTRICAL EQUIPMENT MAY BE SUPPLIED BY OTHERS. WHERE REQUIRED BY THE DRAWINGS OR APPLICABLE REGULATIONS, DISCONNECT SWITCHES, STARTERS, OVERLOAD RELAYS AND OTHER NECESSARY PROTECTIVE DEVICES ARE TO BE SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. MOTORS AND CONTROLS SHALL BE FURNISHED BY THE SUPPLIER OF THE DRIVEN EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL INCLUDE ALL WORK AND CONNECTIONS REQUIRED TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL.

.2 THE ELECTRICAL EQUIPMENT MAY INCLUDE BUT NOT BE LIMITED TO SUCH ITEMS AS GRILLE MOTORS AND INTERLOCKS, STOREFRONT AND INTERIOR SIGNAGE, STARTING DEVICES, MOTOR CONTROLLERS, FLOAT SWITCHES, ALARM DEVICES OR SYSTEMS, PUSH BUTTONS, EXHAUST FANS, DATA SYSTEMS, INTERCOMS AND STEREO SYSTEMS.

.3 THE ELECTRICAL CONTRACTOR IS TO CONFIRM MOTOR (OR OTHER EQUIPMENT) LOCATION AND SIZES WITH THE TRADE SUPPLYING THE MOTOR (OR OTHER EQUIPMENT) BEFORE COMMENCING ANY ASSOCIATED ELECTRICAL WORK.

15. TESTS

.1 ALL PORTIONS OF ELECTRICAL WORK ARE TO BE TESTED FOR SATISFACTORY OPERATION.

.2 BEFORE ENERGIZING ANY PORTION OF THE ELECTRICAL SYSTEM, THE ELECTRICAL TRADE SHALL PERFORM MEGGER TESTS ON ALL FEEDERS AND BRANCH CIRCUITS. ANY PROBLEMS DISCOVERED BY SUCH TESTING ARE TO BE CORRECTED BY THE ELECTRICAL TRADE AND THE CIRCUITS IN QUESTION RETESTED. THE RESULTS OF ALL FINAL TESTING SHALL BE PROVIDED TO THE ENGINEER IN REPORT FORM.

.3 UPON PROJECT COMPLETION, AND IMMEDIATELY PRIOR TO FINAL INSPECTION AND TAKEOVER, THE ELECTRICAL TRADE SHALL CHECK THE LOAD BALANCE ON ALL FEEDERS AND AT DISTRIBUTION CENTRES, LOAD CENTRES, AND PANELS. THESE CHECKS ARE TO BE CARRIED OUT BY TURNING ON ALL LOADS AND CHECKING LOAD CURRENT BALANCE. IF LOAD UNBALANCE EXCEEDS 15 %, THE CIRCUITS ARE TO BE RECONFIGURED AS NECESSARY TO BALANCE THE LOADS.

16. PAINTING AND FINISHES

.1 ALL ELECTRICAL FITTINGS, SUPPORTS, HANGER RODS, PULLBOXES, CHANNEL FRAMES, CONDUIT RACKS, OUTLET BOXES, BRACKETS, AND CLAMPS ARE TO HAVE A GALVANIZED FINISH OR A PAINT FINISH OVER CORROSION-RESISTANT PRIMER.

.2 ALL PANELS ARE TO BE FACTORY-FINISHED WITH SPRAY-ON AIR DRY ENAMEL. ALL ENAMEL TO BE APPLIED OVER CORROSION-RESISTANT PRIMER. MATTE OR FLAT TYPE FINISH PAINT WILL NOT BE ACCEPTED. ALL PANELS OR SIMILAR FACTORY-FINISHED UNITS THAT ARE SCRATCHED OR MARKED DURING INSTALLATION ARE TO BE TOUCHED UP WITH MATCHING SPRAY-ON AIR DRY LACQUER AND, IF REQUIRED TO PROVIDE A SATISFACTORY JOB, TO BE COMPLETELY REFINISHED.

.3 ALL 120/208 V PANELBOARDS, PULLBOXES, AND OTHER ELECTRICAL CABINETS AND BOXES ARE TO BE FINISHED IN GRAY ENAMEL.

17. EMT CONDUIT

.1 WHERE REQUIRED BY THE CANADIAN ELECTRICAL CODE, ALL WIRE AND CABLE IS TO BE INSTALLED IN EMT CONDUIT.

.2 UNLESS OTHERWISE NOTED, EMT CONDUIT ARE TO BE CONCEALED IN ALL FINISHED AREAS. IN SERVICE AREAS, CONDUIT AND EMT SHALL BE RUN ON SURFACE UNLESS INDICATED OTHERWISE.

.3 SURFACE MOUNTED EMT CONDUIT ARE TO BE INSTALLED PARALLEL TO STRUCTURAL LINES, AND, WHERE BENDS OCCUR IN PARALLEL RUNS, THEY SHALL BE CONCENTRIC.

.4 RACEWAYS ARE TO BE INSTALLED FREE FROM DENTS AND BRUISES AND SHALL HAVE THEIR ENDS CAPPED, PLUGGED, OR SEALED AS NECESSARY TO PREVENT ENTRANCE OF DIRT OR MOISTURE.

.5 IN ALL AREAS SUBJECT TO MOISTURE, WATERTIGHT FITTINGS MUST BE USED.

.6 ALL RACEWAY, EXCEPT WHERE OTHERWISE INDICATED, SHALL BE SIZED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE.

.7 TECK90 OR SEAL TIGHT FLEXIBLE CONDUIT IS BE UTILIZED FOR CONNECTIONS TO MOTORS AND MOTOR CONTROLLERS.

.8 ALL UNDERGROUND CONDUIT SYSTEMS ARE TO BE OF APPROVED RPVC SCHEDULE 40 CONDUIT, COMPLETE WITH INSTALLED BONDING CONDUCTOR, AND INSTALLED AT OR BELOW THE DEPTH REQUIRED BY CODE. PROVIDE 150mm CLEAN SAND BEDDING ABOVE AND 75mm BELOW CONDUITS AND CONTINUOUS MARKING TAPE 300mm BELOW GRADE. PROVIDE SUITABLE BACKFILL AND COMPACTION.

18. EXPANSION JOINTS

.1 WHERE CONDUITS ARE INSTALLED IN CONCRETE SLABS OR CROSS STRUCTURAL EXPANSION JOINTS, AN APPROVED EXPANSION FITTING SHALL BE INSTALLED.

19. WIRE AND CABLE

.1 ALL BUILDING WIRING IS TO BE RW90, 600V, COPPER, EXCEPT WHERE NOTED OTHERWISE.

.2 A MINIMUM CONDUCTOR SIZE OF #12 AWG COPPER IS TO BE USED, EXCEPT WHERE NOTED OTHERWISE.

.3 ALL CONDUCTORS ARE TO BE COLOR CODED THROUGHOUT THE INSTALLATION AS FOLLOWS:
- EQUIPMENT GROUNDING CONDUCTOR - GREEN
- NEUTRAL CONDUCTOR - WHITE
- 120/208V PHASE WIRES - RED, BLACK, AND BLUE
- 347/600V PHASE WIRES - RED, BLACK, AND BLUE

.4 ALL WIRING AND CABLING IN EXPOSED OR OPEN CEILING AREAS IS TO BE INSTALLED IN EMT CONDUIT.

21. WIRING DEVICES & BOXES

.1 ALIGN ALL DEVICES AND PLATES PLUMB AND LEVEL WITH BUILDING STRUCTURAL LINES.

.2 ALL OUTLET BOXES ARE TO BE FLUSH MOUNTED EXCEPT WHERE SPECIFIED OTHERWISE.

.3 ALL JUNCTION BOXES ARE TO HAVE VISIBLE P-TOUCH LABELS INDICATING THE CIRCUIT NUMBERS UTILIZED; PEN OR FELT IS NOT ACCEPTABLE.

.4 SUPPLY AND INSTALL BLANK COVER PLATES FOR ALL UNUSED JUNCTION BOXES, INCLUDING EXISTING.

22. LOCATION OF OUTLETS

.1 THE ENGINEER RESERVES THE RIGHT TO CHANGE THE LOCATION OF OUTLETS TO WITHIN 3 M OF POINTS INDICATED ON PLANS WITHOUT EXTRA CHARGE, PROVIDED THE ELECTRICAL CONTRACTOR IS ADVISED BEFORE INSTALLATION IS MADE.

.2 ELECTRICAL TRADE TO REFER TO ARCHITECTURAL ROOM ELEVATIONS FOR POSITIONS, AND MOUNTING HEIGHTS OF ALL OUTLETS, SWITCHES, INTERCOMMUNICATION, TELEPHONES, SPEAKERS, CLOCKS, ETC. POSITIONS SHOWN ON ARCHITECTURAL PLANS TO TAKE PRECEDENCE OVER POSITIONS OR MOUNTING HEIGHTS SHOWN ON ELECTRICAL PLANS.

23. PULL BOXES

.1 THE ELECTRICAL TRADE SHALL SUPPLY AND INSTALL PULLBOXES AS REQUIRED TO SUIT JOB CONDITIONS. PULLBOXES SHALL CONFORM TO CANADIAN ELECTRICAL CODE REQUIREMENTS. PULLBOXES TO BE FINISHED IN ENAMEL OVER CORROSION-RESISTANT PRIMER WITH SCREW-ON OR HINGED COVER. IN REMOVABLE CEILING AREAS, PULLBOXES ARE TO BE INSTALLED ABOVE THE CEILING.

24. SWITCHES AND RECEPTACLES

.1 ALL SWITCHES AND RECEPTACLES SHALL BE COMMERCIAL GRADE. MATCH EXISTING STANDARD WHERE STANDARD IS PRESENT. WHERE NO STANDARD IS PRESENT, PROVIDE WHITE DECORA SWITCHES AND RECEPTACLES AND WHITE DECORA FACEPLATES.

.2 PROVIDE P-TOUCH LABELS FOR ALL RECEPTACLE LABELS.

.3 FOR ALL RECEPTACLES OTHER THAN STANDARD 15A DUPLEX RECEPTACLES, PROVIDE LAMACOID NAMETAGS GIVING AMP RATING, PHASE AND VOLTAGE.

.4 GROUND FAULT CIRCUIT INTERRUPTING (GFI) DUPLEX RECEPTACLES SHALL BE COMMERCIAL GRADE.

.5 ISOLATED GROUND (IG) RECEPTACLES SHALL BE COMMERCIAL GRADE.

25. SUPPORTS

.1 ALL CONDUIT, RACEWAYS, AND OTHER ELECTRICAL EQUIPMENT SHALL BE SECURELY AND ADEQUATELY SUPPORTED, IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE.

.2 WHERE INSERTS ARE REQUIRED IN CONCRETE, EXPANSION INSERTS, LEAD INSERTS OR PLASTIC INSERTS ARE TO BE USED IN DRILLED HOLES. SHOT DRIVEN PINS MAY BE USED IN STRUCTURAL CONCRETE ONLY WITH THE PERMISSION OF THE ENGINEER.

26. GROUNDING AND BONDING

.1 A COMPLETE GROUNDING AND BONDING SYSTEM SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE AND THE ELECTRICAL INSPECTION DEPARTMENT.

.2 ALL METAL PARTS NOT CARRYING CURRENT, INCLUDING BUT NOT LIMITED TO, SECONDARY FEEDER CIRCUITS, EQUIPMENT AND PANELBOARD ENCLOSURES, METAL RACEWAYS, PULL AND JUNCTION BOXES, SHALL BE PROPERLY GROUNDED. METAL RACEWAYS SHALL UTILIZE DOUBLE LOCKNUTS AND OTHER FITTINGS WHERE NECESSARY TO PROVIDE GROUND CONTINUITY.

.3 A SEPARATE GROUND CONDUCTOR SHALL BE INSTALLED IN ALL RACEWAY FEEDER RUNS, FLEXIBLE CONDUIT, AND IN CONDUIT INSTALLED IN SLAB OR UNDERGROUND.

.4 THIS CONTRACTOR IS RESPONSIBLE FOR THE GROUNDING OF ALL THE EQUIPMENT RACKS IN THE SERVER ROOM, THE CABLE TRAY, ELECTRICAL EQUIPMENT AND ANY CONDUIT. ALL GROUNDING OF SERVER RACKS MUST BE IN ACCORDANCE TO MANUFACTURERS GUIDELINES AND RECOMMENDATIONS.

27. PANELS

.1 PROVIDE COMPLETE PANELBOARDS. UNLESS OTHERWISE INDICATED PANELBOARDS ARE TO BE 120/208V, 3PH, 4W OR 347/600V, 3Ø, 4W SOLID NEUTRAL DESIGN WITH SEQUENCE STYLE BUSSING AND FULL CAPACITY NEUTRAL WITH BOLT-ON CIRCUIT BREAKERS. WHERE DOUBLE NEUTRALS ARE INDICATED ON THE SINGLE LINE DIAGRAM, PROVIDE 200% RATED NEUTRAL PANELBOARDS.

.2 PROVIDE ALL CIRCUIT BREAKERS INDICATED PLUS A MINIMUM OF 2x15A 1P SPARES IN EACH PANEL. CIRCUIT BREAKERS TO BE RATED MINIMUM 25kA I.C. UNLESS OTHERWISE INDICATED AND BE SERIES RATED.

.3 PANELS ARE TO BE FLUSH MOUNTED IN PUBLIC AREAS AND SURFACE MOUNTED IN SERVICE ROOMS, ALL COMPLETE WITH ALL TRIM, LOCKABLE DOORS AND INSTALLATION HARDWARE. PROVIDE DRIP SHIELDS IN AREAS WITH SPRINKLERS.

.4 UPDATED TYPEWRITTEN PANEL DIRECTORIES SHALL BE PROVIDED FOR ALL PANELS.

.5 UTILIZE EXISTING PANELBOARDS AS INDICATED ON THE DRAWING. REUSE EXISTING BREAKERS WHERE POSSIBLE. PROVIDE NEW BREAKERS AS REQUIRED.

.6 BALANCE PANEL LOAD FOR EACH PHASE A, B, & C. ALLOW FOR RELOCATING CIRCUITS WITHIN PANEL BOARD TO BALANCE THE LOAD.

28. LIGHTING LUMINAIRES AND LIGHTING CONTROLS

.1 PROVIDE A NEW LIGHTING SYSTEM, COMPLETE AND FULLY OPERATIONAL AND IN CONFORMANCE WITH CODE AND ULC LISTING REQUIREMENTS. UNLESS NOTED OTHERWISE, ALL FIXTURES AND LAMPS ARE TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AS SPECIFIED IN THE DRAWINGS.

.2 ELECTRICAL TRADE TO INSTALL ALL LIGHTING LUMINAIRES COMPLETE WITH LAMPS, MOUNTING BRACKETS, BALLASTS AND ALL NECESSARY ACCESSORIES IN ACCORDANCE WITH THE LUMINAIRE TYPES SHOWN ON THE DRAWINGS, OR OTHERWISE SPECIFIED.

.3 ALL LUMINAIRES SHALL BE ALIGNED, AS APPROPRIATE, WITH ONE ANOTHER AND WITH STRUCTURAL LINES.

.4 ALL LUMINAIRES SHALL BE CLEANED AND LAMPED UPON COMPLETION OF WORK AND PRIOR TO FINAL ACCEPTANCE. UTILIZE MANUFACTURER'S APPROVED OR RECOMMENDED CLEANING SOLUTIONS.

.5 WHERE NO SWITCH IS INDICATED ON THE DRAWINGS FOR LIGHTING IN PUBLIC AREAS OF THE BUILDING, THE LUMINAIRES SHALL BE SWITCHED FROM THE PANEL. BREAKERS USED FOR SUCH SWITCHING SHALL BE SWITCH RATED.

.6 SWITCHES SHALL HAVE A CURRENT RATING NOT LESS THAN THAT OF THE CIRCUIT TO WHICH THEY ARE CONNECTED.

.7 ELECTRICAL TRADE TO SUPPLY AND INSTALL ALL LIGHTING CONTROLS WITH LINE VOLTAGE SWITCHES, DIMMER SWITCHES (RATED 1500W), LOW VOLTAGE SWITCHES, LIGHTING RELAYS, BARRIER AND ALL CONTROL WIRING AND COMPONENTS TO SUIT THE LAYOUT. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATION OF THE MANUFACTURER AND COMPLY WITH CODES.

.8 LOW VOLTAGE MASTER SWITCHES AND BUILDING LIGHTING CONTROL SHALL HAVE THE CAPABILITY TO TURN ON AND OFF ALL LIGHTING (120 AND 347 VOLT) WITH THE EXCEPTION OF LUMINAIRES ON EMERGENCY LIGHTING CIRCUITS OR UNSWITCHED NIGHT LIGHT CIRCUITS.

.9 COORDINATE LIGHTING CONTROL PROGRAMMING WITH THE BUILDING SUPERVISOR.

29. EXIT LIGHTING AND EMERGENCY LIGHTING

.1 EMERGENCY BATTERY PACKS SHALL BE LOADED SUCH THAT THE LOAD MAY BE OPERATED BY THE BATTERY PACK FOR AT LEAST 2 HOURS.

.2 AFTER INSTALLATION OF EACH BATTERY PACK AND ALL OF ITS ASSOCIATED REMOTE HEADS, THE VOLTAGE AT EACH REMOTE HEAD AND AT THE BATTERY PACK IS TO BE MEASURED. WHERE THE VOLTAGE DROP FROM THE BATTERY TO A REMOTE HEAD EXCEEDS 5% OF THE NOMINAL BATTERY VOLTAGE, THE CIRCUITING OF LIGHTS AND THE SIZE OF WIRE IS TO BE RECONFIGURED TO REDUCE THE VOLTAGE DROP TO LESS THAN 5%.

.3 ALL EXIT AND EMERGENCY LIGHTING IS TO OPERATE AUTOMATICALLY AND IMMEDIATELY UPON FAILURE OF NORMAL POWER SUPPLY.

.4 PROVIDE NEW EXIT LIGHTS MATCHING BUILDING STANDARD, EMERGENCY BATTERY UNITS, EMERGENCY REMOTE HEADS AND CONNECT LUMINAIRES TO EMERGENCY LIGHTING CIRCUIT AS SHOWN ON THE DRAWINGS.

30. FIRE ALARM SYSTEM

.1 THE ELECTRICAL TRADE SHALL FURNISH ALL LABOR, SERVICES, AND MATERIALS NECESSARY TO PROVIDE AND INSTALL A COMPLETE, FUNCTIONAL LIFE SAFETY FIRE SYSTEM. THE SYSTEM SHALL COMPLY IN EVERY RESPECT WITH ALL PERTINENT CODES, RULES, AND REGULATIONS, AND WITH THE LAWS OF THE LOCAL AUTHORITIES HAVING JURISDICTION. THE SYSTEM SHALL COMPLY IN ALL RESPECTS WITH THE REQUIREMENTS OF THESE DRAWINGS, THIS SPECIFICATION, THE MANUFACTURER'S RECOMMENDATIONS, AND UNDERWRITER'S LABORATORIES CANADA (ULC) LISTINGS.

.2 THE SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO:
  .1 AUTOMATIC AND MANUALLY ACTIVATED ALARM INITIATING AND MONITORING DEVICES.
  .2 AUDIBLE NOTIFICATION APPLIANCES AND PERIPHERALS
  .3 SYSTEM PROGRAMMING AND COMMISSIONING
  .4 CONDUIT, WIRE, AND ALL OTHER ACCESSORIES REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL LIFE SAFETY SYSTEM.

.3 DETAILED SHOP DRAWINGS OF THE SYSTEM ARE TO BE PROVIDED TO THE ENGINEER FOR APPROVAL BEFORE INSTALLATION BEGINS.

.4 THE SYSTEM SHALL BE SUPERVISED AND ADDRESSABLE.

.5 THE EXISTING FIRE ALARM SYSTEM IS A SIMPLEX 4100ES SYSTEM. ALL NEW DEVICES SHALL BE OF SAME MANUFACTURER AND FULLY COMPATIBLE.

.6 UPON COMPLETION OF FIRE ALARM SYSTEM INSTALLATION, THE MANUFACTURER AND ELECTRICAL CONTRACTOR ARE TO PERFORM COMPLETE SYSTEM VERIFICATION TESTING. THE CONTRACTOR SHALL CORRECT, AT HIS OWN COST, ALL DEFICIENCIES AND PROVIDE FINAL VERIFICATION REPORT TO THE ENGINEER.

.7 THE FIRE ALARM SYSTEM SHALL BE INSTALLED SO AS TO FACILITATE FUTURE EXPANSION OF THE SYSTEM.

.8 WHERE FIRE ALARM SYSTEM IS EXISTING WITHIN THE BUILDING, THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL NEW DEVICES AS SHOWN ON THE DRAWINGS. NEW DEVICES SHALL BE THE SAME MANUFACTURER AND BE COMPATIBLE AS THE EXISTING FIRE ALARM SYSTEM.

.9 NEW DEVICES SHALL BE CONNECTED TO NEW ZONES AS REQUIRED. PROVIDE AND INSTALL NEW NECESSARY CARDS AND AMPLIFIERS AND EQUIPMENT AS REQUIRED TO ACHIEVE A FULLY OPERATIONAL FIRE ALARM SYSTEM. VERIFY ALL DEVICES AND ZONES AS PER NOTE 6.

.10 THE FIRE ALARM SYSTEM SHALL REMAIN SUPERVISED AND MONITORED.

.11 UPDATE EXISTING FIRE ALARM GRAPHIC FOR EXISTING ANNUNCIATOR WHERE REQUIRED. ALLOW FOR ALL COSTS ASSOCIATED WITH HIRING THE GRAPHIC MANUFACTURER TO PROVIDE THE NEW GRAPHIC.

31. SEISMIC PROTECTION

.1 THE ELECTRICAL TRADE SHALL PROVIDE SEISMIC RESTRAINT AND ANCHORAGE FOR ALL EQUIPMENT AND SERVICES IN ACCORDANCE WITH THE CURRENT EDITION OF THE B.C. BUILDING CODE, AND ALL APPLICABLE BUILDING BYLAWS.

.2 IF REQUESTED PROVIDE CERTIFIED PROFESSIONALLY SEALED SHOP AND PLACEMENT DRAWINGS WHERE APPLICABLE FOR ALL ELECTRICAL EQUIPMENT AND EQUIPMENT ASSEMBLIES SHOWING THE METHODS OF ATTACHMENT TO THE PARTICULAR STRUCTURE FOR EACH PIECE OF EQUIPMENT AND ASSEMBLY AND PROVIDE ANCHORAGE/ATTACHMENT DETAILS APPROVED AND SEALED BY A B.C. REGISTERED PROFESSIONAL ENGINEER.

.3 INCLUDE IN THE TENDERED PRICE ALL SERVICES OF A PROFESSIONAL ENGINEER INCLUDING BUT NOT LIMITED TO PROVIDING LETTERS OF ASSURANCE FOR THE PROJECT IN RESPECT OF THE SEISMIC RESTRAINT OF ALL ELECTRICAL MATERIALS AND EQUIPMENT, CONDUCTING THE NECESSARY SITE REVIEWS AND PROVIDING A LETTER AT THE CONCLUSION OF THE PROJECT, CONFIRMING THAT ALL SEISMIC RESTRAINTS FOR THE ELECTRICAL WORKS HAVE BEEN INSTALLED IN ACCORDANCE WITH THE ENGINEER'S INSTRUCTIONS. PAY ALL ASSOCIATED FEES AS REQUIRED. APPROVED SEISMIC ENGINEERS ARE LEON BELL OF BELL ENGINEERING, CLINT LOW OF BBP, AND AMIR MOHSENI OF PARADIGM ENGINEERING INC. SEISMIC ENGINEER SHALL PROVIDE PROOF OF INSURANCE AND CREDENTIALS IF REQUESTED.

32. COMMUNICATIONS (VOICE, DATA & TV) & SECURITY ROUGH-IN

.1 NO CONDUIT RUN SHALL EXCEED TWO 90 DEGREE BENDS AND ONE 45 DEGREE SWEEPING BEND.

.2 ALL COMMUNICATION BACKBOARDS ARE TO BE 21mm THICK, G1S, AND PAINTED WITH FIRE RETARDANT PAINT TO MATCH COLOR OF THE ROOM.

.3 THE INSTALLATION OF COMMUNICATIONS EQUIPMENT, AND CONDUIT TO BE USED FOR COMMUNICATION WIRES, SHALL COMPLY IN ALL RESPECTS WITH THE REQUIREMENTS OF TELUS AND SHAW AND TO EIA/TIA TELECOMMUNICATION STANDARDS.

.4 PROVIDE DOUBLE GANG BOX C/W SINGLE GANG MUD RING, OUTLET BOXES AND CONDUITS C/W PULL STRING FOR COMMUNICATIONS OUTLETS AS SHOWN ON THE DRAWINGS.

.5 INSTALL 3/4" EMT CONDUITS FROM EACH WALL OR FLOOR MOUNTED COMMUNICATION OUTLET (UNLESS NOTED OTHERWISE) TO THE ACCESSIBLE CEILING SPACE ABOVE C/W BUSHING AT BOTH ENDS.

33. IDENTIFICATION

.1 IDENTIFY ALL MAJOR PIECES OF EQUIPMENT, INCLUDING BUT NOT LIMITED TO PANELBOARDS, ELECTRICAL CABINETS, AND BREAKERS IN PANELBOARDS WITH ENGRAVED LAMACOID LABELS, BLACK LETTERING ON WHITE BACKGROUND.

.2 PROVIDE TYPEWRITTEN DIRECTORIES IN ALL PANELS.

.3 PROVIDE LAMACOID NAMEPLATE ON EACH PANEL COVER TO IDENTIFY PANEL NAME, NUMBER OF PHASES, VOLTAGE, CURRENT RATING AND SOURCE OF FEEDER.

.4 IDENTIFY BRANCH CIRCUIT WIRES TO MEET CODE REQUIREMENTS.

34. ALTERNATES

.1 ALL REQUESTS FOR ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER NOT LESS THEN 5 DAYS PRIOR TO THE CLOSE OF TENDER.

.2 THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ENSURING THAT ALTERNATE PRODUCTS MEET ALL SPACE, WEIGHT, CONNECTION, POWER, WIRING, AND PERFORMANCE REQUIREMENTS.

35. POWER DISTRIBUTION

.1 INSTALL A COMPLETE POWER DISTRIBUTION SYSTEM INCLUDING UNDERSLAB CONDUIT, SERVICE CONNECTIONS, GROUNDING, DISTRIBUTION EQUIPMENT, AND PANELBOARDS.

36. COMMUNICATION CABLING

.1 CAT 6 UTP CABLE SHALL BE FOUR PAIR, UNSHIELDED, TWISTED, 22 AWG TO 24 AWG, 100 OHM FT4, SOLID COPPER BY PANDUIT OR APPROVED EQUAL. TRANSMISSION REQUIREMENTS SHALL MEET OR EXCEED ALL REQUIREMENTS OF TIA/EIA-568-B.2 FOR CATEGORY 6 CABLING AND COMPONENTS.

37. SECURITY

.1 NEW SECURITY DEVICES SHALL BE FROM SAME MANUFACTURER AS EXISTING ON SITE, AND SHALL BE COMPATIBLE WITH EXISTING SYSTEM.

.2 CONTRACTOR SHALL PROVIDE MONITORING OF NEW DOORS FROM EXISTING CHUBB EDWARDS ALARM SYSTEM. ALLOW FOR ALL CONTROLS, WIRING, ACCESSORIES AND PROGRAMMING AS REQUIRED FOR COMPLETE OPERATION.

.3 ALLOW FOR NEW CABINET AND DOOR CONTROL/MONITORING EXPANSION MODULES AS REQUIRED FOR NEW DOORS. INSTALL NEW EQUIPMENT IN OFFICE ROOM BEHIND EXISTING RECEPTION DESK, NEXT TO NURSE CALL SYSTEM. PATCH AND MAKE GOOD ANY PENETRATIONS OR CUTTING OF EXISTING WALLS.

38. PUBLIC ADDRESS

.1 PROVIDE NEW SPEAKERS ON A NEW ZONE AS INDICATED AND CONNECT BACK TO EXISTING HEAD END EQUIPMENT PA AMPLIFIER (QUEST PR-120) LOCATED IN THE EXISTING RECEPTION AREA.

.2 NEW CEILING RECESSED SPEAKERS SHALL BE COMPATIBLE WITH EXISTING SYSTEM AND MINIMUM SPECIFICATIONS AS FOLLOWS:
  .1 SPEAKER SIZE: 8-inch
  .2 IMPEDANCE: 8-ohm, 25/70-VOLT TRANSFORMER
  .3 FREQUENCY RESPONSE: 65Hz - 17kHz
  .4 POWER TAPS: .312, .625, 1.25, 2.5, 5 Watts
  .5 DRYWALL OF T-bar RECESSED AS REQUIRED

39. FIRE STOP

.1 AFTER INSTALLATION OF THE ELECTRICAL, ALL PENETRATIONS OF FIRE ZONES FOR CONDUITS, SLEEVES, CABLE TRAYS, POKETHRU'S ETC. SHALL BE SEALED USING MATERIAL AND METHODS THAT MEET THE REQUIREMENTS OF ULC STANDARDS CAN/ULC-S115 AND INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. THE FIRE STOP MATERIAL SHALL ALLOW FOR RE-ENTERABLE ACCESS. CSA T530 APPENDIX B SHALL BE USED AS A GUIDE. BEFORE INSTALLATION, CONTRACTOR SHALL IDENTIFY A FIRE STOPPING SYSTEM SUITABLE FOR THE INSTALLATION. CONTRACTOR SHALL OBTAIN SHOP DRAWINGS OF THE FIRE STOP SYSTEM FROM MANUFACTURER AND SHOULD ON SITE, UPON REQUEST, BE ABLE TO PRODUCE FIRE STOP SHOP DRAWINGS FOR CONSULTANT. ALLOW FOR 2% DESTRUCTIVE TESTING OF THE FIRE STOPPING INSTALLATION.

.2 LABEL FIRE STOP PENETRATIONS WITH PRODUCT USED AND cUL SYSTEM NUMBER WITH STICKER.

40. NURSE CALL SYSTEM

.1 THE EXISTING AUSTCO NURSE CALL SYSTEM IS TO BE MODIFIED AS INDICATED. CONTRACTOR SHALL PERFORM A SITE VISIT PRIOR TO SUBMITTING TENDER TO DETERMINE THE SYSTEM SPECIFICATIONS AND THE EXTENT OF THE WORK REQUIRED.

.2 ADD PUSH BUTTONS AND PULL CORDS AS INDICATED, AND CONNECT INTO EXISTING NURSE CALL SYSTEM AND PROGRAM ACCORDINGLY.

.3 PROVIDE NEW DEVICES OF THE MANUFACTURER AUSTCO AND TO MATCH AS THE EXISTING SYSTEM'S DEVICES. ALLOW FOR PROGRAMMING OF THE SYSTEM AS REQUIRED.

.4 PROVIDE LABELING AND TESTING AS REQUIRED BY NORTHERN HEALTH AND LOCAL FACILITY STANDARDS.

.5 THE EXISTING NURSE CALL SYSTEM VENDOR IS AUSTCO IP BASED SYSTEM. ALL NURSE CALL SYSTEM WORK, MODIFICATIONS AND TESTING IS TO BE COORDINATED WITH AND DONE THROUGH THE VENDOR.

.6 PROVIDE CAT6 CABLING FOR ALL UP DEVICES AS REQUIRED FOR NURSE CALL SYSTEM. PROVIDE ADDITIONAL PATCH PANELS AND EXPANSION MODUELS TO CONNECT NEW DEVICES AS REQUIRED. REFER TO SECTION 36, COMMUNICATIONS CABLING FOR CAT6 CABLING SPECIFICATIONS.

DGBK

1	Issue for Addendum #1	2018-05-09
	Issued for Tender	2018-04-24
	Issued for B.P.	2018-04-25
	Issued for Construction	2018-06-25

project
THE PINES
DINNING HALL &
SERVERY ADDITION

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CALGARY | EDMONTON
VANCOUVER | VICTORIA

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SPECIFICATIONS

scale AS NOTED
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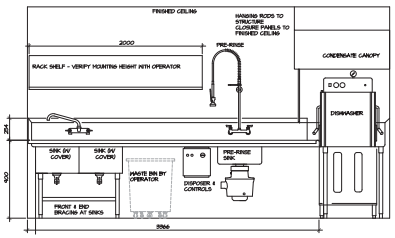
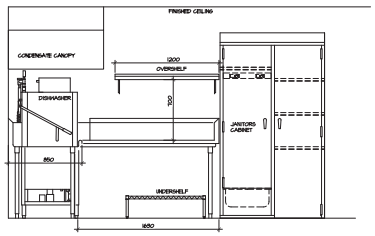
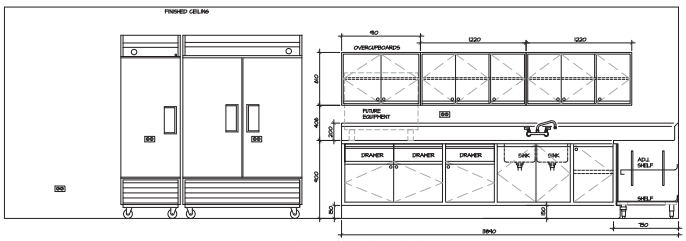


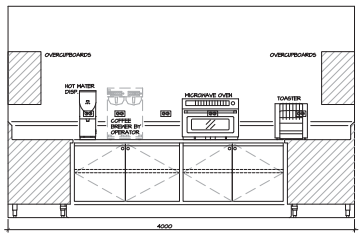
ELEVATION - Dish Wash
ITEMS 4, 5, 6, 7, 8, 10



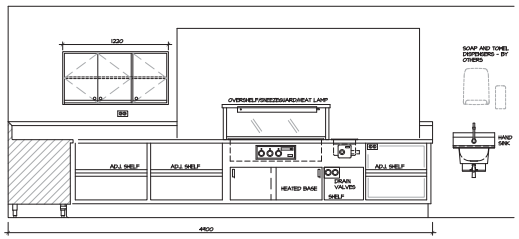
ELEVATION - Dish Wash
ITEMS 1, 9, 9, 11, 12



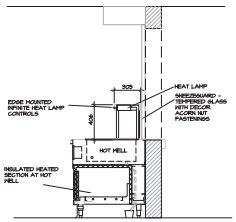
ELEVATION - Work Counter
ITEMS 15, 16, 18, 27



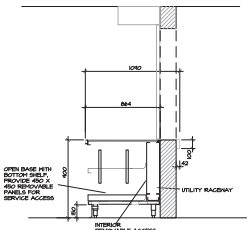
ELEVATION - Work Counter
ITEMS 18, 22, 23, 25, 27, 802



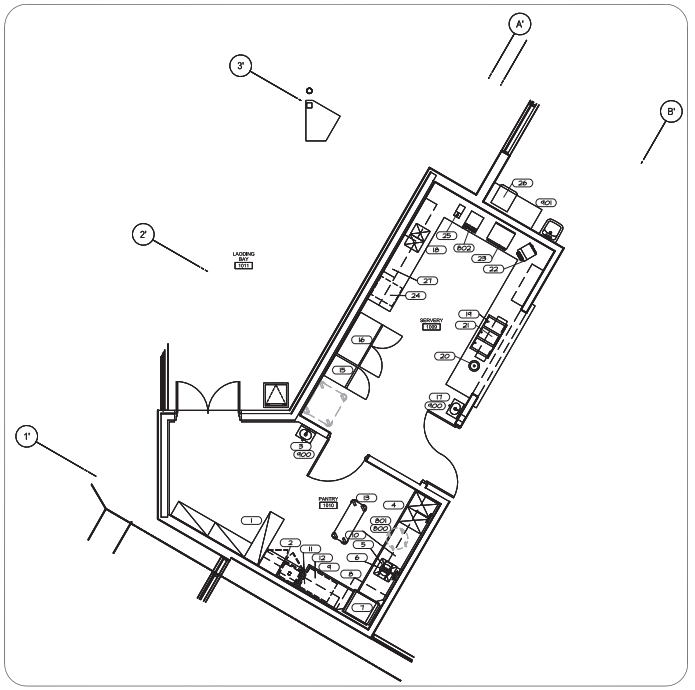
ELEVATION - Work Counter
ITEMS 17, 18, 19, 20, 21, 27



SECTION - Work Counter
HOT WELL STATION



SECTION - Work Counter
OPEN SECTION



EQUIPMENT LAYOUT
Scale 1:50

EQUIPMENT LIST

NO.	DESCRIPTION	COMMENTS	REV.
1	SHELVING		
2	JANITOR'S CABINET		
3	HAND SINK		
4	SINK UNIT		
5	PRE-RINSE		
6	DISPOSAL		
7	DISHWASHER	with booster	
8	CONDENSATE CANOPY		
9	CLEAN DISHTABLE		
10	RACK SHELF		
11	OVERSHELF		
12	UNDERSHELF		
13	DISH RACK		
14	spare		
15	REACH-IN FREEZER		
16	REACH-IN REFRIGERATOR		
17	HAND SINK		
18	WORK COUNTER		
19	HOTWELL UNIT	3 wells	
20	SOUP WELL		
21	HEAT LAMP		
22	TOASTER	rotary	
23	MICROWAVE OVEN		
24	RETHERM UNIT	future	
25	HOT WATER DISPENSER		
26	ICE/WATER DISPENSER		
27	OVERCUPBOARDS		
800	WASTE CAN	by Operator	
801	DETERGENT DISPENSER	by Operator	
802	COFFEE BREWER	by Operator	
900	SOAP & TOWEL DISPENSER	by Others	
901	COUNTER (millwork)	by Others	

SCHEDULE NOTES

1. SERVICES NOTED DENOTE LOADS FOR EQUIPMENT SPECIFIED. APPLICABLE TRADES TO REFER TO FEC-SUPPLIED SHOP DRAWINGS AND BROCHURES FOR ADDITIONAL SITE SERVICE INFORMATION AND CONNECTION POINTS.

2. REFER TO ENGINEERS DRAWINGS FOR SUPPLY SERVICES, GREASE INTERCEPTOR, ETC.

3. HEIGHTS NOTED ARE CONNECTION HEIGHTS NOT ROUGH-IN HEIGHTS, REFER TO FEC DWG FOR ROUGH-IN INFO.

4. EQ. SUPPLIER REFERS TO SUPPLIER OF EQUIPMENT. APPLICABLE TRADES (EC/MP/PC) ARE RESPONSIBLE FOR SERVICE CONNECTIONS.

FEC - FOODSERVICE EQ. CONTR.
OT - OTHERS
OP - OPERATOR
FUT - FUTURE
E - FINAL CONNECTION REQ. BY ELECTRICAL
P - FINAL TOUCH
F - FIXTURE MOUNTED REC. BOX AND COVER

Refer to Foodservice Equipment Contractors (FEC) documentation / drawings / shop drawings for accurate construction instructions

CONTRACTORS ARE TO REFER TO THE FOODSERVICE EQUIPMENT CONTRACTORS (FEC) FOODSERVICE SHOP DRAWINGS FOR UPDATED INFORMATION FROM THE SUPPLIED EQUIPMENT.

THIS DRAWING IS INTENDED FOR INFORMATION AND USED ONLY FOR USE BY THE ARCHITECT AND FOODSERVICE EQUIPMENT CONTRACTOR (FEC). THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.

FOODSERVICE EQUIPMENT CONTRACTOR TO ENSURE ALL FOODSERVICE EQUIPMENT IS INSTALLED TO SAFETY CODES AND PER AUTHORITY HAVING JURISDICTION. EXHAUST HOOD/VENTILATORS AND FIRE SUPPRESSION SYSTEMS TO BE INTERNAL SYSTEMS AND MEET ALL APPLICABLE CURRENT LOCAL, STATE AND FEDERAL CODES AS PER AUTHORITY HAVING JURISDICTION, Incl. NFPA 96.

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1	ISSUED FOR TENDER	April 24, 2018
2	ISSUED FOR BUILDING PERMIT	April 25, 2018
3	ISSUED FOR CONSTRUCTION	June 25, 2018

project
THE PINES DINING HALL & SERVERY ADDITION

BURNS LAKE, BC

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title
SERVERY EQUIPMENT LAYOUT and ELEVATIONS

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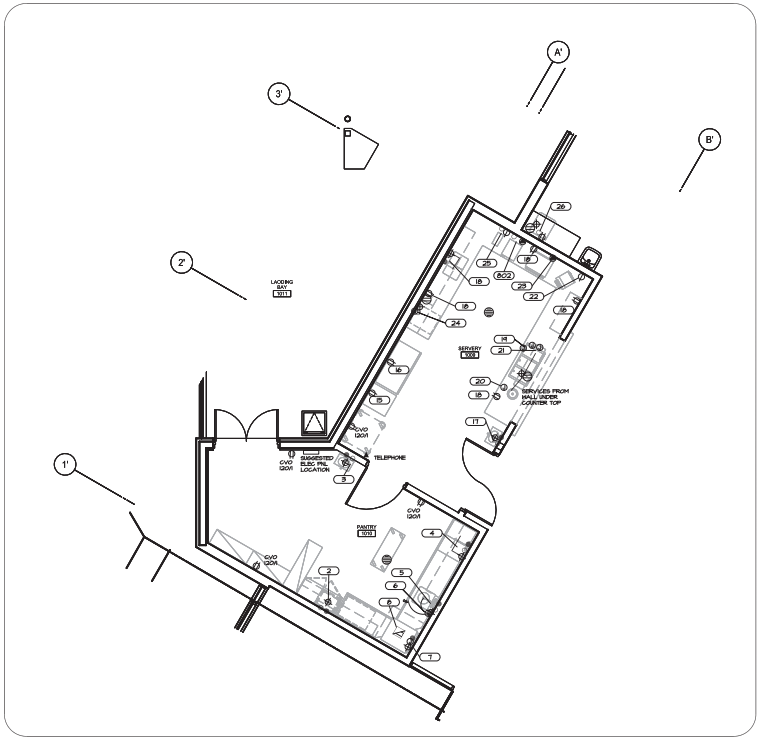
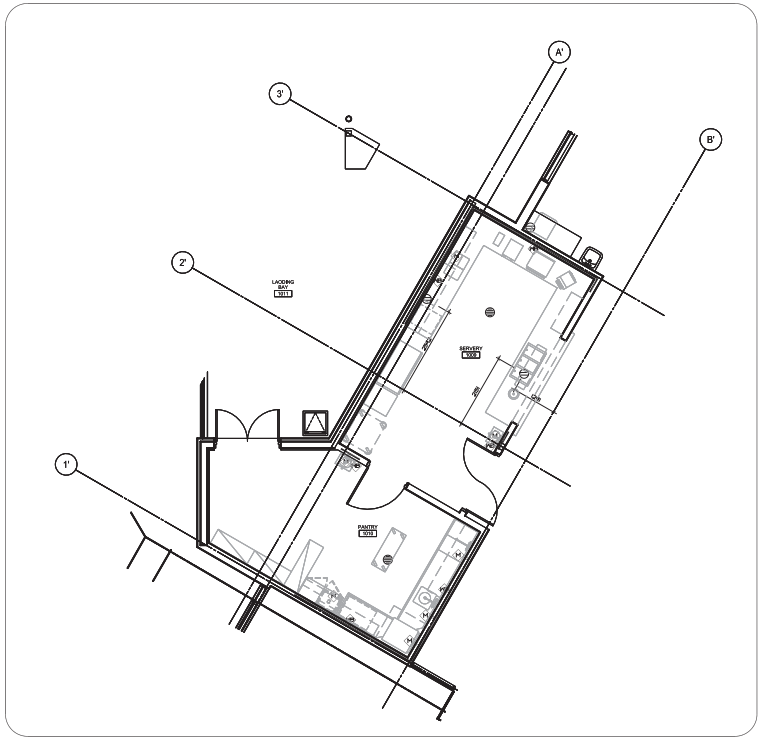




ELECTRICAL & MECHANICAL CONNECTION POINTS

ELECTRICAL GENERAL NOTES

1. EQUIPMENT HAS BEEN DESIGNED AND SPECIFIED FOR 120/208V, 3 PHASE, 4 WIRE, 60HZ ELECTRICAL SYSTEM.

2. EC TO AVOID LOCATING ELECTRICAL PANELS BEHIND EQUIPMENT. EC TO REFER TO EQUIPMENT LAYOUT FOR LOCATIONS OF EQUIPMENT THAT DOES NOT APPEAR ON THIS DRAWING.

3. EC TO PROVIDE POWER SUPPLY, INCLUDING WIRING AND CONDUIT WITH ADEQUATE BREAKER PROTECTION, FOR SERVICE LOADS INDICATED ON THE LOAD DATA SCHEDULE TO THE CONNECTION POINTS INDICATED BY SYMBOLS, MAKE FINAL CONNECTIONS AND INTERCONNECTIONS AS INDICATED AND TO COORDINATE WITH THE PEC FOR THE START-UP AND TESTING OF THE FOODSERVICE EQUIPMENT.

4. EC TO REFER TO APPROVED SHOP DRAWINGS FOR SUPPLEMENTAL CONNECTIONS, INSTALLATION REQUIREMENTS AND INTERCONNECTIONS FOR EQUIPMENT.

5. EC TO VERIFY ALL SERVICE REQUIREMENTS FOR OWNER, OPERATOR, ARCHITECT OR PURVEYOR SUPPLIED EQUIPMENT. SERVICES NOTED ARE MINIMUM REQUIREMENTS ONLY AND MUST BE VERIFIED.

6. EC TO FURNISH AND INSTALL ALL JUNCTION BOXES, RECEPTACLES, COVER PLATES, PULL BOXES, CONDUIT AND WIRING EXCEPT WHERE NOTED.

7. EC TO MOUNT ALL WALL RECEPTACLES/OUTLETS HORIZONTALLY. EQUIPMENT MOUNTED RECEPTACLES ARE PROVIDED AND INSTALLED BY THE PEC. SERVICE CONNECTION TO SAME BY EC. ADEQUATE CONVENIENCE OUTLETS ARE TO BE LOCATED BY THE ELECTRICAL ENGINEER AND INSTALLED BY THE EC. EC TO VERIFY WITH THE PEC RECEPTACLE LOCATIONS TO ENSURE NO CONFLICT WITH EQUIPMENT.

8. -

9. EC TO CONFIRM ALL TELEPHONE LOCATIONS WITH THE ELECTRICAL ENGINEER/OWNER. ADDITIONAL CONVENIENCE RECEPTACLES, OTHER THAN NOTED, TELEPHONE AND INTERCOM JACKS ARE TO BE LOCATED BY THE ARCHITECT AND AS REQUIRED BY CODE.

10. EC IS RESPONSIBLE FOR THE CONNECTION/INSTALLATION OF DISCONNECT SWITCHES SUPPLIED BY THE PEC. IN ADDITION THE EC IS TO PROVIDE AND INSTALL ANY THERMAL, ANDVOR MAGNETIC OVERLOAD PROTECTORS AND DISCONNECT SWITCHES AS REQUIRED BY CODE NOT SUPPLIED BY THE PEC. EC TO VERIFY WITH THE PEC LOCATIONS TO ENSURE NO CONFLICT WITH EQUIPMENT.

11. PEC TO FURNISH WASTE/DISPOSAL UNIT CONTROLS. EC TO FURNISH AND INSTALL INTERCONNECTING CONDUIT AND WIRE BETWEEN SWITCH, WASTE/DISPOSAL UNIT AND COMPONENTS.

12. TERMINATE CONDUIT 4" (100MM) APP. MAXIMUM CONDUIT BEND IS 45 DEG. IF 90 DEG. BEND IS REQUIRED USE A LONG RADIUS 90 DEG. BEND.

13. EC IS TO COORDINATE WITH THE PEC FOR SERVICE CHASE LOCATIONS FOR SERVICE RUNS WHERE NO STRUCTURAL WALL IS EVIDENT. SERVICES ARE FROM ABOVE UNLESS OTHERWISE NOTED.

MECHANICAL GENERAL NOTES

1. MC/PC TO REFER TO APPROVED SHOP DRAWINGS FOR SUPPLEMENTAL CONNECTIONS AND INSTALLATION REQUIREMENTS FOR EQUIPMENT.

2. MC/PC TO VERIFY ALL SERVICE REQUIREMENTS FOR OWNER, OPERATOR, ARCHITECT OR PURVEYOR SUPPLIED EQUIPMENT. SERVICES NOTED ARE MINIMUM REQUIREMENTS ONLY AND MUST BE VERIFIED.

3. THE GREASE INTERCEPTOR AND BACKFLOW PREVENTERS ARE BY THE PC. THE PC IS TO NOTIFY THE PEC OF THE GREASE INTERCEPTOR LOCATION TO ENSURE NO CONFLICT WITH FOODSERVICE EQUIPMENT. GREASE INTERCEPTOR IS TO BE FLUSH FLOOR MOUNTED, UNLESS ACCEPTED IN WRITING BY THE FOODSERVICE CONSULTANT.

4. THE MECHANICAL/PLUMBING ENGINEER IS TO SIZE AND VERIFY, WITH THE AUTHORITY HAVING JURISDICTION, WHICH ITEMS CONNECT TO THE GREASE INTERCEPTOR.

5. PC TO REFER TO THE MECHANICAL/PLUMBING ENGINEERS DRAWINGS FOR GREASE INTERCEPTOR AND AREA FLOOR DRAIN LOCATIONS.

6. ON SITE CONNECTION/INSTALLATION OF VALVES AND FITTINGS SUPPLIED BY THE PEC. IS THE RESPONSIBILITY OF THE PC. THIS INCLUDES SUPPLY OF SERVICES WITH ISOLATING VALVES (WHERE REQUIRED BY CODE) AND PRESSURE REDUCING VALVES. PC TO SUPPLY AND INSTALL PRESSURE REDUCING OR REGULATING VALVES, FAUCETS AND WATER INLETS, IN-LINE WATER FILTERS AND VACUUM BREAKERS NOT OTHERWISE SUPPLIED, AS REQUIRED BY LOCAL CODES, REGULATIONS AND MANUFACTURERS SPECIFICATIONS. MC/PC TO SUPPLY AND INSTALL MAIN LINE GAS SHUT-OFF VALVE IN AN EASILY ACCESSIBLE LOCATION.

7. PC TO COORDINATE INSTALLATION OF ALL BACKFLOW PREVENTERS WITH PEC TO ENSURE NO CONFLICT WITH EQUIPMENT OPERATION.

8. TERMINATE CONDUIT 4"(100MM) APP. MAXIMUM CONDUIT BEND IS 45 DEG. IF 90 DEG. BEND IS REQUIRED USE A LONG RADIUS 90 DEG. BEND.

9. -

10. PC TO COORDINATE WITH PEC FOR SERVICE CHASE LOCATIONS FOR SERVICE LINE RUNS WHERE NO STRUCTURAL WALL IS EVIDENT. UNLESS OTHERWISE NOTED WATER LINES AND ELECTRICAL SERVICES ARE FROM ABOVE.

11. MC/PC TO COORDINATE LOCATION OF GAS AND WATER SHUT-OFF VALVES AT SERVICE CHASE WITH PEC - VALVES TO BE LOCATED IN SERVICE CHASES.

EQUIPMENT LIST				ELECTRICAL SERVICES								MECHANICAL SERVICES												Rev.
					Voltage							Water			Waste			Gas				Exhaust			
No.	Description	Qty	Eq. Sup.	Load	120 V	208 V	Ph	Junc	Rec	Conn Ht.	Remarks	HH	CH	Conn Ht.	To	Conn Ht.	Load MBH	Size	Conn Ht.	CFH	M/A c/m	Size	Conn Ht.	Remarks	
1	SHELVING	3	PEC																						
2	JANITOR'S CABINET	1	PEC									13	13	910	50	0									
3	HAND SINK	1	PEC									13	13	450	38	300									
4	SINK UNIT	1	PEC									19	19	450	2 X 50	300								MANIFOLD WASTES	
5	PRE-RINSE	1	PEC									13	13	450	50										
6	DISPOSAL	1	PEC	9.8A		X	1	X		450		13	610	50	455										
7	DISHWASHER W/BOOSTER	1	PEC	40A		X	3	X		1454		19		475	50	150								40C HH SUPPLY ALLOW FOR 18MM DRAIN	
8	CONDENSATE CANOPY	1	PEC																	600		150 X 150	GEL		
9	CLEAN DISH/TABLE	1	PEC																						
10	RACK SHELF	1	PEC																						
11	OVERSHELF	1	PEC																						
12	UNDERSHELF	1	PEC																						
13	DISH RACK	1	PEC																						
14	spare																								
15	R/R FREEZER - 10R	1	PEC	7.2A	X		1		IN	915															
16	R/R REFRIG. - 20R	1	PEC	5.8A	X		1		IN	915															
17	HAND SINK	1	PEC									13	13	450	38	300									
18	WORK COUNTER	1	PEC	15A CKT	X		1		IN	1200		13	13	450	2 X 38	300									
				15A CKT	X		1		IN	1200					38	300									
				15A CKT	X		1		IN	1200															
				10A	X		1		F	860															
	HEATED BASE	1	PEC	13KW	X		1	X		250															
19	WELL UNIT (3 WELL)	1	PEC	9.12KW		X	3	X		860					25	HUB								MANIFOLD WASTES	
20	SOUP WELL	1	PEC	6A		X	1	X		860					25	HUB								MANIFOLD WASTES	
21	HEAT LAMP	1	PEC	800W	X		1	X		1245	INFINITE CONTROL														
22	TOASTER - ROTARY	1	PEC	14.8A	X		1		IN	1200	1.78KW, NEMA 5-20P														
23	MICROWAVE OVEN	1	PEC	2.9KW		X	1		IN	1230	NEMA 6-30P														
24	RETHERM UNIT	1	FUT	5.4KW		X	3	X		1230	CAP IN HALL FOR FUTURE													CAP FOR FUTURE	
25	HOT WATER DISP.	1	PEC	1.8KW	X		1		IN	1200	NEMA 5-20P														
26	ICEWATER DISP.	1	PEC	7A	X		1		IN	1200															
27	OVER/UPBOARDS	LOT	PEC																						
800	PASTE CAN	LOT	OP																						
801	DETER. DISPENSER	2	OP																						
802	COFFEE BREWER	1	OP	23A		X	1		IN	1200	3 WIRE + GRD				13	1200								AMPLIFIER SYSTEM	
400	SOAP & TOWEL DISP.	LOT	OT																						
401	COUNTER	1	OT																						
	TELEPHONE	1	OT	X	X		1		IN		AS REQ'D														
	MISC. KIT EQ	3	OT		X		1				15A TO 20A EA ALLOW. LOAD ON MAIN PNL														
	CONV. OUTLETS	LOT	OT	CVO	X		1		IN		AS REQ'D BY EC														
					X		1		IN		DEDICATED CIRC. BY EC														
	ELEC. DISCONN. SWT	LOT	OT								AS REQ'D BY EC														
	GREASE INTER	LOT	OT												X									BY MECHANICAL	
	FLOOR DRAIN	LOT	OT													FD								BY MECHANICAL	
	FUNNEL FL DR	LOT	OT													FFD								BY MECHANICAL	
	HUB DRAIN	LOT	OT													HUB								BY MECHANICAL	
	BACKFLOW PR. (RPP)	LOT	OT																					BY MECHANICAL	

SCHEDULE NOTES

1. SERVICES NOTED DENOTE LOADS FOR EQUIPMENT SPECIFIED, APPLICABLE TRADES TO REFER TO PEC SUPPLIED SHOP DRAWINGS AND BROCHURES FOR ADDITIONAL SERVICE INFORMATION AND CONNECTION POINTS.

2. REFER TO ENGINEERS DRAWINGS FOR SUPPLY SERVICES, GREASE INTERCEPTOR, ETC.

3. HEIGHTS NOTED ARE CONNECTION HEIGHTS NOT ROUGH-IN HEIGHTS, REFER TO PEC DWG FOR ROUGH-IN INFO.

4. EQ. SUPPLIER REFERS TO SUPPLIER OF EQUIPMENT, APPLICABLE TRADES (EC/MP/PC) ARE RESPONSIBLE FOR SERVICE CONNECTIONS

PEC - FOODSERVICE EQ. CONTR.
OT - OTHERS
OP - OPERATOR
FUT - FUTURE
HUB - WALL MOUNTED REC. BY ELECTRICAL CONTRACTOR
F - FIXTURE MOUNTED REC. BOX AND COVER

MECHANICAL LEGEND

- HOT WATER
- COLD WATER
- WASTE
- FLOOR DRAIN
- FUNNEL FLOOR DRAIN
- HUB DRAIN
- FLOOR DRAIN PAN
- GAS
- EXHAUST DUCT

ELECTRICAL LEGEND

- DUPLEX RECEPTACLE
- SINGLE RECEPTACLE
- SPECIAL RECEPTACLE
- JUNCTION BOX
- SWITCH
- TELEPHONE
- DUP. REC. ON EMERG PWR
- REC. ON EMERG PWR
- SP. REC. ON EMERG PWR
- JB ON EMERG PWR

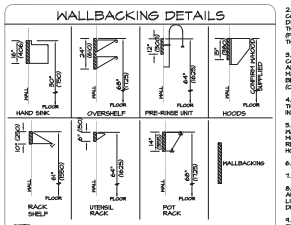
ELECTRICAL OUTLET ORIENTATION

ALL ELECTRICAL OUTLETS ARE TO BE MOUNTED HORIZONTALLY SO AS NOT TO INTERFERE WITH EQUIPMENT. CONNECTION HEIGHT NOTED DENOTES DIMENSION FROM FINISHED FLOOR TO CENTER LINE OF OUTLET.

NOTES:
1. ALL DIMENSIONS TO FINISHED FLOOR.
2. WALLBACKING TO BE 3/4" BRAND BUYOUT PLYWOOD SECURELY ATTACHED TO STUDS
3. EC TO CONFIRM WALLBACKING SIZE AND LOCATION WITH PEC

BUILDING CONDITIONS

WALLBACKING DETAILS



GENERAL NOTES

1. DIMENSIONS NOTED ARE FROM FINISH TO FINISH UNLESS OTHERWISE NOTED.

2. THE GENERAL CONTRACTOR (GC) IS TO COORDINATE SCHEDULING, ROUGHING-IN DIMENSIONS AND CONSTRUCTION DETAILS WITH THE FOODSERVICE EQUIPMENT CONTRACTOR (FEC) TO ENSURE THE PROPER INSTALLATION OF THE FOODSERVICE EQUIPMENT.

3. TERMINATE E/M CONDUIT 4" (100MM) APP. THE CONDUIT SIZE NOTED REFERS TO THE INSIDE DIA. ALL INTERNAL JOINTS ARE TO BE SMOOTH, WITH MAXIMUM CONDUIT BEND OF 45 DEG. IF 90 DEG. BEND REQUIRED USE LONG RADIUS 90 DEG BEND (CONFIRM W/PEC).

4. GC/MC TO COORDINATE THE INSTALLATION OF THE GREASE INTERCEPTOR W/PEC TO ENSURE NO INTERFERENCE WITH FOODSERVICE EQUIPMENT.

5. WALL BLOCKING BY GC, TO BE COORDINATED W/PEC. BLOCKING REQUIRED FOR ALL WALL MOUNTED EQUIPMENT AND SEISMIC REQUIREMENTS I.E. HAND SINKS, WALL SHELVES, HOODS, ETC.

6. -

7. -

8. CONFIRM ALL CONDUIT SIZES, AND RUNS WITH APPLICABLE SYSTEM SUPPLIER. REFRIGERATION LINES TRIM 'E' CONDUIT REQUIRED. RUN LINES DURING ROUGHING-IN OF WALLS AND CEILING.

9. GC TO PROVIDE CODE REQUIRED WATER TIGHT SEAL WHERE CONDUITS, ETC. ALL SERVICE SLEEVES AFTER SERVICES INSTALLED.

10. WATER AND ELECTRICAL SERVICES FOR ISLAND FIXTURES FROM BELOW - CONFIRM WITH APPLICABLE ENGINEERS DRAWINGS.

11. -

12. NOTED FD LOCATIONS ARE SUGGESTED LOCATIONS, GC/PC ARE TO REFER TO ENGINEERS DRAWINGS FOR LOCATIONS.

ARCHITECTURAL LEGEND

- CG — CORNER GUARDS - WALL BACKING AS REQUIRED
- M — MECHANICAL SERVICE SLEEVE CONFIRM REQUIREMENT W/MECHANICAL ENGINEER
- E — ELECTRICAL SERVICE SLEEVE CONFIRM REQUIREMENT W/ELECTRICAL ENGINEER
- WALL BACKING - CONFIRM LOCATION W/PEC
- FLOOR DRAIN

LEGEND

GC	GENERAL CONTRACTOR
MC	MECHANICAL CONTRACTOR
PC	PLUMBING CONTRACTOR
EC	ELECTRICAL CONTRACTOR
FEC	FOODSERVICE EQUIPMENT CONTRACTOR

NOTE:
THIS DRAWING DENOTES WORK BY THE GENERAL CONTRACTOR, MECHANICAL, ELECTRICAL CONTRACTOR AND MECHANICAL CONTRACTOR (MC) REQUIRED FOR THE INSTALLATION OF THE FOODSERVICE EQUIPMENT.
REFER TO ARCHITECTURAL DRAWINGS REGARDING APPROPRIATE SERVICE LOCATIONS. THIS DRAWING IS NOT TO BE USED FOR ROUGH-IN LOCATIONS, REFER TO THE FOODSERVICE EQUIPMENT CONTRACTORS (FEC) DRAWINGS.

THIS DRAWING IS FOR REFERENCE ONLY, IT IS THE RESPONSIBILITY OF THE EC & FEC TO VERIFY ALL DIMENSIONS.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE APPLICABLE ELECTRICAL AND MECHANICAL DRAWINGS.

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CONTRACTORS ARE TO REFER TO THE FOODSERVICE EQUIPMENT CONTRACTOR (FEC) SHOP DRAWINGS FOR UPDATED INFORMATION FROM THE SUPPLIED EQUIPMENT.

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FOODSERVICE EQUIPMENT CONTRACTOR TO ENSURE ALL FOODSERVICE EQUIPMENT IS INSTALLED TO CODES AND PER JURISDICTIONAL AUTHORITY HAVING JURISDICTION. EXHAUST, SUPPLY, CONTROLS AND FIRE SUPPRESSION SYSTEMS TO BE MECHANICAL SYSTEMS AND MEET ALL APPLICABLE CURRENT LOCAL, STATE AND FEDERAL CODES AS PER AUTHORITY HAVING JURISDICTION, INCL NFPA 96.

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title
SERVERY EQUIP. BUILD, CONDITIONS, ELEC, & MECH. CONNECTION POINTS

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drawn LB
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project no. 17-110
drawing no. **K-102**
latest revision no. 02