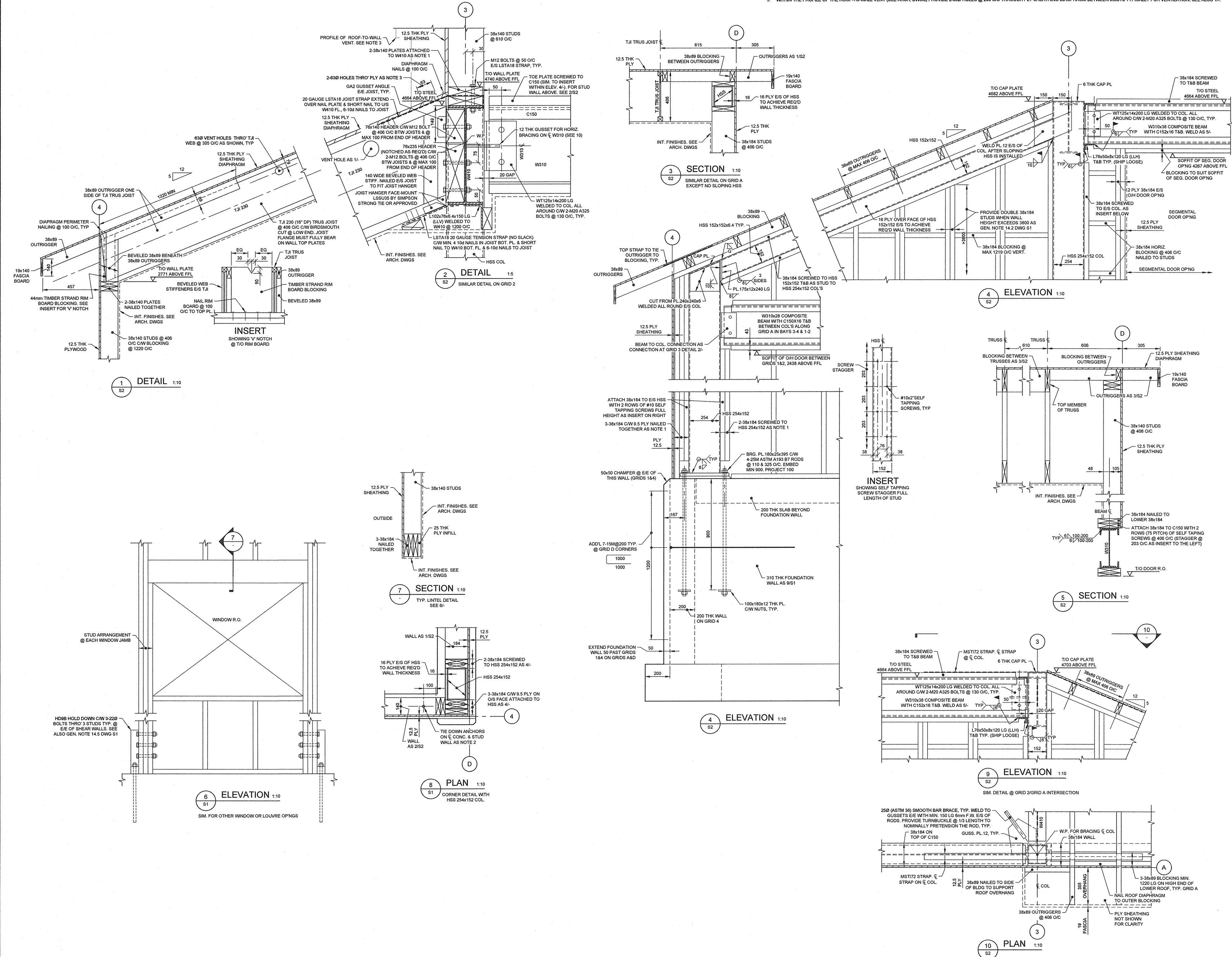




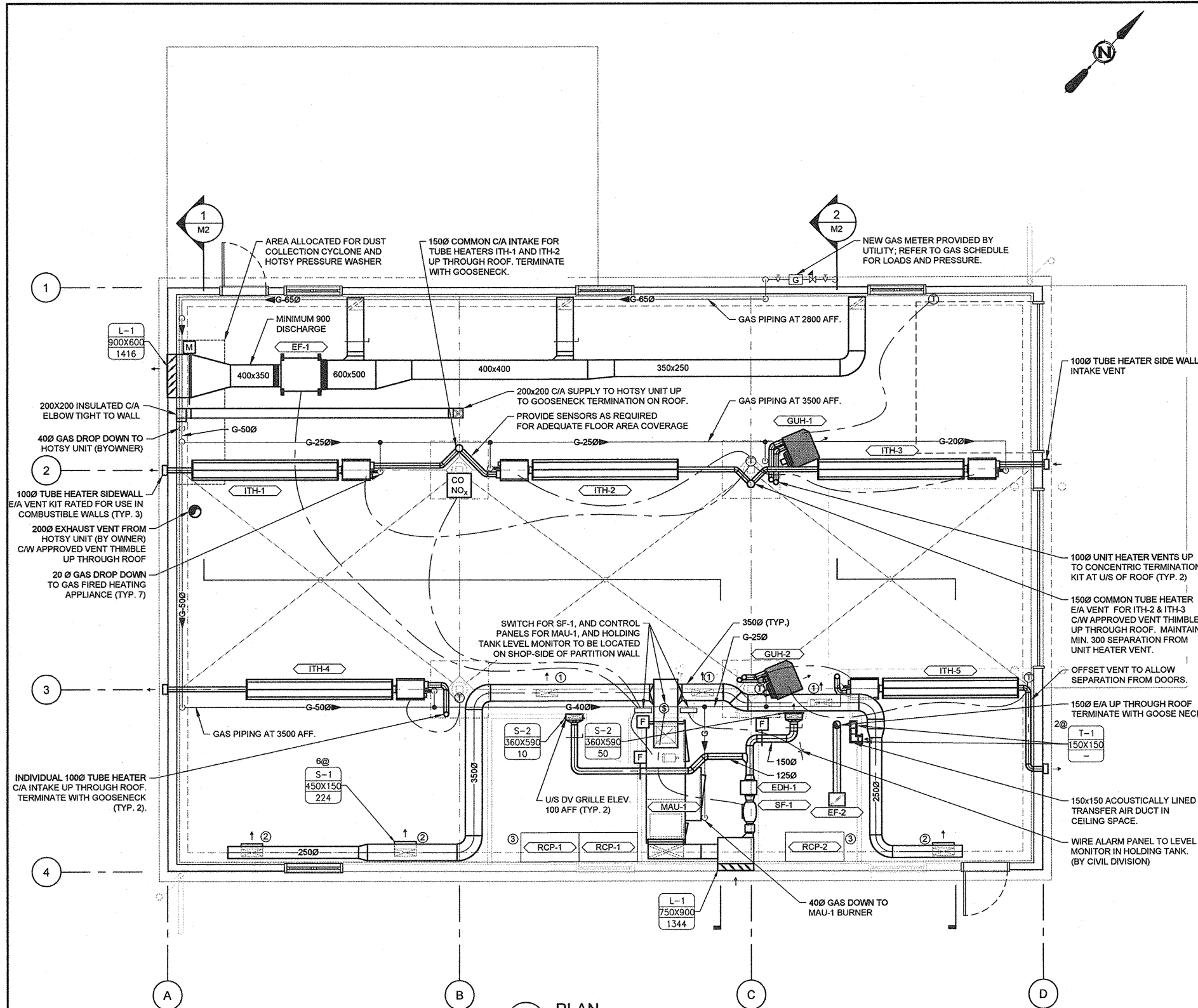


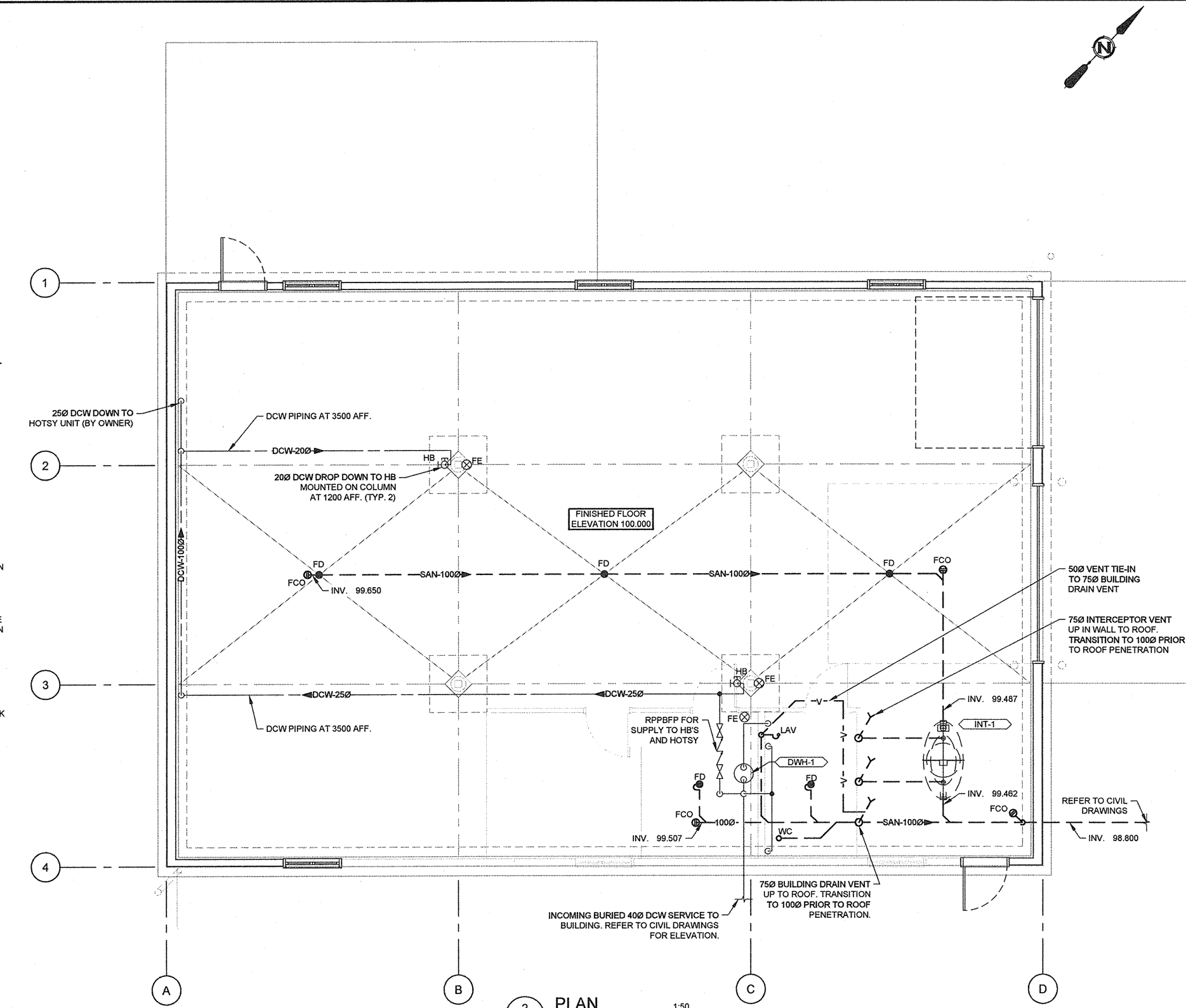
- NOTES
- IF MULTIPLE 38x140 OR 38x184 TIMBER BATTENS ARE TO BE ATTACHED TO STEEL MEMBERS, THE INITIAL BATTEN IS TO BE CONNECTED USING SELF TAPPING SCREWS IN A STAGGERED ARRANGEMENT SIMILAR TO THE INSERT DETAIL WITHIN ELEVATION 4. ALL ADDITIONAL BATTENS ARE TO BE NAILED TO THE FIRST.
 - ALL WALL SECTIONS NOT DESIGNATED AS SHEAR WALLS (AS 1851) ARE TO RECEIVE 12.750 HLT HAS THR. ROD TIE DOWN ANCHORS @ MAX 610 O/C AS 84.
 - WITHIN THE PROFILE OF THE ROOF-TO-WALL VENT (SEE ARCH. DWGS) PROVIDE 2-630 HOLES @ 200 O/C THROUGH PLY SHEATHING DIAPHRAGM BETWEEN JOISTS TYPICALLY FOR VENTILATION. SEE ALSO 14.



O	2015NOV04	ISSUED FOR TENDER & CONSTRUCTION				M.C.	R.P.		
A	2015AUG04	ISSUED FOR TENDER & CONSTRUCTION				M.C.	R.P.		
No.	Date/Date	Description/Description				Drawn by Dessiné par	Approved Approuvé		
Revision / Revision									
A detail number/ numéro de détail					A				
B source drawing no./ no. de dessin no.					B				
C detail on drawing no./ détail sur dessin no.					C				
Consultant's Name Nom de l'expert-consult						Eng. Stamp Scellé de l'ingénieur			
									
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395, 215 10 Avenue Stn. Calgary, AB T2B 0A4 t: 403.264.8700 f: 403.264.8029 www.mta.ca/en						Marshall Utomare architecte architecte professionnel			
Client/Client		Parks Canada Agence				L'Agence Parcs Canada			
		Western and Northern Region				Ouest et Nord du Canada			
Project title/Titre du projet									
BAR-U RANCH WORKSHOP REPLACEMENT									
WATERTON DAKES NATIONAL PARK									
Drawing title/Titre du dessin									
BUILDING DETAILS									
Surveyed by/Arpenté par			Drawn by/Dessiné par VICTOR YIN			Date/Date MARCH 27, 2015			
Designed by/Concept par RISTO PROTO			Reviewed by/Revisé par			Scale/Echelle AS SHOWN			
PWOSC Project Manager/Administrateur de Projets TP50C									
Client Acceptance/Acceptation du client					Approved by/Approuvé par				
Perit Responsable Officiel/Responsable					PWOSC Project Manager/Administrateur de Projets TP50C				
Project No./No. du projet 20153361		Assent No./No. du-bien			Sheet No./ No. de la feuille				
Drawing Reference No./No. de référence du dessin									
S3									



1 PLAN
HEATING, VENTILATION,
AND GAS PIPING



2 PLAN
PLUMBING & FIRE
PROTECTION

KEY NOTES:

- SUPPLY AIR DISCHARGE TO BE ORIENTED AT 15(DEGREES SIGN) FROM VERTICAL
- SUPPLY AIR DISCHARGE TO BE ORIENTED AT 30(DEGREES SIGN) FROM VERTICAL
- COORDINATE EXACT LOCATION OF ELECTRIC RADIANT CEILING PANELS WITH ACOUSTIC TILE GRID LAYOUT

NOTES:

- ALL SAN PIPING TO BE SLOPED @1.0% UNLESS NOTED OTHERWISE.
- PROVIDE ISOLATION VALVES ON DOMESTIC WATER PIPING AT WATER SERVICE ENTRY AND UPSTREAM OF ALL FIXTURES.
- NO TRAPS ARE REQUIRED FOR FLOOR DRAINS LOCATED IN WORKSHOP FLOOR, UPSTREAM OF INTERCEPTOR.
- PROVIDE TRAP PRIMERS OR EQUIVALENT MEANS OF MAINTAINING TRAP SEALS FOR FLOOR DRAINS IN MECHANICAL ROOM AND WASHROOM.

HEATING, VENTILATION AND AIR CONDITIONING SYMBOLS

SYMBOL	DESCRIPTION
	AIR MOVEMENT ARROW
	RETURN GRILLE
	SUPPLY GRILLE
	DUCT
	INSULATED DUCT
	BALANCING DAMPER
	THERMOSTAT (ELECTRIC)
	SWITCH
	MOTORIZED DAMPER
	FIRE DAMPER
	VEHICULAR GAS DETECTION SENSOR

AIR OUTLET TAG	QUANTITY	TYPE	SIZE (mm)	FLOW (L/s)
X-X	1	1	1	1
X X X	1	1	1	1
X	1	1	1	1

DETAIL & SECTION INDICATORS

DETAIL	DETAIL NUMBER	DETAIL SCALE	DESCRIPTION	DRAWING NUMBER
X	1	1:100	1	1

PLUMBING SYMBOL SCHEDULE

	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	SANITARY BELOW GRADE
	NATURAL GAS
	DIRECTION OF FLOW
	CHECK VALVE
	PLUG VALVE
	VALVE
	PRESSURE REDUCING VALVE
	CLEANOUT
	CLEANOUT UP TO FINISHED FLOOR/GRADE
	P-TRAP
	FLOOR / HUB / ROOF DRAIN (ROUND)
	PIPE TEE
	ELBOW UP
	TOP PIPE TAKE-OFF
	ELBOW DOWN
	BOTTOM PIPE TAKE-OFF
	PIPE OFFSET
	VENT RISER
	HOSE BIBB
	GAS METER
	DOMESTIC HOT WATER TANK
	FIRE EXTINGUISHER

ABBREVIATIONS

DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DV	DISPLACEMENT VENTILATION
CIA	COLD AIR
US	UNDER SIDE
SAN	SANITARY
G	GAS
AFF	ABOVE FINISHED FLOOR
ELEV	ELEVATION
INV	INVERT
E/A	EXHAUST AIR
SA	SUPPLY AIR

Gas Information

Equipment Description	Tag	Gas Input		Remarks
		CFH	KW	
EXISTING HOTSY UNIT	N/A	332	97.3	
INFRARED TUBE HEATER	ITH-1	40	11.7	
INFRARED TUBE HEATER	ITH-2	40	11.7	
INFRARED TUBE HEATER	ITH-3	40	11.7	
INFRARED TUBE HEATER	ITH-4	40	11.7	
INFRARED TUBE HEATER	ITH-5	40	11.7	
UNIT HEATER	GUH-1	60	17.6	
UNIT HEATER	GUH-2	100	29.3	
MAKE-UP AIR UNIT	MAU-1	350	102.6	
Total Gas Requirement for Building		1,042	305.4	Op. Pres.: 1.75 kPa ("W.C.)

Mechanical Contractor Note:

Prior to commencing with installation within the building, verify the locations and invert elevations of all site service lines including Sanitary Sewer, Storm Sewer, Water Mains, Gas Mains. Ensure clearances from all underground phone lines, electrical

Fixtures Rough-In Schedule

Fixture Type	Rough-in fixture piping connections in accordance with the following table of minimum sizes			
	Hot Water	Cold Water	Sanitary Waste	Individual Vent
Lavatory (LAV-1)	15 mm	1/2 in.	15 mm	1/2 in.
Water Closet, Tank (WC-1)	15 mm	1/2 in.	100 mm	4 in.
Hose Bibbs	20 mm	3/4 in.	100 mm	4 in.
Floor Drains	100 mm	4 in.	100 mm	4 in.

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2015/06/26		ISSUED FOR TENDER AND CONSTRUCTION	C.W.	M.H.

Revision / Revision	Detail number numéro de détail	Source drawing no. no. du dessin	Detail on drawing no. détail sur dessin no.
A			
C			

Consultant's Name
Nom de l'expert-consultant

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Nom de l'Agence

Parks Canada Agency

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Western and Northern Region
Ouest et Nord du Canada

Project title/Titre du projet

**BAR-U RANCH
WORKSHOP REPLACEMENT**

WATERTON LAKES NATIONAL PARK

Drawing title/Titre du dessin

**BUILDING MECHANICAL
PLANS**

Surveyed by/Argente par
COLIN WATTS

Drawn by/Dessiné par
COLIN WATTS

Date/Date
AUGUST 28, 2015

Designed by/Concept par
MIKHAIL HORVATH

Reviewed by/Revisé par
SCOTT/Estelle

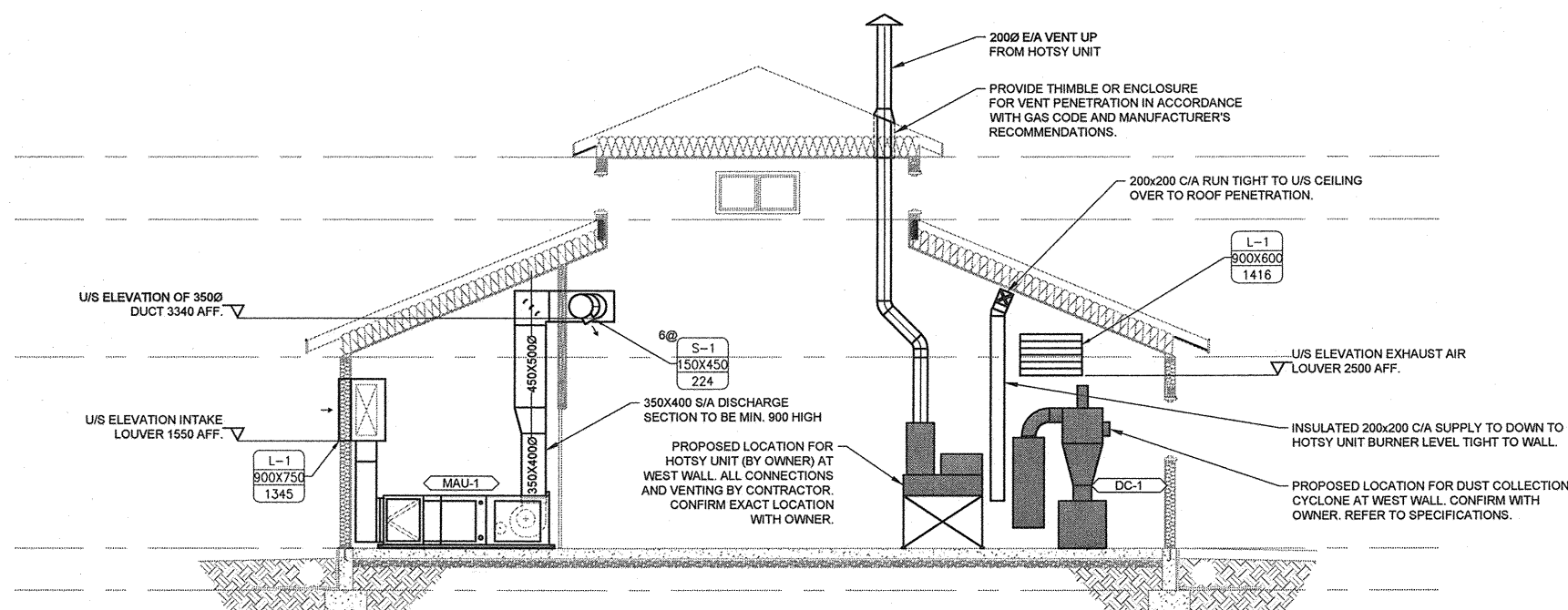
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Project No./No. du projet
20153561

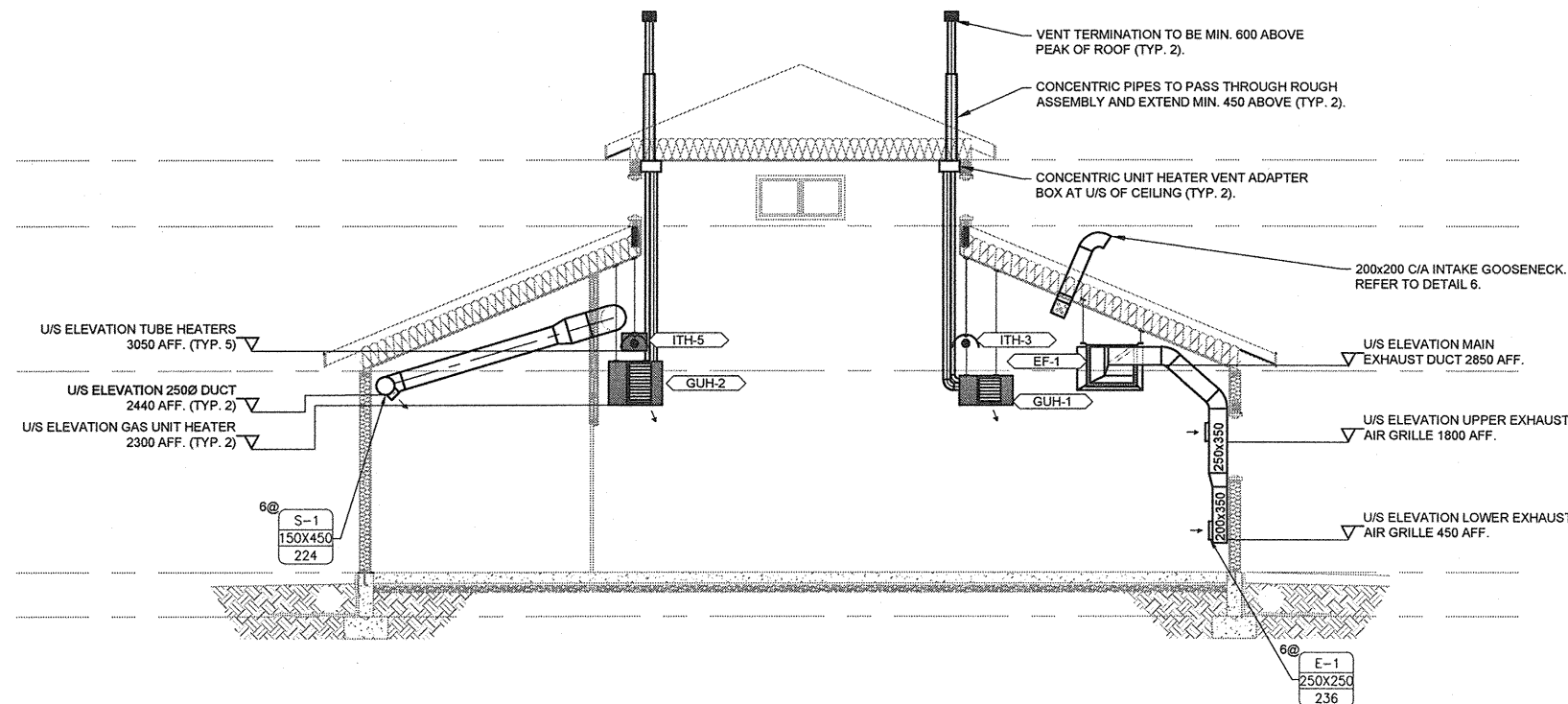
Asset No./No. du bien

Sheet No./
No. de la feuille
M1

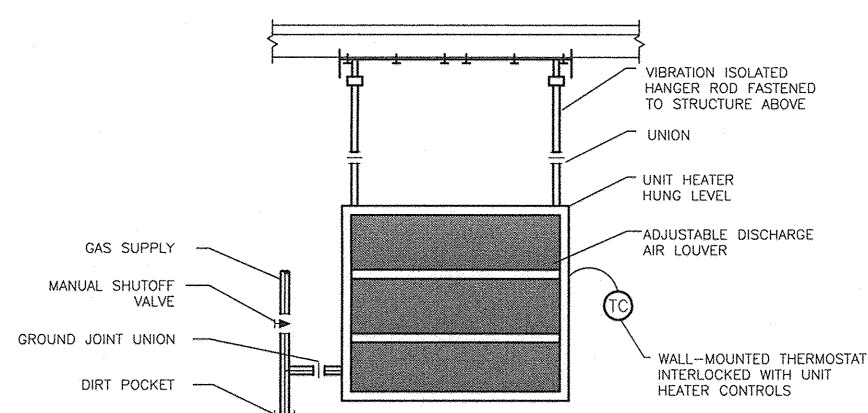
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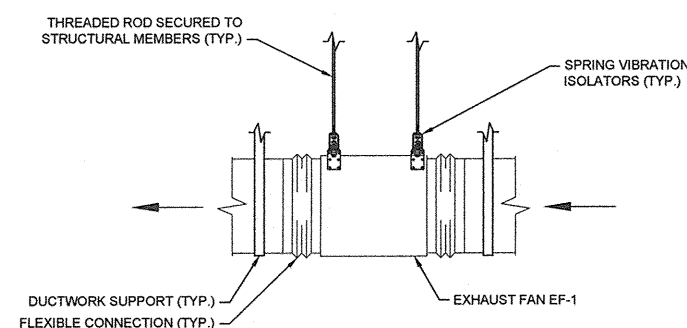
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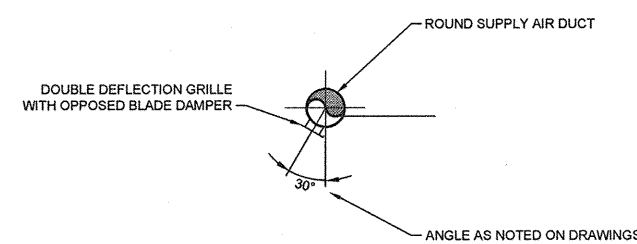
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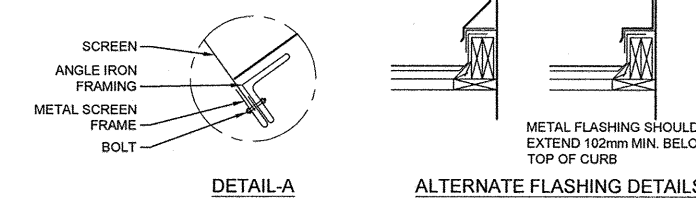
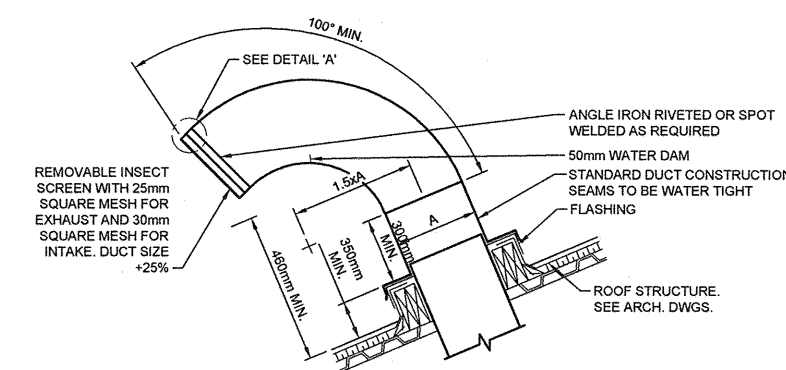
3 DETAIL UNIT HEATER INSTALLATION



4 DETAIL CEILING SUSPENDED INLINE EXHAUST FAN INSTALLATION



5 DETAIL AIR OUTLET INSTALLATION



6 DETAIL GOOSENECK ROOF PENETRATION

NOTES:
1. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. ADJUST DISCHARGE AIR LOUVERS FOR OPTIMUM HEAT DISTRIBUTION.

No.	Date/Date	Description/Description	Drawn by Dessiné par	Approved Approuvé
0	2015NOV04	ISSUED FOR TENDER & CONSTRUCTION	M.H.	S.D.
A	2015/08/28	ISSUED FOR TENDER AND CONSTRUCTION	C.W.	M.H.

Revision / Revision	A	B	C
A detail number numero de detail			
B source drawing no. de dessin no.			
C detail on drawing no. detail sur dessin no.			

Consultant's Name
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4-11-2015

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	Western and Northern Region	Ouest et Nord du Canada

Project title/Titre du projet
**BAR-U RANCH
WORKSHOP REPLACEMENT**

WATERTON LAKES NATIONAL PARK

Drawing title/Titre du dessin
**BUILDING MECHANICAL
SECTIONS & DETAILS**

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
	COLIN WATTS	AUGUST 28, 2015
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
MIKHAIL HORVATH		AS SHOWN

PWGC Project Manager/Administrateur de Projets TP50C

Client Acceptance/Acceptation du client

Approved by/Approuvé par

Part Responsible/Other/Part Responsable

Project No./No. du projet

20153361

Drawing Reference No./No. de référence du dessin

M2

ELECTRIC DOMESTIC WATER HEATER SCHEDULE									
TAG	LOCATION	MANUFACTURER	MODEL	VOLUME (L)	ELECTRICAL DATA		TANK DIMENSIONS (mm)	NOTES	
					ELEMENT (kW)	VOLTAGE (V / Ph / Hz)			
DWH-1	MECH. ROOM	RHEEM	PROES	23	2	120 / 1 / 60	400g x 388		
Notes:									

ELECTRIC DUCT HEATER SCHEDULE												
TAG	SERVICE	LOCATION	MANUFACTURER	MODEL	HEATING OUTPUT (kW)	AIR DATA				ELECTRICAL DATA		NOTES
						FLOW (L/s)	E.S.P. (Pa)	E.A.T. (°C)	L.A.T. (°C)	ELEMENT (kW)	VOLTAGE (V / Ph / Hz)	
EDH-1	VENTILATION AIR HEATING	MECH. ROOM	THERMOLEC	TER-8-4-240	4	60	50	-40.0	15.0	4	240 / 1 / 60 16.7 A	295 x 295 x 200
Notes:												
1. CWV BUILT-IN ADJUSTABLE ELECTRONIC DUCT TEMPERATURE SENSOR, SET TO 15°C.												

ELECTRIC RADIANT PANEL SCHEDULE									
TAG	SERVICE	LOCATION	MANUFACTURER	MODEL	HEATING (W)	ELECTRICAL DATA		DIMENSIONS L x W x H (mm)	NOTES
						VOLTAGE (V / Ph / Hz)			
RCP-1	SPACE HEATING	OFFICE	QMARK	CP621	625	115 / 1 / 60		1220 x 610 x 25	1, 2
RCP-2	SPACE HEATING	WASHROOM	QMARK	CP751	750	115 / 1 / 60		1220 x 610 x 25	2, 3
Notes:									
1. PROVIDE COMPLETE WITH LINE VOLTAGE NON-PROGRAMMABLE DIGITAL THERMOSTAT TO CONTROL BOTH PANELS.									
2. COORDINATE EXACT LOCATION OF PANEL(S) WITH ACOUSTIC CEILING TILE GRID.									
3. PROVIDE COMPLETE WITH LINE VOLTAGE NON-PROGRAMMABLE DIGITAL THERMOSTAT TO CONTROL PANEL.									

DIRECT-FIRED MAKE-UP AIR UNIT													
TAG	SERVICE	LOCATION	MANUFACTURER	MODEL	GAS INPUT (kW)	HEATING OUTPUT (kW)	AIR DATA				ELECTRICAL DATA		NOTES
							FLOW (L/s)	E.S.P. (Pa)	E.A.T. (°C)	L.A.T. (°C)	MOTOR (HP)	VOLTAGE (V / Ph / Hz)	
MAU-1	MAKE-UP AIR	MECH. ROOM	ENGINEERED AIR	HE40	102	102	1344	188	-40	15	3	230 / 1 / 60 MCA 21.1 A FLA 18 A	2692 x 1143 x 812
Notes:													
1. PROVIDE CWV MOTORIZED DAMPER AT INTAKE, MOTOR STARTER, DISCONNECT SWITCH, REMOTE MOUNTED HOA PANEL													
2. INTERLOCK WITH GAS DETECTION SYSTEM AND EXHAUST FAN EF-1													

FAN SCHEDULE											
TAG	SERVICE	LOCATION	MANUFACTURER	MODEL	AIR DATA			ELECTRICAL DATA		NOTES	
					FLOW (L/s)	E.S.P. (Pa)	RPM	MOTOR (HP)	VOLTAGE (V / Ph / Hz)		
SF-1	VENTILATION	MECH. ROOM	SOLER & PALAU	TD-150S	60	125	2200	FRAC	120 / 1 / 60	1, 2	
EF-1	VEHICULAR GAS DETECTION SYSTEM EXHAUST	WORKSHOP	GREENHECK	BDF-120	1416	188	600	1.5	120 / 1 / 60	2, 3	
EF-2	WASH-ROOM EXHAUST	WASHROOM	GREENHECK	SP-A110	42	63	950	FRAC	120 / 1 / 60	2, 4	
DC-1	DUST COLLECTION	WORKSHOP	ONEIDA	PRO 1500	750 (MAX)	TBD	TBD	3	230 / 1 / 60	5	
Notes:											
1. CWV REMOTE MOUNTED SWITCH, SPEED CONTROLLER FOR BALANCING, DUCT REDUCERS, FILTER BOX WITH REPLACEABLE FILTER MEDIA, AND MOUNTING BRACKET											
2. PROVIDE CWV VIBRATION ISOLATION HANGERS/MOUNTS FOR INSTALLATION AS PER MANUFACTURERS RECOMMENDATIONS											
3. INTERLOCK WITH GAS DETECTION SYSTEM AND MAKE-UP AIR UNIT MAU-1											
4. CWV WITH TIMER SWITCH											
5. EQUIPMENT DATA SUBJECT TO CONFIRMATION BY SYSTEM VENDOR. REFER TO SPECIFICATIONS ON DRAWINGS.											

GAS FIRED UNIT HEATER SCHEDULE									
TAG	LOCATION	MANUFACTURER	MODEL	AIR FLOW (L/s)	GAS INPUT (kW)	GROSS OUTPUT (kW)	ELECTRICAL DATA		NOTES
							MOTOR (HP)	VOLTAGE (V / Ph / Hz)	
GUH-1	WORKSHOP	REZNOR	UDAS 60	363	15.8	13.1	FRAC	115 / 1 / 60 FLA 2.4 A	1
GUH-2	WORKSHOP	REZNOR	UDAS 100	635	27.7	23.3	FRAC	115 / 1 / 60 FLA 3.9 A	2
Notes:									
1. CWV CONCENTRIC ROOF VENT KIT, THERMOSTAT, ADJUSTABLE LOUVER DIFFUSER, FAN GUARD									
2. CWV CONCENTRIC ROOF VENT KIT, TWO-STAGE THERMOSTAT, ADJUSTABLE LOUVER DIFFUSER, FAN GUARD, TWO-STAGE GAS VALVE									

GAS-FIRED INFRARED TUBE HEATERS							
TAG	LOCATION	MANUFACTURER	MODEL	GAS INPUT (kW)	ELECTRICAL DATA		NOTES
					MOTOR (HP)	VOLTAGE (V / Ph / Hz)	
ITH-1 THRU ITH-5	WORKSHOP	ROBERTS GORDON	VANTAGE II CTH2-40	11.7	FRAC	120 / 1 / 60 1A (RUN) 5A (START)	
Notes:							

GRILLE, DIFFUSER AND LOUVER SCHEDULE						
TAG	SERVICE	MANUFACTURER	MODEL	DESCRIPTION	SIZE (mm)	NOTES
L-1	INTAKE EXHAUST	RUSKIN	ELF8375DX	150 DEEP EXTRUDED ALUMINUM DRAINABLE LOUVER	SEE DWGS.	1
S-1	OFFICE AND WORKSHOP VENTILATION	E.H. PRICE	PURAFLO	IN-WALL DISPLACEMENT DIFFUSER, WHITE FINISH	SEE DWGS.	
S-2	MAKE-UP AIR SUPPLY	E.H. PRICE	HCD2 CWVCS5	HIGH CAPACITY STEEL DRUM DIFFUSER CWV SPREAD CONTROL AND HEAVY DUTY BALANCING DAMPER	SEE DWGS.	
E-1 T-1	RETURN TRANSFER	E.H. PRICE	80F/A	STEEL FRAME ALUMINUM 13 X 13 X 13 EGG CRATE CORE CWV BALANCING DAMPER	SEE DWGS.	
Notes:						
1. LOUVER COLOUR(S) TO BE APPROVED BY ARCHITECT.						

OIL INTERCEPTOR SCHEDULE								
TAG	SERVICE	LOCATION	MANUFACTURER	MODEL	TYPE	VOLUME (L)	DESIGN PRESS.	NOTES
INT-1	OIL INTERCEPTOR	WORKSHOP	GREEN TURTLE	PROCEPTOR GMC-150	FRP	578	ATMOSPHERIC	812 X 1575 X 1020
Notes:								
1. PROVIDE COMPLETE WITH EXTENSION COLLAR								
2. REFER TO MANUFACTURERS INSTALLATION RECOMMENDATIONS AND STRUCTURAL DRAWINGS FOR LOCAL SLAB REINFORCEMENT DETAILS								

0	2015NOV04	ISSUED FOR TENDER & CONSTRUCTION	M.H.	S.D.	
A	2015/09/28	ISSUED FOR TENDER AND CONSTRUCTION	M.H.	S.D.	
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Revision / Révision

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C

A

B

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Consultant's Name

Nom de l'expert-conseil

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Architectural

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Client/Client

Parks Canada Agency

L'Agence Parcs Canada

Western and Northern Region

Ouest et Nord du Canada

Project Title/Titre du projet

BAR-U RANCH

WORKSHOP REPLACEMENT

Drawing Title/Titre du dessin

BUILDING MECHANICAL

EQUIPMENT SCHEDULES

Surveyed by/Arpenté par

Designed by/Concept par

20153361

Drawn by/Dessiné par

Reviewed by/Revisé par

Assel No./No. du-blan

Date/Date

Scale/Echelle

Sheet No./No. de la feuille

Approved by/Approved par

Project Manager/Administrateur de Projets TPSCC

Client Acceptance/Acceptation du client

Approved by/Approved par

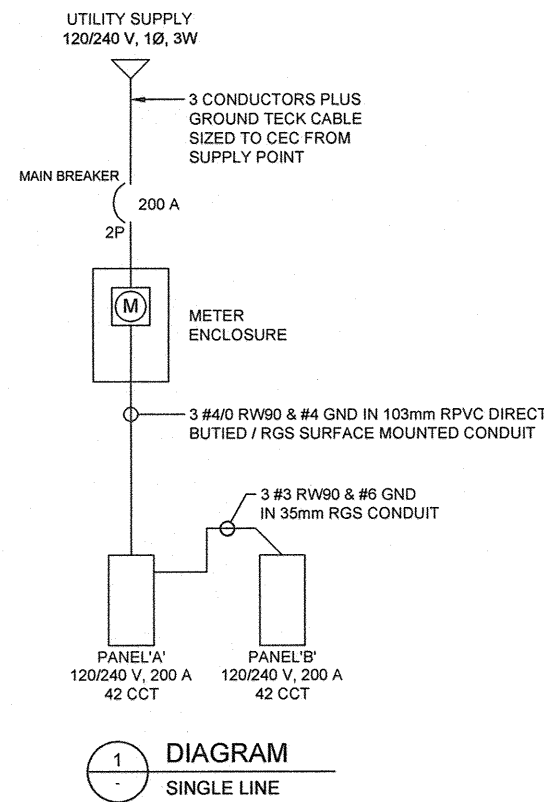
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Assel No./No. du-blan

Drawing Reference No./No. de référence du dessin

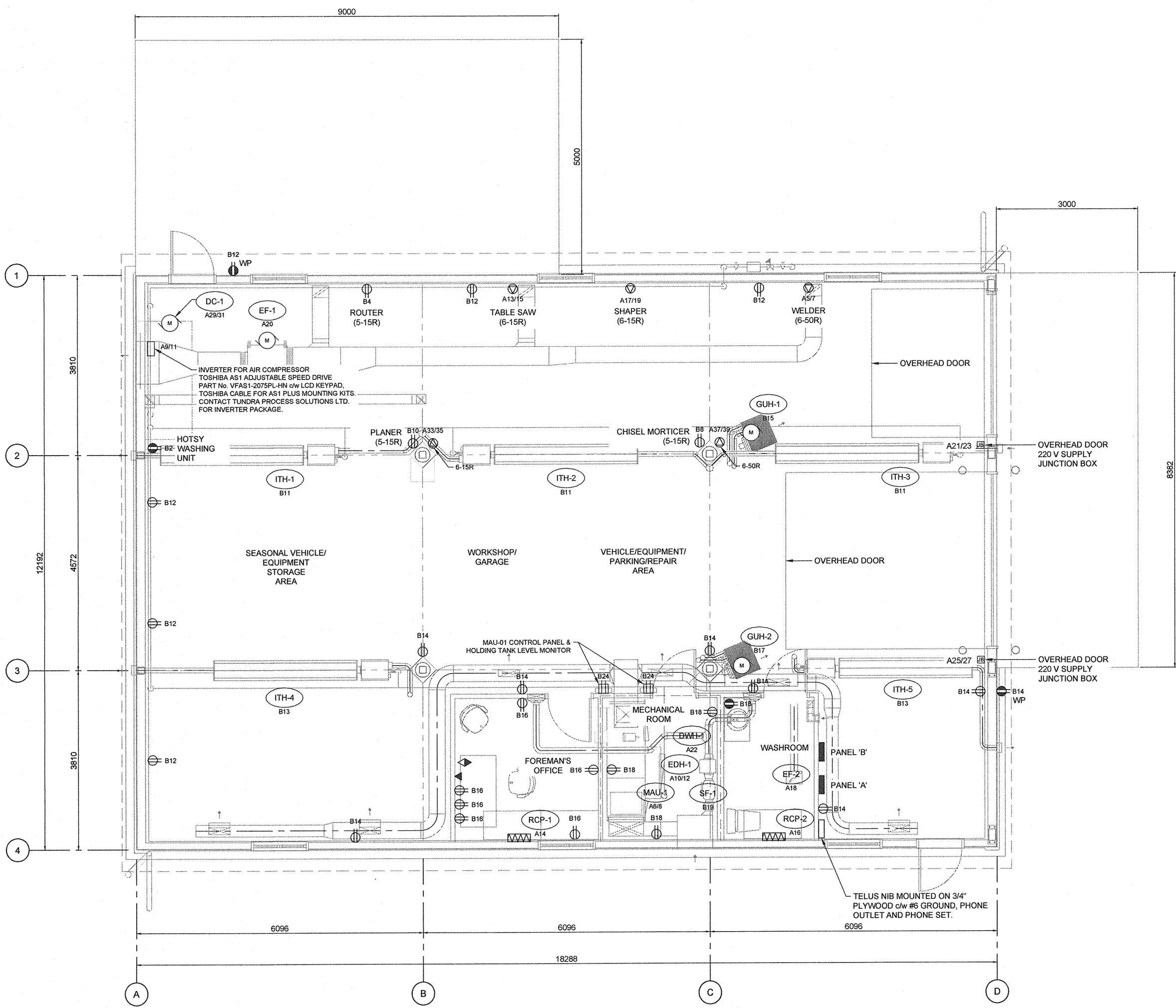
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PANEL A SCHEDULE													
LOCATION: AS DRAWING				VOLTAGE: 120/240VAC				PHASE: 1					
MOUNTING: WALL				BUS RATING: 22KA				WIRE: 3					
INCOMING LUGS: ISOLATOR				MAIN BREAKER: 200A									
MANUFACTURER: EATON, SCHNEIDER				FEEDER: 3 #4/0									
CCT	DESCRIPTION	WATTAGE	BKR AMPS	BUS		BKR AMPS	WATTAGE	DESCRIPTION		CCT			
1			20	A	B	100		PANEL B	2				
3	LIGHTNING AND SURGE PROTECTION		2P			2P			4				
5		1000	100	A		30	2532		6				
7	WELDER		2P			2P	2532	MAU-1 MAKE UP AIR UNIT	8				
9		3300	20	A		20	2000		10				
11	PHASE CONVERTER FOR AIR COMPRESSOR		2P		B	2P	2000	EDH-1 VENTILATION HEATER	12				
13		3300	20	A		15	625	RCP-1 OFFICE HEATER	14				
15	TABLE SAW (NOTE 3)		2P		B	15	750	RCP-2 WASHROOM HEATER	16				
17			20	A		15	48.7	EF-2 WASHROOM EXHAUST FAN	18				
19	SHAPER (NOTE 3)		2P		B	50	2400	EF-1 WORKSHOP EXHAUST FAN	20				
21			20	A		2000		DWH-1 WATER HEATER	22				
23	OVERHEAD DOOR 1 (NOTE 3)		2P		B	15		SPARE	24				
25			20	A		15		SPARE	26				
27	OVERHEAD DOOR 2 (NOTE 3)		2P		B	15		SPARE	28				
29			40	A		15		SPARE	30				
31	DC-1 DUST COLLECTOR	2040	2P		B	15		SPARE	32				
33			20	A					34				
35	220VAC RECEPTACLES		2P		B				36				
37			15	A					38				
39	220VAC RECEPTACLES		2P		B				40				
41			15	A					42				
SUBTOTALS:		6340	6340				7206	7682					
NOTES:													
1. SEE BUILDING MECHANICAL DRAWINGS FOR LOCATION OF HEATING AND VENTILATION EQUIPMENT										13546	W		
2. COMBINED LIGHTNING AND SURGE PROTECTION UNIT TO BE LOCATED ADJACENT TO PANELBOARDS.										14022	W		
3. CONTRACTOR TO CONFIRM ELECTRICAL LOAD RATING ON SHOP DRAWINGS PRIOR TO ORDERING PANELBOARD BREAKERS.										13546	W		
											A		
										56	A		

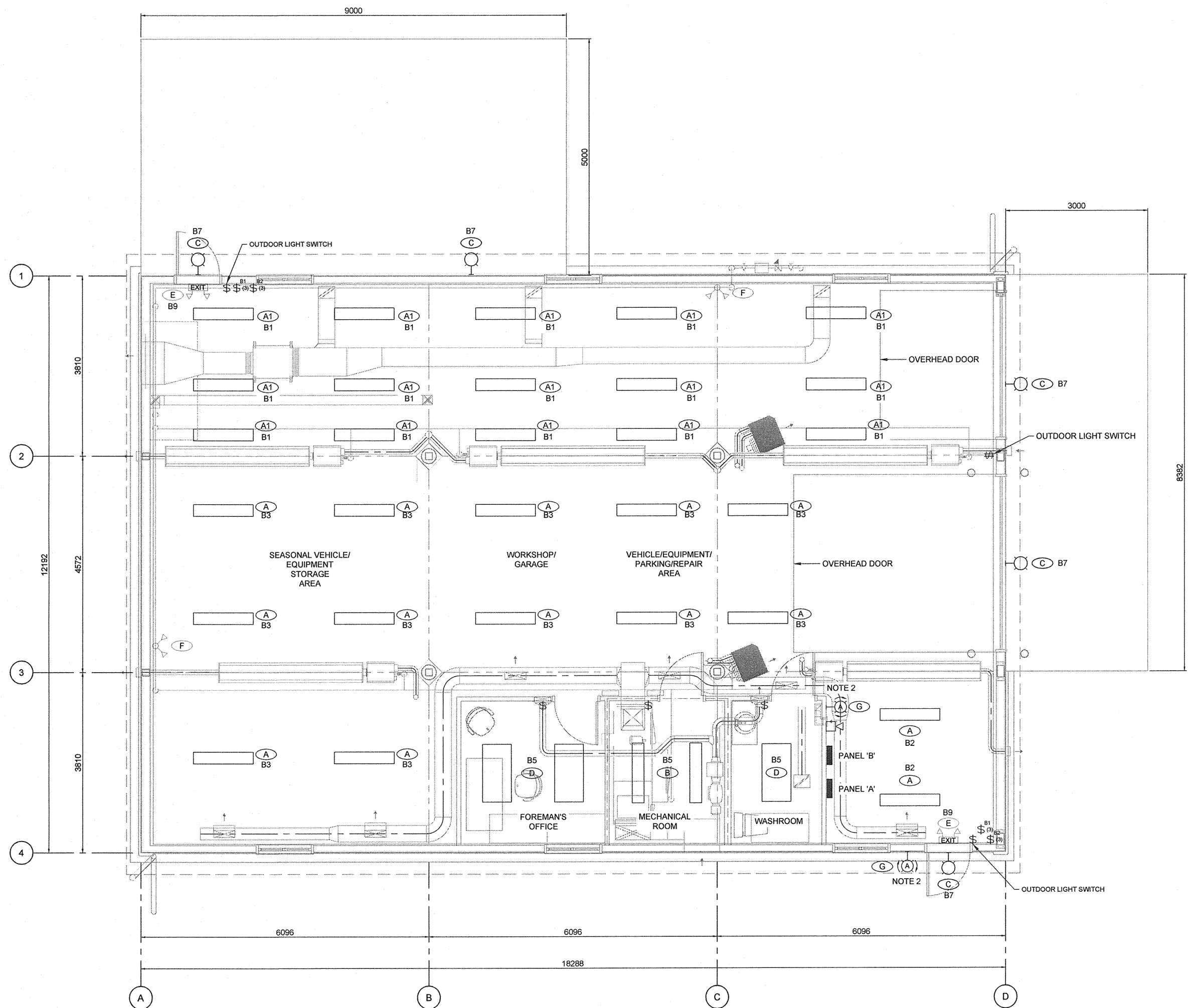
PANEL B SCHEDULE													
LOCATION: AS DRAWING				VOLTAGE: 120/240VAC				PHASE: 1					
MOUNTING: WALL				BUS RATING: 22KA				WIRE: 3					
INCOMING LUGS: ISOLATOR				MAIN BREAKER: 200A									
MANUFACTURER: EATON, SCHNEIDER				FEEDER: 3 #3 RW90									
CCT No.	DESCRIPTION	WATTAGE	BKR AMPS	A	B	WATTAGE	DESCRIPTION	CCT No.					
1	LIGHTING - MAIN AREA		15	A	B	15	VEHICLE WASHER (NOTE 3)	2					
3	LIGHTING - MAIN AREA		15	A	B	15	ROUTER (NOTE 3)	4					
5	LIGHTING - OFFICE, MECH ROOM, WASHROOM		15	A	B	20	COMPOUND MITRE SAW (NOTE 3)	6					
7	LIGHTING - OUTSIDE		15		B	15	CHISEL MORTICER (NOTE 3)	8					
9	LIGHTING - EMERGENCY		15	A		15	PLANER (NOTE 3)	10					
11	ITH-1, 2, 3 INFRARED TUBE HEATERS	360	15	A	B	15	120VAC RECEPTACLES - MAIN AREA	12					
13	ITH-4, 5 INFRARED TUBE HEATERS	240	15	A	B	15	120VAC RECEPTACLES - MAIN AREA	14					
15	GUH-1 UNIT HEATER	288	15	A	B	15	120VAC RECEPTACLES - OFFICE	16					
17	GUH-2 UNIT HEATER	468	15	A		15	120VAC RECEPTACLES - MECH ROOM, WASHROOM	18					
19	SF-1 VENTILATION FAN		15		B	15	SPARE	20					
21				A	B	15	SPARE	22					
23					B	15	SPARE	24					
25				A	B	15	SPARE	26					
27					B	15	SPARE	28					
29				A				30					
31					B			32					
33				A	B			34					
35					B			36					
37				A				38					
39					B			40					
41				A				42					
SUBTOTALS:		708	648			1800	0						
NOTES:													
1. SEE BUILDING MECHANICAL DRAWINGS FOR LOCATION OF HEATING AND VENTILATION EQUIPMENT													
2. COMBINED LIGHTNING AND SURGE PROTECTION UNIT TO BE LOCATED ADJACENT TO PANELBOARDS.													
3. CONTRACTOR TO CONFIRM ELECTRICAL LOAD RATING ON SHOP DRAWINGS PRIOR TO ORDERING PANELBOARD BREAKERS.													
PHASE A TOTAL - 2508 W													
PHASE B TOTAL - 648 W													
PANEL LOAD TOTAL - 3156 W													
PANEL CURRENT TOTAL - 13 A													



- LAYOUT LEGEND:
- 220 V SINGLE RECEPTACLE
 - 120 V POWER CONNECTION
 - 120 V DUPLEX RECEPTACLE
 - WEATHERPROOF DUPLEX RECEPTACLE - GFCI
 - DUPLEX RECEPTACLE - GFCI
 - JUNCTION BOX
 - LIGHTING OR BRANCH PANEL
 - TELEPHONE OUTLET
 - INTERNET OUTLET
 - PANEL NAME AND CIRCUIT NUMBER

- NOTES:
- PARKS CANADA TO ADVISE LOCATION OF RECEPTACLES FOR WELDER, AIR COMPRESSOR, TABLE SAW, AND SHAPER PRIOR TO INSTALLATION.
 - PARKS CANADA TO ADVISE LOCATION OF RECEPTACLES FOR ROUTER, COMPOUND MITRE SAW, CHISEL MORTICER, AND PLANER PRIOR TO INSTALLATION

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Revision / Révision									
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BAR-U RANCH WORKSHOP REPLACEMENT									
WATERTON LAKES NATIONAL PARK									
Drawing title/Titre du dessin									
240VAC, 120VAC POWER, INTERNET & TELEPHONE									
Surveyed by/Arpenté par									
Designed by/Concept par		Drawn by/Dessiné par		Date/Date					
RICHARD COLBECK		HOWARD MARIANO		FEB 28, 2015					
Reviewed by/Revisé par		Scale/Echelle		AS SHOWN					
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- LAYOUT LEGEND:
- SURFACE MOUNTED OR SUSPENDED FLUORESCENT FIXTURE
 - SURFACE MOUNTED OR SUSPENDED FLUORESCENT FIXTURE
 - EMERGENCY / EXIT LIGHT COMBINATION
 - EMERGENCY / EXIT LIGHT COMBINATION
 - WALL MOUNTED LIGHT
 - FIXTURE TYPE TAG
 - ELECTRIC BASEBOARD HEATER
 - SINGLE POLE SWITCH
 - TWO SWITCHES IN A TWO GANG BOX
 - 3-WAY SWITCH WITH CIRCUIT NUMBER
 - ALARM HORN
 - BEACON
 - PANEL NAME AND CIRCUIT NUMBER

- NOTES:
- 1220mm x 610mm FITTING MOUNTED IN T-BAR CEILING. SEE ARCHITECTURAL DRAWINGS.
 - WASTE WATER TANK HIGH LEVEL TO GIVE VISUAL AND AUDIBLE ALARM INSIDE THE BUILDING AND VISUAL ALARM OUTSIDE THE BUILDING. AUDIBLE ALARM TO BE MUTED BY PUSH BUTTON OPERATION. VISUAL ALARM TO BE ACKNOWLEDGED AND INDICATION TURNED OFF FOR ONE DAY BY PUSH BUTTON OPERATION.

1 PLAN
MAIN FLOOR

LIGHTING FIXTURE SCHEDULE												
FIXTURE TAG No.	EQUIPMENT INFORMATION									FINISH	REMARKS	
	DESCRIPTION	MANUFACTURER	CATALOGUE No.	MOUNTING TYPE	MOUNTING HEIGHT	VOLTS	FIXTURE SIZE	FIXTURE WATTS	LAMPS			
									No.			TYPE
A	2-LAMP HIGH BAY	COLUMBIA	LHR4-2-32-M4R-U-E-U	CHAIN	3000mm AFF	120 V	2' x 4'	76 W	2	T8 FLUORESCENT		
A1	2-LAMP HIGH BAY	COLUMBIA	LHR4-2-32-M4R-U-E-U	CHAIN	2400mm AFF	120 V	2' x 4'	76 W	2	T8 FLUORESCENT		
B	2-LAMP HIGH BAY	COLUMBIA	LHR4-2-32-M4R-ST-E-U	CEILING	3000mm AFF	120 V	2' x 4'	76 W	2	T8 FLUORESCENT		
C	OUTDOOR WALLPACK	RUUD	X SE 0 G 04 D U T H	SURFACE WALL MOUNT	SEE ARCHITECTURAL DRAWINGS	120 V	18" x 12"	110 W	2	LED		
D	FLUORESCENT	LITHONIA (WOW LIGHTING)	2AL5 2 28T5MVOLT GEB10PSLP835	T-BAR	SEE ARCHITECTURAL DRAWINGS	120 V	2' x 4'	56 W	2	F28T5 FLUORESCENT		
E	EMERGENCY LIGHT/ EXIT SIGN EMERGENCY UNIT	LUMACELL	5LER35002LWW	WALL	2100mm AFF	120 V	-	10 W	2	LED		
F	EMERGENCY LIGHT	LUMACELL	RG12NX722L	WALL	2100mm AFF	120 V	-	10 W	2	LED		
G	WASTE WATER TANK HIGH WATER ALARM	ALLEN BRADLEY	855W-G10Y3L4P1									

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ELECTRICAL SPECIFICATION:





1. ALL WORKS SHALL BE IN COMPLIANCE WITH THE CANADIAN ELECTRICAL CODE, ALBERTA BUILDING CODE, AND OTHER REGULATIONS IN EFFECT.
2. ALL EQUIPMENT SHALL BE INSTALLED TO MANUFACTURER RECOMMENDATIONS.
3. CONTRACTOR TO ARRANGE INSTALLATION OF UTILITY SUPPLY AND PROVIDE REQUIRED DOCUMENTATION IN A TIMELY MANNER TO PROVIDE POWER. CONTRACTOR TO WIRE FROM UTILITY SUPPLY POINT TO BUILDING.
4. SUPPLY AND INSTALL
- ONE 103mm RPVC DIRECT BURIED / RGS SURFACE MOUNTED CONDUIT FOR BUILDING POWER SUPPLY FROM THE UTILITY.
 - ONE 53mm RPVC CONDUIT DIRECT BURIED / RGS SURFACE MOUNTED CONDUIT FOR TELUS TELEPHONE CABLES.
 - TWO 53mm RPVC DIRECT BURIED / RGS SURFACE MOUNTED CONDUITS FROM THE WASTE WATER STORAGE TANK TO THE AUDIBLE / VISUAL ALARMS IN THE BUILDING.
- REFER TO CIVIL SITE PLAN FOR CONDUIT LOCATIONS.
5. THE CONTRACTOR SHALL READ ALL CONTRACT DOCUMENTS AND COORDINATE WITH TRADES PRIOR TO SUBMISSION OF BID. ENSURE THAT ALL NECESSARY WORKS ARE INCLUDED FOR A COMPLETE FUNCTIONAL INSTALLATION.
6. SHOP DRAWINGS SHALL BE SUBMITTED IN FULL DETAIL, AND CLEARLY INDICATING EXACT PRODUCTS, MODELS, FEATURES, CHARACTERISTICS, OPTIONS, ACCESSORIES, AND RATINGS. INCLUDE WIRING DIAGRAMS AND SCHEMATICS. WIRING DIAGRAMS SHOWING INTERCONNECTION OF WORK WITH THE WORK OF OTHER DIVISIONS IS REQUIRED. GENERIC, AMBIGUOUS, OR INCOMPLETE SHOP DRAWINGS ARE SUBJECT TO REJECTION.
7. PROVIDE CSA CERTIFIED EQUIPMENT AND MATERIAL.
8. WHERE CSA CERTIFIED EQUIPMENT AND MATERIAL IS NOT AVAILABLE, OBTAIN SPECIAL APPROVAL FROM INSPECTION AUTHORITY AND INSTALL SPECIAL APPROVAL LABELS. ENCLOSE SPECIAL APPROVAL DOCUMENTATION IN O&M MANUALS.
9. KEEP A SET OF PRINTS ON SITE, UP TO DATE AT ALL TIMES WITH AS-BUILT INFORMATION. RECORD DIMENSIONED LOCATIONS OF UNDERGROUND AND CONCEALED UTILITIES. STAMP SET AND SUBMIT TO OWNER AND CONSULTANT ON COMPLETION.
10. PROVIDE OPERATING AND MAINTENANCE DATA INCORPORATED INTO MANUAL.
11. INSTRUCT OWNER, CONSULTANT, AND OPERATING PERSONNEL IN OPERATION, CARE AND MAINTENANCE OF SYSTEMS, SYSTEM EQUIPMENT AND COMPONENTS.
12. IDENTIFY ELECTRICAL EQUIPMENT WITH LAMACOID NAMEPLATES. COORDINATE NAMES OF EQUIPMENT AND SYSTEMS WITH MECHANICAL

- AND OTHER TRADES. ENSURE MANUFACTURER'S NAMEPLATES, CSA LABELS, AND IDENTIFICATION NAMEPLATES ARE VISIBLE AND LEGIBLE AFTER EQUIPMENT IS INSTALLED.
13. FIRE STOP ALL PENETRATIONS IN ASSEMBLIES THAT ARE FIRE, SMOKE, OR TEMPERATURE RATED.
14. ARRANGE FOR ALL CUTTING, PATCHING, AND SEALING, TO BE CARRIED OUT BY THE TRADE QUALIFIED IN THE PRACTICE.
15. ARRANGE FOR TRENCHING, BACKFILL, SUBGRADE RESTORATION, AND SURFACE RESTORATION. BACKFILL IN LIFTS, WITH MECHANICAL COMPACTION.
16. DO NOT INSTALL OUTLETS BACK-TO-BACK IN WALL. ALL NEW OUTLETS ON OPPOSITE SIDES OF PARTITIONS TO BE SEPARATED BY ONE STUD SPACE TO RETAIN SOUND RATING. PACK AROUND OUTLET WITH BATT INSULATION. CAULK AROUND OUTLET TO PREVENT SOUND FLAKING. ALL POWER, TELEPHONE AND DATA OUTLETS TO BE GANGED ON ONE STUD OR HORIZONTAL BAR WHERE THEY ARE INDICATED IN CLOSE PROXIMITY. USE COMBINATION FACEPLATES WHERE POSSIBLE. CHANGE LOCATION OF OUTLETS AT NO EXTRA COST OR CREDIT, PROVIDING DISTANCE DOES NOT EXCEED 3000 mm, AND INFORMATION IS GIVEN BEFORE INSTALLATION OF FINAL WIRING.
17. ELECTRICAL EQUIPMENT SHALL GENERALLY BE INSTALLED AT FOLLOWING HEIGHTS UNLESS INDICATED OTHERWISE ON THE ARCHITECT'S DRAWINGS. COORDINATE ON SITE. NOTIFY OWNER AND CONSULTANT ON ROUGH IN AND PRIOR TO INSTALLATION OF WIRING. RELOCATE WITHIN 3000 mm (10ft) AS REQUESTED.
- LOCAL SWITCHES: 1400 mm.
- WALL RECEPTACLES:
GENERAL: 350 mm, 1220 mm WHERE ACCESSIBLE TO CHILDREN. ADJUST TO SUIT FURNITURE AND RACEWAYS. MOUNT GENERAL RECEPTACLES AT COMMON HEIGHTS THROUGHOUT AREAS.
- BELOW DESKS: 300 AFF AND 430 AFF, COORDINATE WITH OWNER.
- ABOVE TOP OF CONTINUOUS BASEBOARD HEATER: 200 mm.
- ABOVE TOP OF COUNTERS OR COUNTER SPLASH BACKS: 175 mm.
- IN MECHANICAL ROOMS: 1400 mm.
- PANELBOARDS: AS REQUIRED BY CODE OR AS INDICATED.
- VOICE DATA OUTLETS:
GENERAL: 300 mm. ADJUST TO SUIT FURNITURE AND RACEWAYS. MOUNT GENERAL OUTLETS AT A COMMON HEIGHT THROUGHOUT AREAS.
- BELOW DESKS: 300 AFF AND 430 AFF, COORDINATE WITH OWNER.
- WALL MOUNTED TELEPHONE OUTLETS: 800 mm.
- FIRE ALARM STATIONS: 1500 mm.

- FIRE ALARM NOTIFICATION APPLIANCES: 2100 mm.
18. ALL WORKS SHALL BE LAID OUT AND ARRANGED IN AN ORGANIZED FASHION, AND COMPLETED WORKS SHALL HAVE A TIDY FINISHED APPEARANCE.
19. CLEAN AND TOUCH UP SURFACES OF SHOP-PAINTED EQUIPMENT SCRATCHED OR MARRED DURING SHIPMENT OR INSTALLATION, TO MATCH ORIGINAL PAINT.
20. BUILDING WIRES SHALL BE STRANDED FOR 10 AWG AND LARGER. MINIMUM SIZE: 12 AWG. COPPER CONDUCTORS SIZE TO CANADIAN ELECTRICAL CODE, WITH 600 V INSULATION OF CHEMICALLY CROSS LINKED THERMOSETTING POLYETHYLENE MATERIAL. RATED RW90. NMD90 SHALL BE COPPER, MIN 12 AWG, WITH XLPE INSULATION, 600 V, AND JACKET. WIRING FOR FIRE ALARM SYSTEM SHALL BE TO ABC AND CEC SECTION 32 WHERE BUILDING WIRE SIZE IS NOT INDICATED SIZE IN ACCORDANCE WITH C22.1.
21. BUILDING WIRES TO BE INSTALLED IN RIGID GALVANIZED STEEL CONDUIT, USE ELECTRICAL METALLIC TUBING EMT WITH WATER TIGHT FITTING ABOVE 2.4m. FLEXIBLE METAL CONDUIT CAN ONLY BE USED FOR FINAL CONNECTIONS AND CANNOT BE INSTALLED THE ENTIRE LENGTH BETWEEN FIXTURES. ONE HOLE ALUMINUM STRAPS TO SECURE SURFACE CONDUITS AND CABLES 50 mm AND SMALLER. TWO HOLE STEEL STRAPS FOR CONDUITS AND CABLES LARGER THAN 50 mm.
22. INSTALL CONDUIT AND CABLE TO CONSERVE HEADROOM. DO NOT PASS CONDUITS THROUGH STRUCTURAL MEMBERS EXCEPT AS INDICATED.
23. PANELBOARDS TO CSA C22.2NO.29 AND PRODUCT OF ONE MANUFACTURER. SEQUENCE PHASE BUSSING WITH ODD NUMBERED BREAKERS ON LEFT AND EVEN ON RIGHT. COPPER BUS WITH DOUBLE NEUTRAL. TRIM AND FINISH: BAKED ALMOND ENAMEL. BREAKERS WITH THERMAL AND MAGNETIC TRIPPING. LOCK ON DEVICES FOR 20% OF 15 TO 30 A BREAKERS INCLUDING FIRE ALARM CIRCUIT. NAMEPLATE FOR EACH PANELBOARD. COMPLETE CIRCUIT DIRECTORY WITH LEGEND SHOWING LOCATION AND LOAD OF EACH CIRCUIT. MOUNT PANELS SECURE, PLUMB, TRUE, AND SQUARE. INSTALL SURFACE MOUNTED PANELBOARDS ON PLYWOOD BACKBOARDS IN DRY AREAS OR ON CHANNEL SUPPORTS IN OTHER AREAS. LACE BRANCH CIRCUIT WIRING INTO PANELBOARD WITH APPX 600 mm EXTRA WIRE LENGTH. ROUTE TIDILY FOR EASY VISUAL IDENTIFICATION AND TRACING OF CONDUCTORS.
24. 15 A AND 20 A, 120 V, SINGLE POLE, THREE WAY, AND FOUR WAY SWITCHES TO: CSA C22.2 NO.55 AND CSA C22.2 NO.111. MANUALLY OPERATED GENERAL PURPOSE AC SWITCHES WITH: TERMINAL HOLES APPROVED FOR NO. 10 AWG WIRE; SILVER ALLOY CONTACTS; UREA OR MELAMINE MOULDING FOR PARTS SUBJECT TO CARBON TRACKING; SUITABLE FOR BACK AND SIDE WIRING; IVORY TOGGLE. DECORA STYLE. TOGGLE OPERATED FULLY RATED FOR TUNGSTEN FILAMENT AND FLUORESCENT LAMPS, AND UP TO 80% OF RATED CAPACITY OF MOTOR LOADS. SWITCHES OF ONE MANUFACTURER THROUGHOUT PROJECT.

25. DUPLEX RECEPTACLES, CSA TYPE 5-15R, 125 V, 15 A, AND CSA TYPE 5-20R, 125 V, 20 A, U GROUND, TO: CSA C22.2 NO.42 WITH FOLLOWING FEATURES: IVORY UREA MOULDED HOUSING; SUITABLE FOR NO. 10 AWG FOR BACK AND SIDE WIRING; BREAK OFF LINKS FOR USE AS SPLIT RECEPTACLES; EIGHT BACK WIRED ENTRANCES, FOUR SIDE WIRING SCREWS; TRIPLE WIPE CONTACTS AND RIVETTED GROUNDING CONTACTS. OTHER RECEPTACLES WITH AMPACITY AND VOLTAGE AS INDICATED. RECEPTACLES OF ONE MANUFACTURER THROUGHOUT PROJECT. COVER PLATES FOR WIRING DEVICES TO: CSA C22.2 NO.42.1. COVER PLATES FROM ONE MANUFACTURER THROUGHOUT PROJECT. SHEET STEEL UTILITY BOX COVER FOR WIRING DEVICES INSTALLED IN SERVICE AREAS. STAINLESS STEEL, BRUSHED, 1 mm THICK COVER PLATES FOR WIRING DEVICES MOUNTED IN FINISHED AREAS AND OCCUPIED AREAS. CAST COVER PLATES FOR WIRING DEVICES MOUNTED IN SURFACE MOUNTED FS OR FD TYPE CONDUIT BOXES. WEATHERPROOF DOUBLE LIFT SPRING LOADED CAST ALUMINUM COVER PLATES. COMPLETE WITH GASKETS FOR DUPLEX RECEPTACLES IN OUTDOOR AREAS OR AREAS EXPOSED TO HUMIDITY OR MOISTURE. INSTALL SINGLE THROW SWITCHES WITH HANDLE IN "UP" POSITION WHEN SWITCH CLOSED. INSTALL SWITCHES IN GANG TYPE OUTLET BOX WHEN MORE THAN ONE SWITCH IS REQUIRED IN ONE LOCATION. INSTALL RECEPTACLES IN GANG TYPE OUTLET BOX WHEN MORE THAN ONE RECEPTACLE IS REQUIRED IN ONE LOCATION. PROTECT STAINLESS STEEL COVER PLATE FINISH WITH PAPER OR PLASTIC FILM UNTIL PAINTING AND OTHER WORK IS FINISHED. INSTALL SUITABLE COMMON COVER PLATES WHERE WIRING DEVICES ARE GROUPED. DO NOT USE COVER PLATES MEANT FOR FLUSH OUTLET BOXES ON SURFACE MOUNTED BOXES.
26. FIXTURES SHALL HAVE BAKED ENAMEL FINISH. CORROSION RESISTANCE CONVERSION COATING FOR OUTDOOR FIXTURES. METAL SURFACES OF LUMINAIRE HOUSING AND REFLECTORS FINISHED WITH HIGH GLOSS BAKED ENAMEL TO GIVE SMOOTH, UNIFORM APPEARANCE, FREE FROM PINHOLES OR DEFECTS. REFLECTOR AND OTHER INSIDE SURFACES FINISHED AS FOLLOWS: WHITE, MINIMUM REFLECTION FACTOR 90%; COLOUR FAST; FILM THICKNESS NOT LESS THAN 0.03 mm AVERAGE AND IN NO AREAS LESS THAN 0.025 mm; GLOSS NOT LESS THAN 80 UNITS AS MEASURED WITH GLOSS METER; WITHSTAND BENDING OVER 12 mm MANDREL WITHOUT SHOWING SIGNS OF CRACKING OR FLAKING UNDER 10 TIMES MAGNIFICATION; HINGED, GASKETTED, LATCHED DOOR. COORDINATE FINAL INSTALLATION LOCATIONS ON SITE. NOTIFY OWNER AND CONSULTANT WHEN LOCATIONS ARE ROUGHED IN BUT PRIOR TO WIRING. RELOCATE WITHIN 10 FEET AS REQUESTED. ALIGN LUMINAIRES MOUNTED IN CONTINUOUS ROWS TO FORM STRAIGHT UNINTERRUPTED LINE. ALIGN LUMINAIRES MOUNTED INDIVIDUALLY PARALLEL OR PERPENDICULAR TO BUILDING GRID LINES.
27. BALLASTS FOR FLUORESCENT LAMPS SHALL BE CBM AND CSA CERTIFIED, ENERGY EFFICIENT TYPE, ELECTRONIC, POWERSMART, WITH THERMAL PROTECTION. RFI/EMI SUPPRESSION CIRCUIT. TOTALLY ENCASED. CAPACITOR: THERMALLY PROTECTED.

- OPERATING FREQUENCY OF ELECTRONIC BALLAST: 21 KHZ MINIMUM. BALLAST FACTOR: GREATER THAN 0.90. SOUND RATED: CLASS A. MOUNTING: INTEGRAL WITH LUMINAIRE.
28. UNIT EMERGENCY EQUIPMENT SHALL BE TO CSA C22.2 NO.141. OPERATING TIME 60 MIN. BATTERY: SEALED, MAINTENANCE FREE. CHARGER: SOLID STATE, MULTI RATE, VOLTAGE/CURRENT REGULATED, INVERSE TEMPERATURE COMPENSATED, SHORT CIRCUIT PROTECTED WITH REGULATED OUTPUT OF PLUS OR MINUS 0.01V FOR PLUS OR MINUS 10% INPUT VARIATIONS. SOLID STATE TRANSFER CIRCUIT. LOW VOLTAGE DISCONNECT; SOLID STATE, MODULAR, OPERATES AT 80% BATTERY OUTPUT VOLTAGE. SIGNAL LIGHTS: SOLID STATE, FOR 'AC POWER ON'. LAMP HEADS: DUAL, INTEGRAL IN UNIT, 345 DEGREES HORIZONTAL AND 180 DEGREES VERTICAL ADJUSTMENT. LAMP TYPE: QUARTZ HALOGEN, MINIMUM 12 W. CABINET: SUITABLE FOR DIRECT OR SHELF MOUNTING TO WALL. FINISH: BAKED ENAMEL. AUXILIARY EQUIPMENT: TEST SWITCH; SHELF OR BRACKET; CORD AND PLUG CONNECTION FOR AC; RFI SUPPRESSORS; AUTO DIAGNOSTIC TEST. PROVIDE RECEPTACLE.
29. ALL TESTING TO BE COMPLETED TO CSA Z32-09. TEST GROUNDING WITH GROUND LOOP TESTER FOR 1 RECEPTACLE PER CIRCUIT. RESULT TO BE RECORDED.
30. HVAC STARTERS AND ALL WIRING TO BE BY ELECTRICAL CONTRACTOR IN ACCORDANCE WITH CEC.

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