GIBSONS & DISTRICT AQUATIC FACILITY ROOFTOP UNIT UPGRADE

953 GIBSONS WAY, GIBSONS, BC V0N 1V0

SCOPE OF WORKS

THE INTENT OF THIS PROJECT IS TO TO REPLACE THE EXISTING ROOFTOP UNIT AT GIBSONS & DISTRICT AQUATIC FACILITY, 953 GIBSONS WAY, GIBSONS, BC. THE EXISTING AIR HANDLING UNIT HAS COME TO THE END OF IT'S LIFE CYCLE. THE UNIT SHALL BE REPLACED WITH A NEW ROOFTOP UNIT WITH DEHUMIDIFICATION CAPABILITIES & CONDENSING UNIT DETAILED WITHIN THE SPECIFICATION AND SHOWN ON THE DRAWINGS.

THE FOLLOWING SCOPE OF WORKS IS RECOMMENDED AS A MINIMUM AND IS NOT LIMITED TO:

1. ALL LABOUR, EQUIPMENT AND RESOURCES FOR THE SAFE REMOVAL AND DISPOSAL OF THE EXISTING ROOFTOP UNIT AND ASSOCIATED ANCILLARIES, AS SHOWN ON THE DRAWINGS AND SPECIFICATION. CONSIDERATION SHOULD BE GIVEN TO THE PROPOSED SEQUENCE OF WORKS FORMING PART OF THIS SPECIFICATION.
   a. THE EXISTING BUILDING WILL BE OCCUPIED DURING CONSTRUCTION WORKS SO LIMITED SHUTDOWNS OF THE VENTILATION AND UTILITY SERVICES WILL BE REQUIRED.
   b. THE EXISTING AIR HANDLING UNIT AND CONDENSING UNIT ARE LOCATED ON THE ROOF OF THE BUILDING. A CRANE WILL BE REQUIRED TO FACILITATE THE REMOVAL AND INSTALL OF THE REDUNDANT EQUIPMENT AND NEW EQUIPMENT, RESPECTIVELY.
2. ALL LABOUR, EQUIPMENT AND RESOURCES REQUIRED TO COMPLETE ENERGY EFFICIENCY RETROFITS INCLUDING:
   a. ISOLATION AND DISCONNECTION OF THE EXISTING ROOFTOP UNIT, REMOVAL AND DISPOSAL.
   b. SUPPLY AND INSTALL THE NEW ROOFTOP UNIT AND ASSOCIATED ANCILLARIES.
   c. NEW CUSTOM ROOF CURB TO BE INSTALLED.
   d. SUPPLY AND INSTALL THE NEW CONDENSING UNIT AND ASSOCIATED ANCILLARIES.
   e. PROPOSED STRUCTURAL WORKS AS INDICATED IN STRUCTURAL DRAWINGS.
   f. RECONNECTION OF EXISTING ELECTRICAL COMPONENTS.
   g. COMMISSIONING OF NEW AND EXISTING SYSTEMS.
   h. PERMITS (GAS, ELECTRICAL, ETC).
   i. OPERATION AND MAINTENANCE MANUALS.
   j. STANDARD OPERATING PROCEDURES.
   k. DISCONNECT & RECONNECT TO EXISTING DDC SYSTEM.
   l. LIAISON WITH DDC CONTRACTOR.
2. UNDER THIS CONTRACT, IT IS PROPOSED TO REPLACE THE EXISTING ROOFTOP UNIT AS PER THE SPECIFICATION AND DESIGN INTENT DRAWINGS. THE EXISTING SERVICES SHALL BE DRAINED DOWN WHERE APPLICABLE TO ALLOW FOR THEIR SAFE REMOVAL. THE CONTRACTOR SHALL PROVIDE DETAILS OF WASTE DISPOSAL FOR ALL EQUIPMENT AND MATERIALS. CONTRACTOR RESPONSIBLE FOR ALL DISPOSAL.
3. PRIOR TO COMMENCEMENT OF THE REMOVAL WORKS, THE CONTRACTOR IS TO CARRY OUT AN INSPECTION OF THE SYSTEM AND LOCALISED AREA TO ENSURE THAT NO ASBESTOS OR LEAD BASED MATERIAL IS PRESENT IN THE REDUNDANT SERVICES. IF ASBESTOS OR LEAD BASED MATERIAL IS FOUND, THE CLIENT AND CONSULTANT MUST BE IMMEDIATELY INFORMED AND THE APPROPRIATE ACTION WILL BE INSTRUCTED TO THE CONTRACTOR.
4. THE CONTRACTOR IS REMINDED THAT THE BUILDING WILL BE OCCUPIED DURING THE RENOVATIONS AND THAT PHASED SHUTDOWNS OF THE EXISTING SERVICES MUST BE CLOSELY COORDINATED WITH THE SITE MANAGER.
5. THE CONTRACTOR SHALL MAKE ALLOWANCE TO MAKE GOOD THE EXISTING (OR NEW) PENETRATIONS THROUGH THE STRUCTURE TO THE CLIENT'S SATISFACTION.
6. THE PROPONENT MUST ALSO MAKE DUE ALLOWANCE FOR ALL BUILDERS WORK AND PERMITS.
7. ALL NEW AND EXISTING PIPE-WORK SHALL BE THERMALLY INSULATED AS PART THIS CONTRACT TO THE SATISFACTION OF THE CLIENT.
8. CONTRACTOR MUST GET SEISMIC ENGINEER TO POSITION AND SEISMICALLY RESTRAIN ALL EQUIPMENT AND PIPING AS REQUIRED BY CODE AND LOCAL JURISDICTION REQUIREMENTS AND AS PER THE DETAILED DESIGN DRAWINGS.
9. VERIFY THAT ALL EXISTING LOCAL POWER SUPPLIES, PIPING AND CONDENSATE DRAINS ARE INSTALLED CORRECTLY AND ARE OPERATIONAL.
10. FIRE-STOPPING AND SMOKE SEALS ON ALL MECHANICAL SERVICES WHICH PARTIALLY OF COMPLETELY PENETRATE FIRE RATED BUILDING COMPONENTS TO BC BUILDING BYLAW.
11. PROVIDE ONE YEAR WARRANTY ON NEW SYSTEM AND EQUIPMENT.
12. PROVIDE OPERATION AND MAINTENANCE MANUALS, TAB REPORTS AND SYSTEM DEMONSTRATION AND TRAINING AS REQUIRED BY THE SPECIFICATION.
13. MANUFACTURER'S START-UP SERVICE ON NEW EQUIPMENT.
14. CONTRACTOR MUST SUBMIT CX PLAN FOR REVIEW BY CONSULTANT AND OWNER.
15. CONTRACTOR MUST INCLUDE FULL CX REPORT WITH MANUAL.

DRAWING LIST

DWG. NO	DESCRIPTION	SCALE
M0.1	COVER PAGE, PROJECT NOTES & MECHANICAL LEGEND	NTS
M1.1	MECHANICAL SPECIFICATIONS	NTS
M1.2	ELECTRICAL SPECIFICATIONS	NTS
M2.1	EXISTING & PROPOSED ROOF PLANS	AS NOTED
M3.1	MECHANICAL SCHEDULES & DETAILS	NTS
E0.1	ELECTRICAL SPECIFICATIONS	NTS
E1.1	PROPOSED ELECTRICAL PLANS	AS NOTED
S101	RTU FRAME PLAN AND ELEVATIONS	AS NOTED

CIVIC ADDRESS

953 GIBSONS WAY,
GIBSONS,
BRITISH COLUMBIA
V0N 1V0

PROJECT NOTES

GENERAL NOTES:

1. THE MECHANICAL SYSTEM SHALL CONSIST OF ALL WORK SHOWN ON DRAWINGS, DIAGRAMS, AND AS DESCRIBED IN SPECIFICATIONS. DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INTENDED TO INDICATE THE SCOPE AND GENERAL ARRANGEMENT OF WORK AND ARE NOT DETAILED INSTALLATION INSTRUCTIONS.
2. ITEMS NOTED "TYPICAL" OR "TYP" ON ANY SHEET APPLY TO THAT PARTICULAR SHEET
3. COORDINATE WITH SPECIFICATIONS. IN CASE OF CONFLICT BETWEEN SPECIFICATIONS AND DRAWINGS THE MORE STRINGENT SHALL APPLY.
4. VERIFY EXISTING CONDITIONS BEFORE COMMENCING ANY WORK ON A PREVIOUSLY INSTALLED EXISTING MECHANICAL SYSTEM.
5. THE MECHANICAL CONTRACTOR SHALL ACT AS THE GENERAL CONTRACTOR AND SHALL INCLUDE ALL SUB TRADES AND WORK TO FACILITATE THE INSTALLATION OF THE SYSTEM INCLUDING BUT NOT LIMITED TO ELECTRICAL CONTRACTOR, PLUMBING CONTRACTOR AND SEISMIC CONTRACTOR. REFER TO RFP FOR DETAILS.
6. NO CORING ON EXISTING STRUCTURES SHALL COMMENCE UNTIL THE AREA IS SCANNED AND THE PROJECT MANAGER HAS APPROVED SCAN REPORT.
7. THE USE OF PLASTIC ANCHORS IS PROHIBITED
8. DO NOT SCALE THE DRAWINGS. OBTAIN ACCURATE MEASUREMENTS FROM SITE.
9. THE CONTRACTOR SHALL ALLOW FOR ALL AND ANY PIPING, VENTING OFFSETS REQUIRED TO AVOID THE EXISTING STRUCTURE, MECHANICAL OR ELECTRICAL INSTALLATIONS.
10. VISIT AND INSPECT THE SITE AND REVIEW ALL CORRESPONDING DRAWINGS. NO ALLOWANCE WILL BE MADE FOR FAILURE TO DO SO.
11. BE RESPONSIBLE FOR CARE OF THE BUILDING. PERFORM ALL CUTTING, PATCHING, PAINTING AND REPAIRING REQUIRED FOR THE WORK OF THIS TRADE. WORKS TO BE PERFORMED BY THE GENERAL CONTRACTOR'S FORCES AT THE MECHANICAL CONTRACTOR'S EXPENSE.
12. CLEAN ALL DEBRIS DAILY AND UPON COMPLETION OF CONTRACT.
13. COORDINATE WORK WITH ALL OTHER TRADES. PATCH AND SEAL ALL FLOOR AND WALL PENETRATIONS WITH FIRE RESISTANT INSULATION AND MASTIC.
14. ONE SET OF OWNER'S APPROVED DRAWINGS AND PERMIT DRAWINGS SHALL BE KEPT ON THE SITE AND AVAILABLE FOR CHECKING AT ALL TIMES DURING CONSTRUCTION.
15. ALL MATERIALS TO MEET FLAME SPREAD RATING REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
16. OBTAIN ALL PERMITS REQUIRED. ARRANGE FOR INSPECTION OF THE WORK BY THE INSPECTION AUTHORITY AND PAY FULL FEES. PROVIDE FINAL CERTIFICATE TO THE OWNER.
17. MECHANICAL CONTRACTOR SHALL COMPLY WITH ALL THE RULES AND REGULATIONS SET FORTH BY THE OWNER.
18. PROVIDE CERTIFICATE OF GUARANTEE OF WORKMANSHIP AND MATERIAL FOR ONE YEAR FROM DATE OF ACCEPTANCE.
19. IDENTIFY ALL EQUIPMENT WITH LAMICOID PLATES.
20. ANY WORK NOT SHOWN ON THE DRAWINGS OR SPECIFICALLY MENTIONED IN THE SPECIFICATIONS AND CONSIDERED NECESSARY FOR THE COMPLETION OF THE WORK IN PROPER MANNER SHALL BE PROVIDED BY THIS CONTRACTOR WITHOUT ADDITIONAL CHARGE.
21. NOTHING CONTAINED HEREIN SHALL BE CONSTRUED TO RELIEVE THIS CONTRACTOR FROM MAKING GOOD AND PERFECT IN ALL USUAL DETAILS OF CONSTRUCTION AND HE WILL BE HELD RESPONSIBLE TO PROVIDE AND FURNISH MATERIAL TO DO ALL THE WORK AND LABOR AND BEAR EXPENSES INCIDENTAL TO THE SATISFACTORY COMPLETION OF THE WORK EMBRACED IN THESE SPECIFICATIONS.
22. MECHANICAL CONTRACTOR SHALL VERIFY AND CONFIRM EXACT LOCATION OF ALL THE EXISTING SERVICES AND EQUIPMENT ON SITE.
23. COMPLETE MECHANICAL INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES, BY-LAWS, AND AUTHORITIES HAVING JURISDICTION.
24. ALL WORK SHALL CONFORM TO ASHRAE 90.1 LATEST EDITION.
25. SEISMIC RESTRAINTS FOR ALL EQUIPMENT AND PIPING COVERED UNDER DIVISION 15. SEISMIC ENGINEER SHALL BE RETAINED UNDER THE CONTRACTOR'S SCOPE OF WORK TO ENSURE SEISMIC INSTALLATIONS ARE APPROVED BY A CERTIFIED SEISMIC ENGINEER.
26. WHERE PIPES PENETRATE HORIZONTAL OR VERTICAL FIRE PARTITIONS, FIRE WALLS, RATED FLOOR ASSEMBLIES OR SMOKE PARTITIONS, INSTALL A ULC LISTED FIRE STOP SYSTEMS MUST PROVIDE AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FIRE, SMOKE AND GASES. THEY MUST BE INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS AND DETAILS.
27. FIRE STOP SYSTEMS ARE TO MEET THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
28. SHOP DRAWINGS TO BE SUBMITTED 7 DAYS AFTER AWARD OF CONTRACT.
29. PURCHASE ORDER SHALL BE EXECUTED NO MORE THAN 2 DAYS AFTER RECEIPT OF ENGINEERS APPROVAL.
30. ALTERNATIVE EQUIPMENT MAY BE SUBMITTED IN ACCORDANCE WITH THE RFP DOCUMENTS, A MINIMUM OF 5 BUSINESS DAYS BEFORE SUBMISSION OF ENQUIRES DEADLINE.

MECHANICAL/PLUMBING NOTES:

1. INSTALL ALL MECHANICAL WORK AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE ABOVE, EXCEPT WHERE CONFLICT OCCURS WITH REQUIREMENTS LISTED UNDER SPECIFICATION (VIBRATION ISOLATION).
2. THE MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE AND DO NOT ATTEMPT TO SHOW ALL REQUIRED OFFSETS.
3. COORDINATE ALL MECHANICAL WORK WITH THAT OF OTHER TRADES TO ENSURE PROPER AND ADEQUATE INTERFACE OF THEIR WORK WITH THE WORK OF THIS CONTRACTOR. PROVIDE COORDINATED SHOP DRAWINGS PRIOR TO FABRICATION AND INSTALLATION.
4. COORDINATE EXACT LOCATIONS OF ALL TEMPERATURE SENSORS WITH CLIENT PRIOR TO INSTALLATION.
5. THE MECHANICAL CONTRACTOR SHALL INCLUDE FOR ALL PERMITS AS REQUIRED BY THE LOCAL AUTHORITY.
6. PROVIDE VENT FROM ALL GAS PRESSURE REGULATORS TO A SAFE LOCATION OUTSIDE THE BUILDING.
7. BEFORE FABRICATION AND INSTALLATION OF DUCTWORK AND PIPING, MAKE CERTAIN THAT SUCH ITEMS CAN BE INSTALLED AS SHOWN ON THE DRAWINGS WITHOUT INTERFERENCE WITH THE STRUCTURE OR THE WORK OF OTHER TRADES. IF ANY MATERIALS ARE FABRICATED OR INSTALLED PRIOR TO THE INVESTIGATION AND REACHING OF A SOLUTION TO POSSIBLE INTERFERENCE PROBLEMS, NECESSARY CHANGES SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.
8. NOTE THE REMOVAL OF MECHANICAL WORK IS NOT SHOWN ON PLANS. CONTRACTOR SHALL VISIT THE SITE AND CONFIRM ALL OF THE EXISTING MECHANICAL ITEMS TO BE REMOVED AND THE REMOVAL WORK SHALL BE INCLUDED IN THE TENDER PRICING. PROTECT FINISHED OR UNFINISHED WORK AND OPERATING WORK AREAS BY TARPAULINS OR OTHER COVERING FROM DAMAGE DUE TO EXECUTION OF WORK. REPAIR DAMAGE TO BUILDING RESULTING FROM MECHANICAL WORK TO THE SATISFACTION OF CONSULTANTS AT NO EXPENSE TO THE OWNER.
9. SHUT-DOWNS OF EXISTING SYSTEMS REQUIRED FOR THIS INSTALLATION SHALL BE FULLY COORDINATE WITH THE BUILDING MANAGEMENT AND THIS WORK PERFORMED AS DIRECTED IN WRITING BY THE BUILDING MANAGEMENT. CONNECTION TO EXISTING SERVICES SHALL BE PERFORMED DURING OFF-WORK HOURS OR ON WEEKEND IN PREMIUM TIME.
10. INSULATE ALL CONDENSER WATER, HEATING WATER, AND CONDENSATE DRAIN PIPING WITH 1-1/2 IN. (38 MM) THICK 3.5 LB/CU. FT. DENSITY, FIBROUS GLASS WITH WHITE KRAFT BONDED TO ALUMINUM FOIL. FITTINGS SHALL BE INSULATED WITH PRE-MOLDED FIBERGLASS INSULATION. THE INTEGRITY OF THE VAPOR BARRIER SHALL BE MAINTAINED THROUGHOUT THE INSTALLATION. TAPE AND SEAL ALL JOINTS OF VAPOR BARRIER TAPE.
11. APPLY INSULATION TO CLEAN, DRY PIPING WITH ALL JOINTS TIGHTLY BUTTED. ADHERE THE FACTORY APPLIED VAPOR BARRIER JACKET. LAP SMOOTHLY AND SECURELY AT THE LONGITUDINAL LAPS WITH A WHITE VAPOR BARRIER ADHESIVE. ADHERE 3 IN. (75 MM) WIDE BUTT JOINT STRIPS OVER ALL END JOINTS WITH VAPOR BARRIER ADHESIVE TO ENSURE A CONTINUOUS VAPOR BARRIER. INSULATE ALL FITTINGS ON PIPING WITH INSULATION CEMENT TO THE SAME THICKNESS AS THE ADJACENT INSULATION.
12. VAPOR SEAL WITH 1/8 IN. (3 MM) WET COATS OF VAPOR BARRIER MASTIC, REINFORCED WITH GLASS FABRIC.
13. PROVIDE ALL NECESSARY PIPING MATERIAL AND LABOR FOR THE SYSTEMS SHOWN ON THE DRAWINGS. PIPING AND FITTINGS SHALL BE IN ACCORDANCE WITH CURRENT EDITION OF APPLICABLE CODES AND LATEST REVISIONS.
14. PROVIDE ULC LISTED BACKFLOW PREVENTERS AS SHOWN ON DRAWINGS AND/OR AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION.
15. PROVIDE AIR GAP FITTING ON DRAIN FROM REQUIRED FIXTURES ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

ELECTRICAL NOTES:

1. PROVIDE NEC CODE MINIMUM HORIZONTAL AND VERTICAL WORKING CLEARANCE FOR ALL ELECTRICAL PANELS AND EQUIPMENT. OFFSET MECHANICAL WORK AS REQUIRED.
2. VERIFY VOLTAGE ON SITE BEFORE ORDERING EQUIPMENT.

MECHANICAL LEGEND

	HEATING WATER SUPPLY
	HEATING WATER RETURN
C	CONDENSATE
	EMERGENCY SHUT-OFF VALVE
	DROP (TO BELOW)
	TO ABOVE
X-X	EQUIPMENT / FIXTURE TYPE
FD	FIRE DAMPER
	OPEN DRAIN
T	THERMOSTAT
	DIRECTION OF FLOW
	SLOPE PIPE OR DUCT
	PIPE UNION
	CAP OR PLUG
	CHECK VALVE
	BALANCING VALVE
P.R.V.	PRESSURE REDUCING VALVE
	STRAINER
	THERMOMETER
	PUMP
BD	BALANCING DAMPER
B.D.D.	BACK DRAFT DAMPER
M.D.	MOTORIZED DAMPER
AP	ACCESS PANEL
	DUCT OR PIPE CAP-OFF
	SUPPLY OUTLET
	RETURN OR EXHAUST INLET

N

LOCATION OF EXISTING RTU TO BE REMOVED

PRELIMINARY POSITION FOR CRANE

SITE PLAN

SCALE: NONE

COVER PAGE, PROJECT NOTES & MECHANICAL LEGEND

SCALE: NONE

#	REVISIONS	(YR/M/D)
2	ISSUED FOR TENDER	22/09/06
1	ISSUED FOR REVIEW	22/08/23

ISSUED FOR TENDER
NOT FOR CONSTRUCTION

Project
GIBSONS & DISTRICT AQUATIC FACILITY ROOFTOP UNIT UPGRADE

953 GIBSONS WAY, GIBSONS, BC V0N 1V0

SUNSHINE COAST REGIONAL DISTRICT

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Title
COVER PAGE,
PROJECT NOTES
& MECHANICAL
LEGEND

Scale: AS NOTED
Drawn: MM
Checked: SM
Project No.: 21-B338
Seal

Drawing No.
M0.1

Latest Revision No. 2

GENERAL PROVISIONS

1.0 SCOPE:

1.1 PROVIDE COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEM TO MEET REQUIREMENTS HEREIN AND IN ACCORDANCE WITH APPLICABLE CODES AND ORDINANCES.

1.2 VISIT THE SITE BEFORE SUBMITTING TENDER AND EXAMINE LOCAL AND EXISTING CONDITIONS ON WHICH THE WORK IS DEPENDANT. NO CONSIDERATION WILL BE GRANTED FOR MISUNDERSTANDING OF WORK TO BE DONE RESULTING FROM FAILURE TO VISIT THE SITE.

1.3 SHOULD THE CONTRACTOR DISCOVER ANY SPECIFIED EQUIPMENT, MATERIAL OR INSTALLATION WHICH MAY BE IN VIOLATION OF LAWS, ORDINANCES, OR REGULATIONS OF AUTHORITIES HAVING JURISDICTION, PROMPTLY BRING THIS MATTER TO THE ATTENTION OF THE CONSULTANT.

1.4 ASSUME RESPONSIBILITY OF LAYING OUT OF WORK AND FOR DAMAGE CAUSED BY IMPROPER EXECUTION OF WORK.

1.5 PROTECT FINISHED AND UNFINISHED WORK FROM DAMAGE. REPAIR DAMAGE TO PARTS OF BUILDING RESULTING FROM IMPROPER EXECUTION OF WORK.

1.6 GIVE NOTICES, OBTAIN PERMITS AND PAY ALL FEES FOR THE WORK SPECIFIED HEREIN. CERTIFY THAT WORK INSTALLED CONFORMS WITH THE LAWS AND REGULATIONS OF AUTHORITIES HAVING JURISDICTION.

1.7 PROTECT EQUIPMENT AND MATERIALS IN STORAGE ON SITE DURING AND AFTER INSTALLATION UNTIL FINAL ACCEPTANCE. THOROUGHLY CLEAN PIPING, DUCTS AND EQUIPMENT OF DIRT, CUTTINGS AND OTHER FOREIGN SUBSTANCES.

1.8 ALL NECESSARY CUTTING, CORING AND PATCHING OF EXISTING WALL, FLOOR AND ROOF REQUIRED TO COMPLETE NEW MECHANICAL INSTALLATION SHALL BE INCLUDED IN THIS CONTRACT. CONFIRM WITH AND OBTAIN PERMISSION FROM BUILDING OWNER AND YOUR STRUCTURAL ENGINEER PRIOR TO CUTTING AND/OR CORING OF EXISTING STRUCTURE. CUTTING OF EXISTING CONCRETE SURFACES SHALL BE BY MACHINE SAW CUTTING. HOLES FOR PIPES IN CONCRETE WALLS AND FLOORS SHALL BE MADE WITH CORE DRILLING EQUIPMENT. ALLOW TO MAKE GOOD ALL EXPOSED SURFACES AT COMPLETION OF MECHANICAL AND ELECTRICAL WORK.

1.9 REPAIR BUILDING WHERE DAMAGED FROM EQUIPMENT, INSTALLATION, IMPROPERLY LOCATED HOLES ETC. BY THIS SECTION OF WORK. USE MATERIAL MATCHING MATERIALS EXISTING BUILDING.

1.10 CONTRACT DOCUMENTS OF THIS DIVISION AND DRAWINGS ARE DIAGRAMMATIC AND APPROXIMATELY TO SCALE UNLESS DETAILED OTHERWISE. THEY ESTABLISH SCOPE, MATERIAL AND INSTALLATION QUALITY AND ARE NOT DETAILED INSTALLATION INSTRUCTIONS.

1.11 THIS DRAWING INDICATES THE GENERAL LOCATION AND ROUTE TO BE FOLLOWED BY THE PIPING FOR DESIGN INTENT ONLY. THE PIPES SHALL BE INSTALLED IN SUCH A WAY AS TO CONSERVE HEAD ROOM AND INTERFERE AS LITTLE AS POSSIBLE WITH THE FREE USE OF SPACE THROUGH WHICH THEY PASS. SERVICE LINES SHALL BE PARALLEL TO BUILDING LINES. ALL PIPES AT CEILING SHALL BE KEPT AS TIGHT AS POSSIBLE TO BEAMS OR OTHER LIMITING MEMBERS AT HIGH END.

2.0 MATERIALS

2.1 ALL PIPING MATERIAL SHALL BE IN ACCORDANCE WITH B.C BUILDING CODE WITH THE FOLLOWING STANDARDS.

2.1.1 SANITARY AND STORM PIPING ABOVE GRADE SHALL BE DWV CAST IRON PIPE WITH CAST IRON FITTINGS. JOINTS SHALL BE MADE USING MU MECHANICAL FASTENERS.

2.1.2 REFRIGERANT (R410a) PIPING SHALL BE SOFT DRAWN COPPER TO ASTM B-280.

2.1.3 HYDRAULIC HEATING PIPING SHALL BE SCHEDULE 40 A53 PIPE WITH SCHEDULE 40 FITTINGS.

2.2 WHERE PIPES, DUCTS, CABLES ETC. PARTIALLY PENETRATE OR PASS THROUGH FIRE RATED WALLS OR SMOKE SEPARATION WALLS, SEAL ALL VOIDS BETWEEN PIPE OR DUCT AND WALL WITH A ULC APPROVED FIRE STOPPING TO THE HOURLY RATING REQUIRED BY THE NATIONAL BUILDING CODE OR LOCAL CODES. FIRE-STOPPING SHALL BE INSTALLED BY A CONTRACTOR REGULARLY ENGAGING IN THIS WORK. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO COMMENCING WORK. SUBMIT REPORT CONFIRMING THIS WORK HAS BEEN COMPLETED AT THE END OF THE PROJECT.

3.0 TESTING

3.1 ALL SYSTEMS, EQUIPMENT AND MATERIALS SHALL BE TESTED. TESTING PROCEDURES SHALL BE AS REQUIRED BY SPECIFICATION BELOW OR AUTHORITY HAVING JURISDICTION. CARRY OUT HYDRAULIC TESTS FOR AN 8 HOUR PERIOD AND MAINTAIN PRESSURE WITH NO APPRECIABLE PRESSURE DROP. WHERE LEAKAGE OCCURS, REPAIR AND RETEST.

3.1.1 TEST DRAINAGE SYSTEMS BY FILLING WITH WATER TO PRODUCE WATER PRESSURE OF 5 FEET MINIMUM, 25 FEET MAXIMUM. CHECK FOR PROPER GRADE AND OBSTRUCTION BY BALL TEST.

3.1.2 TEST LOW VELOCITY DUCTS FOR TIGHTNESS SUCH AS LEAKAGE IS INAUDIBLE AND NOT DETECTABLE BY FEEL.

3.1.3 PERFORM LEAKAGE TEST ON LOW VELOCITY DUCTWORK AS PER THE SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL WITH A LEAKAGE CLASS OF 24 FOR RECTANGULAR DUCTS AND A LEAKAGE CLASS OF 12 FOR ROUND DUCTS.

4.0 SHOP DRAWINGS

4.1 SUBMIT THREE (3) COPIES OF SHOP DRAWINGS FOR REVIEW OF EQUIPMENT USED.

5.0 MECHANICAL SYSTEMS VERIFICATION

5.1 THE MECHANICAL CONTRACTOR IS TO INCLUDE IN THE SUBMITTED BID PRICE THE COST OF COMMISSIONING WORK. AN APPROVED COMMISSIONING AGENCY WILL BE APPOINTED BY THE CONTRACTOR AND APPROVED BY THE CONSULTANT.

5.2 THE CX AGENCY SHALL PROVIDE THE FOLLOWING SCOPE OF SERVICES TO REVIEW, INSPECT AND VERIFY ALL MECHANICAL SYSTEMS INSTALLED UNDER THIS CONTRACT ARE OPERATING IN CONFORMANCE TO THE DESIGN INTENT.

5.2.1 REVIEW OF THE DRAWINGS AND SPECIFICATIONS AS ISSUED FOR CONSTRUCTION, AND CONFIRMATION TO THE OWNER AND CONSULTANT THAT THE CX AGENT UNDERSTANDS THE INTENDED AND DESIGN INTENT AND SPECIFIED SEQUENCE OF OPERATIONS. THE CX AGENT SHALL ALLOW ADEQUATE TIME TO REVIEW WITH THE OWNER AND CONSULTANT THE DESIGN INTENT OF THE PROJECT AND THE INTENDED OPERATION.

5.2.2 VERIFICATION OF CONDITION AND OPERATION OF INSTALLED EQUIPMENT AND REPORTING ON SUCH AS INDICATED BELOW.

5.2.3 REVIEW OF THE BALANCING REPORTS, AND COORDINATION WITH THE BALANCING AGENT TO ENSURE THAT ALL SYSTEMS ARE FUNCTIONING AS INTENDED.

5.2.4 PARTICIPATING IN END-TO-END CHECKS ON ALL SPECIFIED SEQUENCE OF OPERATIONS, WORKING IN CONJUNCTION WITH THE CONTRACTOR.

5.2.5 CO-ORDINATE AND SUPERVISE THE START-UP OF EQUIPMENT AND SYSTEMS AS SPECIFIED BELOW. UTILIZE THE START-UP SERVICES OF THE MANUFACTURERS REPRESENTATIVE WHERE SPECIFIED. ENSURE THAT THE EQUIPMENT IS OPERATING IN A SATISFACTORY MANNER.

5.2.6 RESOLVE INTER-CONTRACTOR COORDINATION PROBLEMS. WHERE PROBLEMS BECOME APPARENT DURING THE CX PROCESS, WORK AT THE IDENTIFICATION AND RESOLUTION OF THESE PROBLEMS.

5.3 ORGANIZE AND CONDUCT THE DEMONSTRATION TO THE OWNER OF ALL MECHANICAL EQUIPMENT AND SYSTEMS SUPPLIED UNDER THIS CONTRACT. THE DEMONSTRATIONS SHALL OCCUR ONLY AFTER THE OPERATION AND TESTING HAS BEEN SUCCESSFULLY COMPLETED. EQUIPMENT SUPPLIERS AND THE BALANCING AGENT SHALL PARTICIPATE IN THE DEMONSTRATION AS REQUIRED.

5.3.1 THE CX AGENT BEARS THE RESPONSIBILITY TO ENSURE THE MECHANICAL INSTALLATION FUNCTIONS AS INTENDED, OR TO INDICATE IF CERTAIN COMPONENTS OF THE SYSTEMS CANNOT OPERATE AS INTENDED, WHY SUCH IS THE CASE AND WHAT IS RECOMMENDED TO RECTIFY THE PROBLEMS.

5.3.2 THE CX AGENT WILL COORDINATE THE WORK OF THE MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR, BALANCING AGENT AND CONTROLS CONTRACTOR, INCLUDING ORGANIZATION AND CHAIRING OF ANY MEETINGS REQUIRED BETWEEN THESE PARTIES TO RESOLVE AND COORDINATE THE CX PROCESS. THE CO-OPERATION OF ALL TRADES IS ESSENTIAL FOR AN EFFICIENT AND PLANNED PROCESS. A TEAM COMPRISING THE ABOVE PARTIES IS RECOMMENDED ALONG WITH AN OWNER'S REPRESENTATIVE.

5.4 OPERATING AND MAINTENANCE DATA AND AS-BUILT DRAWINGS

5.4.1 PROVIDE THREE (3) COPIES TO CONSULTANT OF HARD COVER TYPE BINDERS AT COMPLETION OF PROJECT. ASHRAE STANDARD FOR O&M MANUALS SHALL FORM PART OF THIS SPECIFICATION.

6.0 MECHANICAL INSULATION

6.1 INSULATION THICKNESS AND PERFORMANCE SHALL CONFORM TO REQUIREMENTS OF ASHRAE/IES STANDARD 90.1-1989

6.2 EXPOSED DUCTWORK: RIGID MINERAL FIBRE INSULATION WITH FACTORY APPLIED FOIL FACED JACKET, STANDARD 1502-A.2. FOR ROUND DUCTWORK SMALLER THAN 24” IN DIAMETER, USE FLEXIBLE INSULATION.

6.3 CONCEALED DUCTWORK: FLEXIBLE MINERAL FIBRE INSULATION WITH FACTORY APPLIED FOIL FACED JACKET, STANDARD 1502-B.2.

6.4 ACOUSTIC LINING: FIBREGLASS INSULATION WITH NEOPRENE SURFACE COATING OR MATT FACED TO PREVENT FIBRE EROSION, STANDARD 1502-C.2 FOR DUCTWORK AND 1502-C.1 FOR PLENUMS.

6.5 PIPING: MINERAL FIBRE INSULATION PREFORMED FOR PIPING WITH INTEGRAL ALL SERVICE JACKET, STANDARD 1501-A.2.

INSULATION THICKNESS SCHEDULE

OUTSIDE AIR DUCTS	2”
SUPPLY AIR DUCTS AND PLENUMS EXPOSED IN FINISHED AREAS AND MECHANICAL ROOMS	1-1/2”
CONDITIONED SUPPLY AIR DUCTS IN HEATED SPACE	1”
ACOUSTIC DUCT LINERS (UNLESS INDICATED OTHERWISE ON THE DRAWINGS)	1
CONDENSER WATER EXPOSED TO OUTDOORS	2”

7.0 PAINTING AND IDENTIFICATION

7.1 CLEAN ALL EXPOSED BARE METAL SURFACES SUPPLIED BY THE MECHANICAL AND PLUMBING TRADE BY REMOVING ALL DIRT, DUST, GREASE AND MILLSCALE.

7.2 REPAINT ALL MARRED FACTORY FINISHED EQUIPMENT WHICH IS NOT SCHEDULED TO BE REPAINTED TO MATCH ORIGINAL FACTORY FINISH.

7.3 NATURAL GAS AND FIRE PROTECTION PIPING SHALL BE COLOR CODED AS FOLLOWS:

GAS - YELLOW - C.G.S.B. 505-101
FIRE - RED - C.G.S.B. 509-102

7.4 THE PAINT USED IN THIS STANDARD IS TO BE IN ACCORDANCE WITH THAT SPECIFIED IN C.G.S.B PUBLICATION 1-GP-60C VIZ "ENAMEL, INTERIOR, GLOSS, ALKYD TYPE"

8.0 AIR DISTRIBUTION

8.1 PROVIDE AIR DISTRIBUTION SYSTEMS TO CODE REQUIREMENTS.

8.2 FOLLOW ASHRAE AND SMACNA STANDARDS INCLUDING LATEST ISSUE OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE" AND SMACNA "HVAC DUCT LEAKAGE TEST MANUAL" FOR SHEET METAL DUCT CONSTRUCTION.THE STATED STANDARDS SHALL BE CONSIDERED AS PART OF THIS SPECIFICATION. AIR DISTRIBUTION DUCTWORK SHALL BE INSULATED TO MEET THE REQUIREMENTS AS NOTED IN ASHRAE 90.1.

8.3 FANS SHALL MEET AMCA BULLETINS AND BEAR AMCA CERTIFIED RATING SEALS (AIR AND SOUND) AND CSA LABEL.

8.4 DUCTWORK AND PLENUMS

8.4.1 GALVANIZED DUCT SYSTEMS: DUCTWORK SHALL BE G-60 COATED GALVANIZED STEEL OF LOCK FORMING GRADE CONFORMING TO ASTM STANDARDS A-525 AND A-527. MINIMUM DUCT GAUGE FOR RECTANGULAR DUCTWORK SHALL BE 26 GAUGE; 28 GAUGE FOR ROUND DUCT OR TO SMACNA STANDARDS, WHICHEVER IS MOST STRINGENT. DUCTWORK, CASINGS, EXTERIOR COMPONENTS, FITTINGS, HANGERS, REINFORCEMENT AND OTHER CONSTRUCTION OR INSTALLATION REQUIREMENTS FOR DUCT SYSTEMS AND RELATED COMPONENTS SHALL BE IN ACCORDANCE WITH SMACNA STANDARDS REFERENCED ABOVE.

8.4.2 FLEXIBLE DUCTS: CLASS 1 VINYL COATED FIBREGLASS CLOTH OVER STEEL SPRING, FLEXMASTER FABRIFLEX TYPE 4 (UNINSULATED) OR THERMAFLEX MKE (INSULATED) TO SUIT PRESSURE CLASS. FLEXIBLE DUCTS SHALL CONFORM TO UL STANDARD 181 AND NFPA BULLETIN 90A. FIRE RATING OF FLEXIBLE DUCTS SHALL BE 1/2 HOUR OR MORE AS MEASURED BY UL STANDARD 181, PARAGRAPH 7, FLAME PENETRATION TEST.

8.4.3 SEALANTS AND GASKETING: LOW VOC EMITTING, WATER-RESISTANT, FIRE-RESISTIVE, COMPATIBLE MATING MATERIALS. CLASS A, B OR C TO SUIT PRESSURE CONSTRUCTION CLASS OF DUCTWORK FOR PROJECT.

8.5 DUCT ACCESS DOORS

8.5.1 FABRICATE TO SUIT PRESSURE CLASS OF DUCT SYSTEM IN ACCORDANCE WITH SMACNA RECOMMENDATIONS.

8.5.2 FABRICATE RIGID, CLOSE-FITTING DOORS OF GALVANIZED STEEL WITH SEALING GASKETS AND QUICK FASTENING LOCKING DEVICES. INSTALL MINIMUM 1” THICK INSULATION WITH SHEET METAL FRAME AND INSIDE PANEL FOR INSULATED DUCTWORK. EQUAL TO "SANDWICH" DUCTMATE ACCESS DOOR.

8.5.3 FABRICATE DUCT ACCESS DOORS WITH BUTT HINGES, SASH LOCKS FOR SIZES UP TO 18”.

8.5.4 FABRICATE CASING ACCESS DOOR WITH HINGES AND COMPRESSION LATCHES WITH OUTSIDE AND INSIDE HANDLES FOR SIZES UP TO 24” X 48” AND ADDITIONAL HINGE FOR LARGER SIZES. DOOR SHALL OPEN AGAINST PRESSURE. REFER TO SECTION 15050 FOR REQUIRED OPENING SIZES.

8.6 FIRE DAMPERS

8.6.1 FIRE DAMPERS SHALL BE UL555S AND ILC555S CLASSIFIED AND LABELED.

8.6.2 FABRICATE OF GALVANIZED OR PRIME COATED STEEL, WEIGHTED TO CLOSE AND LOCK WHEN RELEASED BY FUSIBLE LINK.

8.6.3 FIRE DAMPERS IN LOW PRESSURE DUCTWORK MAY BE MULTI-BLADE, OFFSET BUTTERFLY OR TYPE B CURTAIN TYPE. TYPE A IS ACCEPTABLE AT GRILLES WHERE GRILLE HEIGHT IS INCREASED BY 3".

8.6.4 FABRICATE COMBINATION FIRE AND BALANCING DAMPERS WITH LINKAGE READILY ADJUSTABLE IN OPEN POSITION. PROVIDE CURTAIN TYPE WITH EXTENDED LINK STRAPS.

8.6.5 FIRE DAMPERS IN MEDIUM PRESSURE DUCTWORK SHALL BE TYPE B CURTAIN TYPE.

8.6.6 CURTAIN FIRE DAMPERS SHALL HAVE BLADES RETAINED IN RECESS SO FREE AREA OF CONNECTING DUCTWORK IS NOT REDUCED (TYPE B).

8.6.7 FUSIBLE LINKS SHALL BE SET FOR 71°C.

8.7 SMOKE AND COMBINATION SMOKE/FIRE DAMPERS

8.7.1 ULC APPROVED MULTI BLADE COMBINATION FIRE/SMOKE DAMPERS SHALL BE UL555S CLASSIFIED AND LABELLED AS CLASS I (MAXIMUM 4 CFM PER FT2 AT 1”W.G.) WITH 1-1/2 HOUR FIRE RATING AND 71°C FUSIBLE LINK. DAMPERS UNDER 1.5 FT2 SHALL BE 2” WIDER AND 4” HIGHER TO ACCOMMODATE FRAME AND BLADE STOPS.

8.7.2 PROVIDE 120 VOLT FAIL CLOSED, FACTORY MOUNTED MOTOR TO MEET UL 555S RATING, EQUAL TO HONEYWELL M445D.

8.7.3 PROVIDE MICROSWITCH PACKAGE TO PROVIDE 2-POSITION INDICATION MOUNTED IN ENCLOSURE WITH SWITCH AND WIRE OUTSIDE DUCT. LINK SWITCH DIRECTLY TO DAMPER BLADE. EQUAL TO RUSKIN SP-100.

8.8 VOLUME DAMPERS

8.8.1 FABRICATE OF GALVANIZED STEEL, MINIMUM 16 GAUGE WITH QUADRANTS OR CONTINUOUS ADJUSTMENT RODS AND LOCK SCREW WITH 1/8” CLEARANCE ALL AROUND. ROUND PIN DAMPERS WILL NOT BE ACCEPTED.

8.8.2 FABRICATE SINGLE AND MULTI-BLADE DAMPERS FOR DUCTS TO SMACNA STANDARDS.

8.8.3 MULTI-BLADE BALANCING DAMPERS SHALL BE OPPOSED BLADE PATTERN OF 18 GAUGE METAL WITH MAXIMUM FRAME WIDTH OF 48”. MAXIMUM BLADE HEIGHT SHALL BE 12”. ASSEMBLE CENTRE AND EDGE CRIMPED BLADES IN PRIME COATED OR GALVANIZED STEEL CHANNEL FRAME WITH SHAFT EXTENSION, PIN AND BRONZE BUSHINGS, BLADE STOPS AND LINKAGES TO SMACNA STANDARDS.

8.8.4 CONSTRUCT DAMPER BLADES FOR MEDIUM PRESSURE SYSTEMS TO BLOCK AIR PASSAGE 70% MAXIMUM, WITH LOCKING HANDLES.

8.8.5 FABRICATE MULTI-BLADE, PARALLEL ACTION GRAVITY BALANCED BACKDRAFT DAMPERS WITH BLADES MAXIMUM 6” WIDTH WITH FELT OR FLEXIBLE VINYL SEALING EDGES, LINKED IN RATTLE FREE MANNER WITH ADJUSTMENT DEVICE TO PERMIT SETTING FOR VARYING DIFFERENTIAL STATIC PRESSURE.

8.9 FLEXIBLE CONNECTIONS

8.9.1 PROVIDE APPROVED FLAME-PROOF FABRIC CONNECTIONS; MINIMUM 4” WIDE WITH METAL EDGE STRIPS ATTACHED TO DUCT OR EQUIPMENT BY SCREWS OR BOLTS AT 6” INTERVALS AND SEALED WITH HIGH VELOCITY DUCT SEALER.

8.9.2 FLEXIBLE CONNECTORS SHALL BE FACTORY INSULATED WITH 1” THICK FLEXIBLE FIBROUS INSULATION, FOIL BACKED.

8.10 OUTSIDE OPENINGS

8.10.1 OUTSIDE LOUVRES: FABRICATE OF 12 GAUGE ALUMINUM OR 16 GAUGE GALVANIZED STEEL WITH 4” DEEP BLADES AT 45° SLOPE WITH ALUMINUM INSECT SCREEN. INTAKES SHALL HAVE CENTRE BAFFLE AND RETURN BEND STORMPROOF PROFILE. PROVIDE INSULATED BLANK-OFF PANELS BEHIND UNUSED PORTIONS OF LOUVRES. INTAKE AND EXHAUST LOUVRES EQUAL TO TAMCO 3000 SERIES FIXED BLADE LOUVRES. LOUVRE FINISH TO BE CONFIRMED BY ARCHITECT PRIOR TO PRODUCTION OF SHOP DRAWINGS.

8.11 AIR OUTLETS

8.11.1 PROVIDE ADC RATED OUTLETS WITH SEISMIC ATTACHMENT TABS. BASE AIR OUTLET APPLICATION ON NC 25 MAXIMUM.

8.11.2 PROVIDE AIR OUTLETS WITH ACCESSORIES AS SPECIFIED. PROVIDE SPONGE RUBBER SEAL AROUND EDGE OF SUPPLY OUTLETS. PROVIDE 2 DIAMETER LENGTH OF STRAIGHT DUCT TO DIFFUSER OUTLETS.

8.11.3 REVIEW REQUIREMENTS OF OUTLET SIZE, FINISH AND TYPE OF MOUNTING BEFORE SUBMITTING SHOP DRAWINGS AND SCHEDULES OF OUTLETS. AIR OUTLETS SHALL BE PRODUCT OF ONE MANUFACTURER FOR GENERIC TYPE UNLESS OTHERWISE SPECIFIED.

8.11.4 PROVIDE BAFFLES ON DIFFUSERS TO DIRECT AIR AWAY FROM OBSTRUCTIONS WITHIN RADIUS OF DIFFUSER THROW.

8.11.5 PROVIDE ANTI-SMUDGE FRAMES OR PLAQUES ON ACOUSTIC PLASTER CEILINGS.

8.11.6 PROVIDE BALANCING DAMPERS ON AIR OUTLETS:

8.11.7 GRILLES SHALL HAVE GANG OPERATED OPPOSED BLADE DAMPERS WITH REMOVABLE KEY.

8.11.8 DIFFUSERS SHALL HAVE RADIAL OPPOSED BLADE OR BUTTERFLY WITH EQUALIZING GRID; DAMPERS ADJUSTABLE FROM DIFFUSER FACE.

8.11.9 PROVIDE EXTRACTORS WITH CURVED EXTRACTION BLADES FOR GRILLE CONNECTIONS LESS THAN 12” FROM DUCT MAIN OR RISER WITH ACCESSIBLE CONTROL IN AIR OUTLET COLLAR, STIFFENED TO AVOID VIBRATION. SIZE ON BASIS OF STRAIGHT AIR VOLUME PROPORTIONING.

8.11.10 SUPPLY DIFFUSERS IN TILED CEILING SHALL HAVE 1/2” RECESSED LIP WITH ADJUSTABLE PATTERN.

8.11.11 PROVIDE SEISMIC CLIPS ON DIFFUSERS.

9.0 INTERRUPTION OF EXISTING SERVICES

9.1 COORDINATE AND MAINTAIN LIAISON WITH THE OWNER TO INTERRUPT, RE-ROUTE OR CONNECT TO WATER, SEWER, STORM, HEATING OR GAS SYSTEMS WITH MINIMUM INTERRUPTION OF SERVICE. CONTACT RESPECTIVE UTILITY COMPANIES AND BUILDING OWNER PRIOR TO STARTING WORK.

9.2 WHERE MODIFICATION OF EXISTING FACILITIES IS REQUIRED, ASSUME FULL RESPONSIBILITY FOR ANY DISRUPTION OF EXISTING SYSTEMS. PROVIDE ALL TEMPORARY CONNECTIONS REQUIRED TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING NORMAL OPERATING HOURS. SHUT DOWN OF EXISTING MAY ONLY BE MADE AS DIRECTED BY BUILDING OWNER. MAKE GOOD ALL MECHANICAL WORK DISTURBED DURING CONSTRUCTION. RELOCATE EXISTING WORK AND COMPONENTS TO ACCOMMODATE NEW WORK NECESSARY TO ALLOW COMPLETION OF THE SYSTEMS AS INDICATED.

9.3 ALL DELIVERIES AND STORAGE SHALL BE COORDINATED WITH THE CLIENT IN ADVANCED OF ORDERED AND SITE SET UP. CONTINUAL DIALOGUE BETWEEN THE CONTRACTOR AND CLIENT SHOULD BE ESTABLISHED TO ENSURE MINIMAL DISRUPTION TO THE OPERATION OF THE BUILDING.

10.0 WORK IN EXISTING AREAS:

10.1 COORDINATION BETWEEN NEW AND EXISTING INSTALLATIONS.

10.1.1 CHECK AND COORDINATE ALL SYSTEMS IN THE RENOVATION WHICH EXTEND TO EXISTING SYSTEMS TO ENSURE THEIR PROPER OPERATION.

10.1.2 PROVIDE INTERFACING COMPONENTS BETWEEN NEW AND EXISTING SYSTEMS AS NECESSARY FOR PROPER PERFORMANCE AND OPERATION.

10.2 USE OF EXISTING MATERIAL AND OPERATION

10.2.1 TEST EXISTING EQUIPMENT (AND/OR EXISTING PIPING) AT COMMENCEMENT OF WORK WHICH IS TO REMAIN AND TO BE RE-USED FOR PROPER OPERATION.

10.2.2 SERVICE ALL EXISTING EQUIPMENT (WHICH IS TO BE RE-USED) TO TOP OPERATING CONDITION PRIOR TO SUBSTANTIAL COMPLETION.

10.2.3 REPORT TO THE CONSULTANT AT ONCE IF ANY EQUIPMENT (AND/OR PIPING) IS NOT IN PROPER OPERATING CONDITION.

10.2.4 IF NO REPORT IS SUBMITTED ON DEFECTS OF EXISTING EQUIPMENT AND/OR EXISTING PIPING WITHIN THREE WEEKS AFTER COMMENCEMENT OF WORK, THEN IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE GOODWILL DEFECTS AND DAMAGE IF FOUND TO BE NECESSARY IN FUTURE.

10.2.5 SUBMIT WRITTEN REPORT TO CONSULTANT AT COMPLETION OF PROJECT CONFIRMING ALL NECESSARY TESTING AND EXAMINATION OF EXISTING PIPING, EQUIPMENT, ETC. HAVE BEEN CARRIED OUT AND TO THE SATISFACTION OF THE CONTRACTOR.

10.3 SALVAGE MATERIAL

10.3.1 REMOVE FROM SITE ALL MATERIALS WHICH ARE NOT TO REMAIN OR BE RE-USED, UNLESS NOTED AS REAMING THE PROPERTY OF THE OWNER.

10.4 EXISTING SERVICES

10.4.1 DISCONNECT AND REMOVE ALL EXISTING PRODUCTS WHICH ARE TO BE ABANDONED.

10.4.2 REMOVE ALL PIPING WHICH IS ABANDONED EXCEPT INACCESSIBLE PIPING CUT AND CAP PIPING BELOW FINISHED SURFACES.

10.4.3 PLUG AND CAP ABANDONED DRAINS AND VENT POINTS IN SYSTEM WHICH ARE NOT BEING RE-USED. PLUG AND CAP TO THE APPROVAL OF THE LOCAL AUTHORITIES.

10.4.4 MAINTAIN HEATING AND COOLING IN THE BUILDING AS REQUIRED TO PROTECT THE BUILDING AND EQUIPMENT OR TO PROVIDE COMFORT CONDITIONS FOR THE OCCUPANTS.

10.4.5 KEEP ALL SPRINKLER, STANDPIPE AND OTHER FIRE AND LIFE SAFETY PROTECTION SERVICES IN OPERATION AT ALL TIMES.

10.4.6 ALL MECHANICAL SYSTEMS DEMOLITION WORK SHALL BE PERFORMED BY QUALIFIED PERSONNEL OF RESPECTIVE TRADES. EXISTING EQUIPMENT AND/OR SYSTEMS WHICH ARE TO REMAIN SHALL BE LEFT IN GOOD CONDITION.

10.5 WORKING ON A ROOF

10.5.1 CONTRACTOR TO PROVIDE GUARDRAILS ALONG PERIMETER OF BUILDING TO PROTECT WORKERS FROM FALL HAZARDS. GUARDRAILS TO BE 45 INCHES ABOVE WORKING SURFACE.

10.5.2 CONTRACTOR TO PROVIDE ALL NECESSARY PERSONAL FALL ARREST SYSTEM (PFAS) EQUIPMENT, WHICH INCLUDES ANCHORAGE, FULL-BODY HARNESS AND LANYARD OR LIFELINE.

11.0 ELECTRICAL MOTORS

11.1 SUPPLY MECHANICAL EQUIPMENT COMPLETE WITH ELECTRICAL MOTORS.

11.2 PROVIDE MOTORS TO CEMA AND CSA STANDARDS FOR HARD, CONTINUOUS SERVICE, DESIGNED TO LIMIT TEMPERATURE RISE TO 40°C. FOR OPENING HOUSING AND 50°C. FOR DRIP PROOF HOUSING. AND OPERATE 1200 OR 1800 R/MIN. UNLESS OTHERWISE SPECIFIED DO NOT USE AIR OVER RATINGS.

11.3 MOTORS SHALL HAVE BALL AND ROLLER TYPE BEARINGS WITH GREASE LUBRICATION FITTINGS.

11.4 ALL BELT-DRIVEN DEVICES SHALL HAVE THE MOTORS MOUNTED ON ADJUSTABLE BASES WITH ADJUSTING SCREWS SO THAT PROPER BELT TENSION CAN BE OBTAINED.

11.5 WHERE MECHANICAL EQUIPMENT HAS BEEN SELECTED BY THE DESIGN BUILD CONTRACTOR TO BE COMPLETE WITH STARTERS, DISCONNECTS AND/OR CONTROL PANELS, THE CONTRACTOR SHALL PROVIDE ANY REQUIRED WIRING AND CONDUIT BETWEEN THE EQUIPMENT AND THE ABOVE ITEMS.

12.0 ACCESS OF EQUIPMENT

12.1 MAKE ALL ARRANGEMENTS TO ENSURE THAT ACCESS INTO THE BUILDING IS AVAILABLE FOR ALL MECHANICAL EQUIPMENT. DO ALL HOISTING AND RIGGING INTO PLACE OF ALL SPECIFIED EQUIPMENT AND BE RESPONSIBLE FOR ANY DAMAGE INCURRED THEREFROM.

13.0 GUARANTEE WARRANTY

13.1 THE CONTRACTOR SHALL FURNISH A WRITTEN WARRANTY STATING THAT ALL WORK EXECUTED UNDER THIS DIVISION WILL BE FREE FROM DEFECTS OF MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL PERFORMANCE, WHICH SHALL INCLUDE ONE (1) COMPLETE SUMMER AND ONE (1) COMPLETE WINTER OF UNINTERRUPTED OPERATION. WARRANTY SHALL INCLUDE ANY PART OF EQUIPMENT, UNITS OR STRUCTURES FURNISHED HEREUNDER AND SHOW DEFECTS IN THE WORKS UNDER NORMAL OPERATING CONDITIONS AND/OR FOR THE PURPOSE OF WHICH THEY WERE INTENDED.

13.2 THE CONTRACTOR SHALL AT THEIR OWN EXPENSE PROMPTLY INVESTIGATE ANY MECHANICAL OR CONTROL MALFUNCTION, AND REPAIR OF REPLACE ALL SUCH DEFECTIVE WORK, AND ALL OTHER DAMAGES THEREBY BECOMES DEFECTIVE DURING THE TIME OF THE GUARANTEE WARRANTY.

13.3 THE CONTRACTOR SHALL IDENTIFY MANUFACTURERS WARRANTY WITHIN THE OPERATION AND MAINTENANCE MANUAL.

14.0 SUBSTANTIAL PERFORMANCE INSPECTION

14.1 PRIOR TO THE CONTRACTOR REQUESTING AN INSPECTION FOR SUBSTANTIAL PERFORMANCE ALL THE FOLLOWING ITEMS MUST BE PROVIDED TO PERMIT BENEFICIAL USE BY THE OWNER:

14.1.1 COMPLY WITH THE REQUIREMENTS IN THE GENERAL CONTRACT CONDITIONS.
14.1.2 MAINTENANCE AND OPERATING MANUALS TO BE SUBMITTED AND APPROVED.
14.1.3 AS BUILT DRAWINGS
14.1.4 BALANCE REPORTS
14.1.5 ALL MOTOR NAME PLATE RATINGS AND ACTUAL OPERATING AMPS AND VOLTAGES.
14.1.6 ALL SYSTEMS SHALL BE CERTIFIED IN WRITING BY THE CONTRACTOR AS COMPLETE AND FULLY OPERATIONAL
14.1.7 INSTRUCTIONS TO THE OWNERS OPERATING PERSONNEL SHALL BE PROVIDED IN ACCORDANCE WITH THE SPECIFICATIONS. A SIGNED STATEMENT TO THIS EFFECT, COUNTERSIGNED BY THE OWNER SHALL BE SUBMITTED TO THE CONSULTANT.
14.1.8 A COMPLETE LIST OF ITEMS WHICH THE CONTRACTOR HAS NOT FINISHED, OR ARE DEFICIENT SHALL BE PROVIDED, IF, IN THE OPINION OF THE CONSULTANT, THIS LIST INDICATES THE PROJECT IS EXCESSIVELY INCOMPLETE, A SUBSTANTIAL COMPLETION INSPECTION WILL NOT BE PERFORMED.
14.1.9 THE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO ACCUMULATE ALL NECESSARY DATA FROM THEIR SUB-CONTRACTORS AND SUPPLIERS AND PRESENT SAME IN THE SPECIFIED FORMAT FOR APPROVAL BY THE CONSULTANT.

15.0 DEMONSTRATION AND INSTRUCTION TO OWNER

15.1 DEMONSTRATE TO AND INSTRUCT THE REPRESENTATIVE DESIGNATED BY THE OWNER ON THE COMPLETE SYSTEMS OPERATING AND MAINTENANCE PROCEDURES USING THE ASSISTANCE OF SPECIALIST SUB-TRADES AND MANUFACTURER'S REPRESENTATIVES.

15.2 SUBMIT A PROGRAM FOR APPROVAL 14 DAYS PRIOR TO SUBSTANTIAL COMPLETION WHEN APPROVAL IS OBTAINED FROM THE CONSULTANT. ARRANGE AN ACCEPTABLE TIME WITH THE CONSULTANT FOR THE EXECUTION. ALLOW A PERIOD OF 5 DAYS DURING THIS PERIOD. THE FOLLOWING SYSTEMS SHALL BE DEMONSTRATED IN REGARDS TO PERFORMANCE AND SAFETY FEATURES (TO THE FULLEST)

15.2.1 CONTROLS SYSTEMS
15.2.2 FIRE PROTECTION AND PLUMBING SYSTEMS
15.2.3 HEATING SYSTEMS

15.3 OBTAIN A SIGNED STATEMENT FROM THE OWNER CERTIFYING THAT THE DEMONSTRATION AND INSTRUCTIONS HAVE BEEN GIVEN TO HIS SATISFACTION.

16.0 FIELD REVIEWS

16.1 THE CONSULTANT OR HIS REPRESENTATIVE MAY CHOOSE TO REVIEW ALL WORK PRIOR TO IT BEING CONCEALED. ALL WORK SHALL BE APPROVED BY ANY OTHER REGULATORY BODY HAVING JURISDICTION. ALL OPENINGS SHALL BE SEALED APPROPRIATELY IN PARTICULAR IN FIRE RATED WALLS AND PIPING. SEALING SHALL BE APPROVED PRIOR TO COVERING.

17.0 NOT USED

18.0 SCHEDULE OF APPROVED EQUIPMENT

18.1 THIS CONTRACT SHALL BE BASED ON MATERIAL AND EQUIPMENT AS SPECIFIED. SUBMIT PROPOSALS TO SUPPLY EQUIVALENT MATERIALS OR EQUIPMENT IN WRITING TO THE CONSULTANT AT LEAST 7 WORKING DAYS PRIOR TO CLOSING DATE OF TENDER. ALL EQUIVALENT PRODUCTS SHALL BE LISTED IN THE CONTRACT DOCUMENTS OR IN ADDENDA.

EQUIPMENT	SPECIFIED	APPROVED EQUIVALENT
VALVES	BRASS & CAST IRON	CRANE NEWMAN HATTERSLEY VICTAULIC APOLLO KITZ
RELIEF VALVES		WATTS FARRIS SINGER LONERGAN
METERS AND GAUGES		MARSH TAYLOR WEISS MARSHALLTOWN
CIRCUIT BALANCING VALVES		TOUR AND ANDERSON ARMSTRONG BELL & GOSSET
SUCTION GUIDES		ARMSTRONG VICTAULIC
GROOVED COUPLINGS		VICTAULIC GRUVLOK
INSULATION		MATCH EXISTING MANSON KNAUF
PUMPS	GRUNDFOS	ARMSTRONG TACO
FIRE STOPPING SEALANTS	DOW	MASON
VIBRATION ISOLATION & SEIMSMIC RESTRAINTS		KORFUND VIBRO-ACOUSTICS
ROOFTOP UNITS	TRANE	ENGINEERED AIR. LENNOX CARRIER

19.0 INSULATION

19.1 THE BRITISH COLUMBIA INSULATION CONTRACTORS ASSOCIATION (BCICA) STANDARD MANUALS, LATEST EDITION SHALL FORM, PART OF THIS SPECIFICATION FOR THE MECHANICAL INSULATION

20.0 SEISMIC RESTRAINTS

20.1 PROVIDE SEISMIC RESTRAINTS ON ALL MECHANICAL EQUIPMENT, PIPING AND DUCTWORK IN ACCORDANCE WITH PART 4 OF NEC 1990 AND THE GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS, AS PREPARED BY SMACNA AND THE PLUMBING INSTITUTE COUNCIL.

20.2 AT COMPLETION OF WORK, PROVIDE WRITTEN CONFIRMATION TO THE CONSULTANT THAT ALL MECHANICAL INSTALLATIONS HAVE BEEN PROVIDED WITH SEISMIC RESTRAINTS AS PER BUILDING CODE REQUIREMENTS.

21.0 COMMISSIONING

21.1 COMMISSIONING IS THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE THE SERVICES OF A SPECIALIST COMPANY TO CO-ORDINATE THE COMMISSIONING OF THE EQUIPMENT AND SYSTEMS.

21.2 TEST THE OPERATION OF INDIVIDUAL COMPONENTS AND SYSTEMS. GO THROUGH EACH STEP OF THE SEQUENCE OF OPERATION AND VERIFY THAT EACH COMPONENT OPERATES CORRECTLY. DIRECT AND ENSURE THAT ALL TRADES INVOLVED MAKE THE REQUIRED CHANGES AND ADJUSTMENTS TO AFFECT THE PROPER OPERATION OF ALL COMPONENTS AND SYSTEMS. DOCUMENT THE OPERATIONS AND SEQUENCES.

21.3 IN CONJUNCTION WITH THE BALANCING CONTRACTOR, DOCUMENT THE PERFORMANCE OF EACH COMPONENT. VERIFY THE OPERATION POINT OF EQUIPMENT WITH RESPECT TO CERTIFIED PERFORMANCE DATA. REVIEW THE RESULTS WITH THE MANUFACTURER'S.

21.4 PROVIDE DOCUMENTATION OF THE COMMISSIONING PROCESS FOR INCLUSION INTO THE MAINTENANCE MANUALS. THESE ARE TO INCLUDE CHECK OUT SHEETS, EQUIPMENT DATA SHEETS, START-UP CERTIFICATES FROM SUPPLIERS INVOLVED IN THE START UP AND DOCUMENTATION CONCERNING DEMONSTRATION TO THE OWNER. INCLUDE ALL RECORD AND RESULT SHEETS FROM TESTS.

21.5 ORGANIZE AND ATTEND THE DEMONSTRATION TO THE OWNER OF ALL EQUIPMENT AND SYSTEMS SUPPLIED UNDER THIS CONTRACT. THE DEMONSTRATION SHALL OCCUR ONLY AFTER THE OPERATION AND TESTING HAS BEEN COMPLETED. EQUIPMENT SUPPLIERS SHALL PARTICIPATE IN THE DEMONSTRATION AS REQUIRED.

22.0 CONTROLS

22.1 ALL CONTROLS SHALL BE ELECTRIC
22.2 INCLUDE MANUFACTURER'S SITE ATTENDANCE DURING COMMISSIONING PHASE
22.3 PROVIDE ALL SAFETY CONTROLS FOR THE CONDENSERS AS REQUIRED BY CODE.

23.0 LAWS, NOTICES, PERMITS AND FEES

23.1 GIVE ALL NECESSARY NOTICES, OBTAIN ALL NECESSARY PERMITS AND PAY ALL FEES IN ORDER THAT THE WORK SPECIFIED MAY BE CARRIED OUT, AND FURNISH ANY CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH THE LAW AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION.

23.2 ALL WORK SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THE FOLLOWING AUTHORITATIVE BODIES, THE CODES IN EFFECT AT THE TIME OF TENDER, AND ANY OTHERS HAVING JURISDICTION:

23.2.1 FIRE MARSHALL
23.2.2 CANADIAN ELECTRICAL CODE
23.2.3 B.C. BUILDING CODE AND LOCAL BUILDING BY-LAWS
23.2.4 WORKER'S COMPENSATION BOARD
23.2.5 CANADIAN STANDARDS ASSOCIATION
23.2.6 B.C. REFRIGERATION CODE AND C.S.A. CODES GOVERNING REFRIGERATION PLANTS
23.2.7 NATIONAL BUILDING CODE OF CANADA
23.2.8 B.C. BOILER AND PRESSURE VESSEL ACT.
23.2.9 NATIONAL FIRE PROTECTION ASSOCIATION
23.2.10 UNDERWRITERS' LABORATORIES OF CANADA

MECHANICAL SPECIFICATIONS

SCALE: NONE

DISCLAIMER NOTE

#	REVISIONS	(YR/M/D)
2	ISSUED FOR TENDER	22/09/06
1	ISSUED FOR REVIEW	22/08/23

ISSUED FOR TENDER
NOT FOR CONSTRUCTION

Project
GIBSONS & DISTRICT AQUATIC FACILITY
ROOFTOP UNIT UPGRADE

953 GIBSONS WAY, GIBSONS, BC V0N 1V0

SUNSHINE COAST REGIONAL DISTRICT

BES
MECHANICAL & ELECTRICAL ENGINEERS
BUILDING ENERGY SOLUTIONS

SUITE 722 - 550 WEST BROADWAY
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Title
MECHANICAL
SPECIFICATIONS

Scale: AS NOTED
Drawn: MM
Checked: SM
Project No.: 21-B338
Seal

Drawing No.
M1.1

Latest Revision No. 2

GENERAL DEMOLITION NOTES:

1. CONTRACTOR SHALL VISIT THE SITE AND CONFIRM ALL OF THE EXISTING MECHANICAL ITEMS TO BE REMOVED AND THE REMOVAL WORK SHALL BE INCLUDED IN THE TENDER PRICING. PROTECT FINISHED OR UNFINISHED WORK AND OPERATING WORK AREAS BY TARPAULINS OR OTHER COVERING FROM DAMAGE DUE TO EXECUTION OF WORK. REPAIR DAMAGE TO BUILDING RESULTING FROM MECHANICAL WORK TO THE SATISFACTION OF CONSULTANTS AT NO EXPENSE TO THE OWNER.
2. THE CONTRACTOR SHALL PROVIDE THE OWNER REPRESENTATIVE WITH AT LEAST 72 HOURS WRITTEN NOTICE OF ANY FURTHER SHUTDOWNS THAT MAY BE REQUIRED IN ORDER TO MINIMIZE THE IMPACT TO THE OPERATIONS IN THE ZONE/S AFFECTED.
3. ANY EQUIPMENT AND/OR PIPING IDENTIFIED BY THE CLIENT SHALL BE SET ASIDE BY THE CONTRACTOR AND TURNED OVER. THE OWNER HAS FIRST REFUSAL OF ALL REDUNDANT EQUIPMENT AND PIPING.
4. ALL REDUNDANT PIPING, HANGERS, CONDUIT AND WIRING WHICH IS NO LONGER REQUIRED SHALL BE REMOVED BY THE CONTRACTOR.
5. ALL NEW AND EXISTING OPENINGS AROUND PIPING, CONDUITS, ARE TO BE FIRE STOPPED WHERE THEY PENETRATE THE SPACE.
6. ALL OTHER COORDINATION AND SCHEDULING TASKS SHALL BE PERFORMED PER THE SPECIFICATION.
7. PRIOR TO REMOVAL OF ANY EQUIPMENT IN THIS AREA, THE CONSULTANT SHALL WALK THROUGH WITH THE CONTRACTOR TO IDENTIFY ANY SERVICES TO BE RETAINED. DO NOT REMOVE ANY EQUIPMENT WITHOUT AUTHORIZATION OF THE CONSULTANT AND/OR OWNER.
8. THE EXISTING SERVICES SHOWN ON THIS DRAWING SHEET ARE PROVIDED FOR INFORMATION PURPOSES & TO ILLUSTRATE GENERAL LAYOUT. THEY MAY NOT BE 100% ACCURATE. IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK LOCATION AND ROUTES OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS.
9. DEMOLITION SHALL INCLUDE ALL EQUIPMENT & SERVICES IDENTIFIED BELOW, BUT NOT LIMITED TO:
   9.1 REMOVE ROOFTOP UNIT & ANCILLARIES AS SHOWN.

THE SCOPE OF WORK FOR THIS PROJECT GENERALLY INCLUDES THE FOLLOWING, BUT NOT LIMITED TO:

1. DEMOLITION
2. ALL PERMITS AND CERTIFICATION AS REQUIRED BY CODE AND THE LOCAL JURISDICTION
3. NEW ROOFTOP UNIT AND ANCILLARY COMPONENTS AS SPECIFIED AND AS REQUIRED BY CODE
4. VERIFICATION OF SYSTEM INCLUDING:
   4.1 SYSTEM BALANCING.
   4.1 OPERATION AND MAINTENANCE MANUALS
   4.2 SEISMIC DESIGN (RESTRAINTS) AND PERMITS
   4.3 ELECTRICAL INSTALLATION
   4.4 CONTROLS INSTALLATION
   4.5 REMEDIATION
   4.6 ADHERENCE WITH CODE AND JURISDICTIONAL REQUIREMENTS

GENERAL NOTES (INSTALLATION):

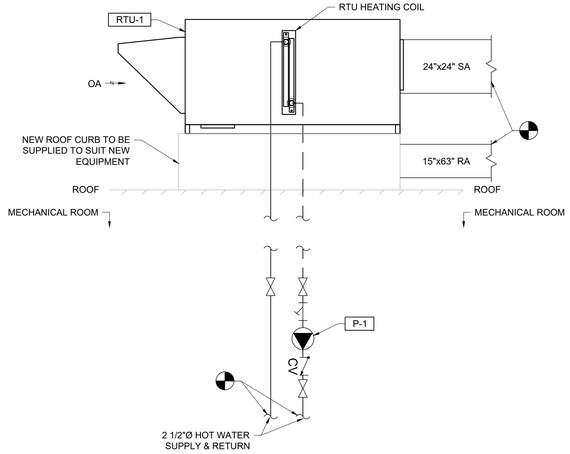
1. THE CONTRACTOR WILL SHUT DOWN THE EXISTING EQUIPMENT BEFORE WORKS COMMENCE WITH THE BUILDING FMO STAFF IN ATTENDANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DRAINING OF THE SYSTEMS.
2. THE CONTRACTOR SHALL PROVIDE THE CORPORATION WITH AT LEAST 72 HOURS WRITTEN NOTICE OF ANY FURTHER SHUTDOWNS THAT MAY BE REQUIRED.
3. THE CONTRACTOR SHALL PROVIDE THE PROJECT MANAGER WITH AT LEAST 72 HOURS WRITTEN NOTICE OF ANY EQUIPMENT START-UP.
4. ALL NEW DUCTWORK / PIPING SHALL BE THERMALLY INSULATED AS PER THE SPECIFICATION.
5. ALL NEW AND EXISTING OPENINGS AROUND PIPING, CONDUITS ARE TO BE FIRE STOPPED WHERE THEY PENETRATE THE MECHANICAL ROOM WALLS.
6. THE MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE AND DO NOT ATTEMPT TO SHOW ALL REQUIRED OFFSETS.
7. THE CONTRACTOR SHALL REVIEW THE PROPOSED MECHANICAL PIPING LAYOUT ON SITE WITH THE CONSULTANT PRIOR TO COMMENCING THE INSTALLATION OR PRE-FABRICATION. THE CONTRACTOR SHALL NOT FABRICATE ANY PIPING UNTIL THE FINAL PIPING LAYOUT HAS BEEN APPROVED BY THE CONSULTANT.
8. COORDINATE WITH SPECIFICATIONS. IN CASE OF CONFLICT BETWEEN SPECIFICATIONS AND DRAWINGS THE MORE STRINGENT SHALL APPLY.
9. DO NOT SCALE THE DRAWINGS. OBTAIN ACCURATE MEASUREMENTS FROM SITE.
10. ALL NEW PUMPS AND VALVES SHALL BE MOUNTED AND INSTALLED IN ACCESSIBLE POSITIONS THAT ALLOW EASY MAINTENANCE. IT IS EXPECTED THAT THEY WILL BE INSTALLED WITHIN 5 FEET OF THE FINISHED FLOOR LEVEL. ANY DEVIATION FROM THIS MUST BE APPROVED BY THE PROJECT MANAGER. RELOCATION OF IMPROPERLY LOCATED PUMPS AND VALVES WILL BE AT THE CONTRACTORS EXPENSE.
11. ALL TEMPERATURE AND PRESSURE GAUGES SHALL BE INSTALLED SO THAT THEY ARE EASILY READABLE TO THE MAINTENANCE STAFF. ANY DEVIATION FROM THIS MUST BE APPROVED BY THE CORPORATION. RELOCATION OF IMPROPERLY LOCATED GAUGES WILL BE AT THE CONTRACTORS EXPENSE.
12. THE CONTRACTOR SHALL PROVIDE ALL PERMITS AND CERTIFICATION AS REQUIRED BY CODE AND THE LOCAL JURISDICTION
13. ALL NEW AND EXISTING BACK FLOW PREVENTORS SHALL BE TESTED AND CERTIFIED.
14. ALL STRUCTURAL WORKS ASSOCIATED WITH THE PIPING SHALL BE UNDERTAKEN BY THE CONTRACTOR IN ACCORDANCE WITH THE BC BUILDING CODE 2018. IMPROPER STRUCTURAL WORKS SHALL BE RECTIFIED AT THE CONTRACTORS EXPENSE.
15. NEW ISOLATION VALVES SHALL BE INSTALLED ON ALL NEW AND EXISTING PIPING LEAVING/ENTERING THE MECHANICAL ROOM WHETHER SHOWN ON THE MECHANICAL LAYOUT DRAWINGS OR NOT.
16. ALL NEW PIPING RUNS TO BE AGREED WITH THE PROJECT MANAGER.
17. WHERE NEW DOMESTIC HOT WATER PIPING IS CONNECTED TO EXISTING PIPING, AN ISOLATION VALVE AND BALANCING VALVE MUST BE INSTALLED.
18. NO CORING ON EXISTING STRUCTURES SHALL COMMENCE UNTIL THE AREA IS SCANNED AND THE PROJECT MANAGER HAS APPROVED SCAN REPORT.
19. ALL ROOFING WORKS ASSOCIATED WITH THE INSTALL SHALL BE UNDERTAKEN BY THE CONTRACTOR IN ACCORDANCE WITH THE LATEST EDITION OF THE ROOFING CONTRACTORS ASSOCIATION OF BRITISH COLUMBIA'S ROOFING PRACTICES MANUAL. IMPROPER ROOFING WORKS SHALL BE RECTIFIED AT THE CONTRACTORS EXPENSE.
20. CRANE LOCATIONS MUST BE AGREED WITH THE BUILDING OWNER. BEFORE COMMENCEMENT, THE CONTRACTOR SHALL REVIEW THE CRANE LOCATIONS WITH THE OWNER TO ENSURE THERE ARE NO SITE SERVICES UNDERNEATH THE PROPOSED CRANE LOCATIONS. THE CONTRACTOR IS REQUIRED TO GIVE THE OWNER A MINIMUM OF FIVE DAYS WRITTEN NOTICE IN ADVANCE OF CRANE ARRIVING ON SITE.
21. NEW ROOF CURB SLEEPERS MUST BE A MINIMUM OF 8 INCHES ABOVE THE HEIGHT OF THE FINISHED ROOF MEMBRANE SURFACE, IF FULLY ENCAPSULATED WITH WATERPROOFING AND METAL CAP FLASHING.
22. ENSURE ALL WORKS ARE CARRIED OUT IN ACCORDANCE WITH WORKSAFE BC AND HEALTH AUTHORITY GUIDELINES, INCLUDING FOR THE PROVISION OF DUST CONTROL MEASURES IN THE OCCUPIED SPACES.

REFRIGERATION NOTES:

1. THE SPECIFIED EQUIPMENT CONTAINS REFRIGERANT R410A, WHICH OPERATES AT A MUCH HIGHER PRESSURE THAN OTHER REFRIGERANTS (465 PSI). PRESSURE TEST WITH OXYGEN FREE NITROGEN TO 510PSI.
2. USE CORRECT GAUGE COPPER TUBE, SUITABLE FOR USE WITH R410A.
3. USE CORRECT & SUITABLE GAUGES, MANIFOLDS & OTHER TOOLS.
4. ALWAYS PURGE OXYGEN FREE NITROGEN DURING BRAZING.
5. ALL REFRIGERANT PIPING IS TO BE INSTALLED WITH MINIMUM ⅜" WALL AQUAFLEX (OR EQUIVALENT)

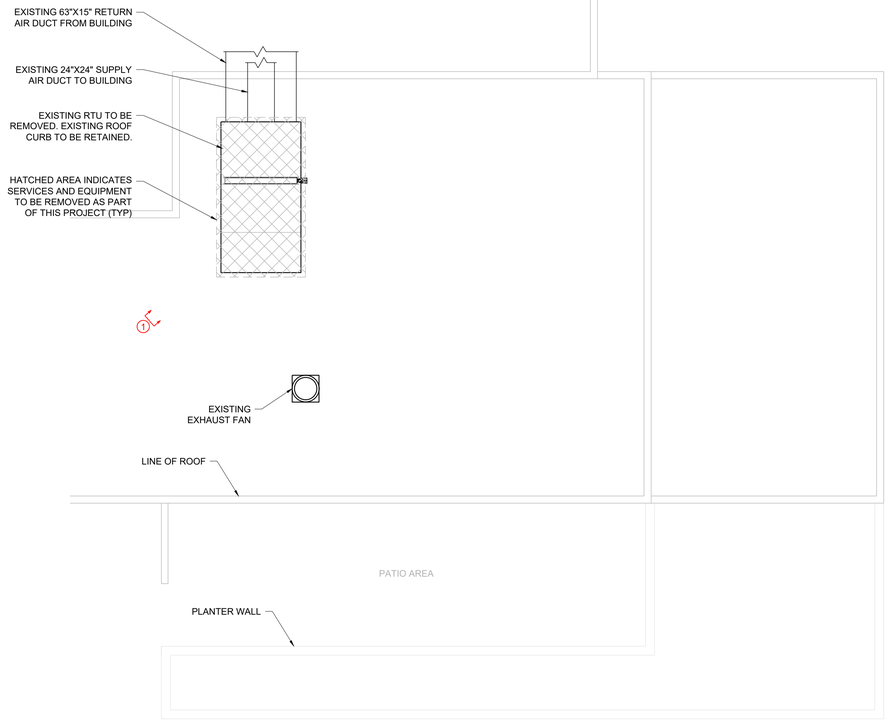
(1) EXISTING ROOFTOP UNIT TO BE REMOVED

SCALE: NONE



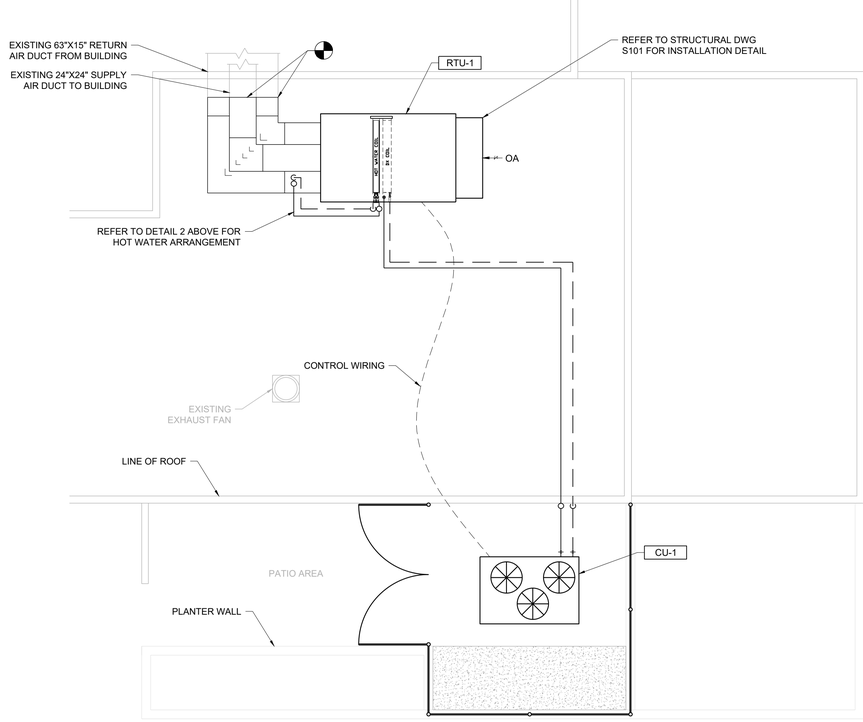
(2) PROPOSED ROOFTOP UNIT HEATING COIL DETAIL

SCALE: NONE



EXISTING PARTIAL ROOF PLAN

SCALE: ¼" = 1'-0"



PROPOSED PARTIAL ROOF PLAN

SCALE: ¼" = 1'-0"

DISCLAIMER NOTE

#	REVISIONS	(YR/M/D)
2	ISSUED FOR TENDER	22/09/06
1	ISSUED FOR REVIEW	22/08/23

ISSUED FOR TENDER
NOT FOR CONSTRUCTION

Project

GIBSONS & DISTRICT AQUATIC FACILITY ROOFTOP UNIT UPGRADE

953 GIBSONS WAY, GIBSONS, BC V0N 1V0

SUNSHINE COAST REGIONAL DISTRICT

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BUILDING ENERGY SOLUTIONS
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Title

EXISTING & PROPOSED ROOF PLANS

Scale: AS NOTED
Drawn: MM
Checked: SM
Project No.: 21-B338
Seal

Drawing No.

M2.1

Latest Revision No. 2

ROOFTOP UNIT SCHEDULE (BASIS OF DESIGN)

TAG	DESCRIPTION/ SERVICE	MANUFACTURER	MODEL	SUPPLY FAN CHARACTERISTICS			DX COIL PERFORMANCE						HOT WATER COIL PERFORMANCE							FEATURES	PHYSICAL CHARACTERISTICS		MECHANICAL REMARKS	POWER SUPPLY								STARTER					CONTROLS			OTHER REQUIREMENTS			OTHERS	ELECTRICAL REMARKS
				DESIGN AIRFLOW (CFM)	E.S.P. (IN)	MOTOR (HP)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	E.A.T. DB/WB (°F)	L.A.T. DB/WB (°F)	AIR PRESS. DROP (INCH)	REFREGERANT	OUTPUT (MBH)	E.A.T. DB (°F)	L.A.T. DB (°F)	E.W.T. (°F)	L.W.T. (°F)	FLOW (GPM)	AIR PRESS. DROP (INCH)	WPD (FT)	FILTER (MERV) O/A	OVERALL DIMENSION (L x W x H)	WEIGHT (LBS)		MOCP (A)	MCA (A)	FLA (A)	VOLTS	PHASE	Hz	FED FROM	EM.	NORM.	SUPPLIED BY: M	SUPPLIED BY: E	INSTALLED BY: M	INSTALLED BY: E	TYPE	MAN.	AUTO	INTERLOCK BY: M	INTERLOCK BY: E	W.P. DISC. AT MOTOR	DISC. AT MOTOR	F.A. SHUT DOWN		
RTU-1	POOL AREA	TRANE	TRANE - UCCAA17A1F0R1A3200000 FFDH00BA0000D0008D0	8000	1.0	7.5	351.62	307.49	90/68	55/54	1.131	R410A	438.94	-10	40.59	180	160	45	0.082	18.2	8	121" X 79" X 53"	2195		60	35.5	28.5	208	3	60	PANEL B		●		●		●				VFD	●		●				PROVIDE 60A/3P BREAKER WITH 3#8 + #10G IN 3/4"C

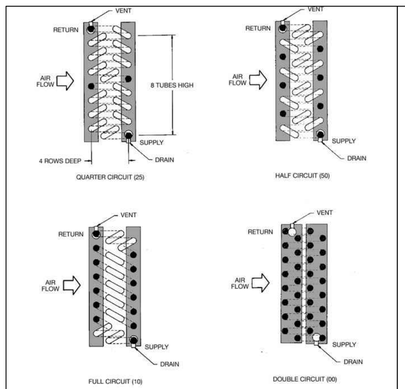
NOTES:
1. HIGH EFFICIENCY MOTOR. 2. C/W MERV 8 FILTER.
3. C/W CUSTOM ROOF CURB.

CONDENSING UNIT SCHEDULE (BASIS OF DESIGN)

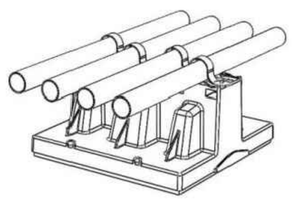
TAG	DESCRIPTION/ SERVICE	LOCATION	MANUFACTURER	MODEL	NOMINAL CAPACITY (TON)	REFRIGERANT	DESIGN AMBIENT TEMP. (°F)	EER	MECHANICAL REMARKS	POWER SUPPLY								STARTER					CONTROLS				OTHER REQUIREMENTS			OTHERS	FED FROM	ELECTRICAL REMARKS
										MOCP (A)	MCA (A)	FLA (A)	VOLTS	PHASE	HZ	EM.	NORM.	SUPPLIED BY: DIV. 15	SUPPLIED BY: DIV. 16	INSTALLED BY: DIV. 15	INSTALLED BY: DIV. 16	TYPE	MAN.	AUTO	INTERLOCK BY: DIV. 15	INTERLOCK BY: DIV. 16	W.P. DISC. AT MOTOR	DISC. AT MOTOR	F.A. SHUT DOWN			
CU-1	RTU-1	SEE PLANS	TRANE	RAUC20 - 25T	25	R410a	95°F	12.1		60	45		600	3	60		●		●		●				●			DIV 16			600V MCC	FED WITH 3#8 + #10 G IN 3/4"C

PUMP SCHEDULE (BASIS OF DESIGN)

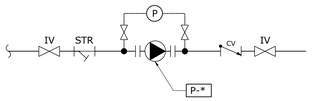
TAG	DESCRIPTION/ SERVICE	LOCATION	PUMP TYPE	MANUFACTURER	MODEL	FLOW (GPM)	HEAD (FT)	CONNECTION SIZES	MOTOR SIZE HP	MECHANICAL REMARKS	POWER SUPPLY						STARTER					CONTROLS				OTHER REQUIREMENTS		OTHERS	ELECTRICAL REMARKS
											VOLTS	PHASE	HZ	EM	NORM	FED FROM	SUPPLIED BY: DIV. 15	SUPPLIED BY: DIV. 16	INSTALLED BY: DIV. 15	INSTALLED BY: DIV. 16	TYPE	MAN	AUTO	INTERLOCK BY: DIV. 15	INTERLOCK BY: DIV. 16	W.P. DISC AT MOTOR	DISC AT MOTOR		
P-1	RTU HEATING COIL	MECHANICAL ROOM	CIRCULATOR	GRUNDFOS	MAGNA 3 50-180F	45	30	2"Ø	764W		208	1	60		●	PANEL A		●		●			VFD	●			DIV 16		PROVIDE 15A/2P BREAKER WITH 2#12 + #12 G IN 3/4"C



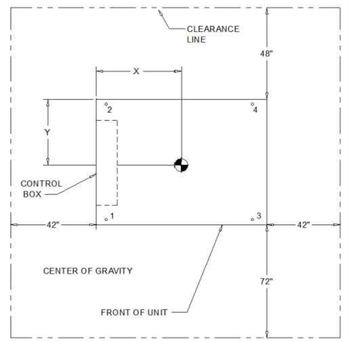
1) TYPICAL COIL ARRANGEMENT DETAIL
SCALE: NONE



2) ROOFTOP PIPING SUPPORT DETAIL
SCALE: N.T.S.



3) TYPICAL PUMP DETAIL
SCALE: N.T.S.



4) CU-1 CLEARANCES
SCALE: N.T.S.

MECHANICAL SCHEDULES & DETAILS
SCALE: NONE

#	REVISIONS	(YR/M/D)
2	ISSUED FOR TENDER	22/09/06
1	ISSUED FOR REVIEW	22/08/23

ISSUED FOR TENDER
NOT FOR CONSTRUCTION

Project
GIBSONS & DISTRICT AQUATIC FACILITY ROOFTOP UNIT UPGRADE

953 GIBSONS WAY, GIBSONS, BC V0N 1V0

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Title
MECHANICAL SCHEDULES & DETAILS

Scale: AS NOTED
Drawn: MM
Checked: SM
Project No.: 21-B338
Seal

Drawing No.
M3.1
Latest Revision No. 2

1. GENERAL

1.1. THIS SPECIFICATION AND ALL DRAWINGS AND ADDENDA FORM PART OF THE CONTRACT DOCUMENTS AND SHALL BE READ IN CONJUNCTION WITH THEM. UNLESS OTHERWISE SPECIFIED, PROVIDE ALL NECESSARY LABOUR, MATERIALS, TOOLS, TRANSPORTATION, SERVICES AND FACILITIES REQUIRED FOR THE COMPLETE ELECTRICAL INSTALLATION AS SHOWN ON THE DRAWINGS AND AS SPECIFIED.

1.2. PROVIDE ALL NECESSARY LABOUR, MATERIALS, EQUIPMENT, DEVICES AND APPARATUS NOT SPECIFICALLY MENTIONED IN THE DRAWINGS OR SPECIFICATIONS AS TO PROVIDE COMPLETE AND OPERATING ELECTRICAL SYSTEMS.

1.3. RESPONSIBILITY AS TO WHICH TRADE IS TO PROVIDE SPECIFIC ITEMS IS TO BE DETERMINED BY THE GENERAL CONTRACTOR. EXTRAS WILL NOT BE CONSIDERED BASED ON GROUNDS OF DIFFERENCE IN INTERPRETATION OF SPECIFICATIONS AS TO WHICH TRADE SHALL PROVIDE CERTAIN ITEMS.

1.4. THE WORD 'PROVIDE' MEANS THE SUPPLY, DELIVERY, AND INSTALLATION OF REFERENCED ITEMS. 'SUPPLY' MEANS TO OBTAIN AND DELIVER TO THE PROJECT SITE AND TURN OVER TO THE DESIGNATED PARTY. 'INSTALL' MEANS RECEIVING, UNPACKING, ASSEMBLING, FINISHING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS AT THE DESIGNATED LOCATION AS SHOWN ON THE DRAWINGS OR IDENTIFIED IN THE SPECIFICATIONS OF ITEMS SUPPLIED BY OTHERS.

1.5. EXAMINE THE SITE PRIOR TO SUBMITTING TENDER. NO EXTRAS WILL BE PROVIDED FOR WORK THAT WOULD HAVE BEEN EVIDENT UPON AN INVESTIGATION OF THE SITE.

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

1.7. PROVIDE ALL NECESSARY TEMPORARY POWER AND LIGHTING AS REQUIRED TO COMPLETE THE SCOPE OF WORK.

1.8. EXAMINE CAREFULLY ALL PLANS AND SPECIFICATIONS INCLUDING THOSE OF ARCHITECTURAL, STRUCTURAL, AND MECHANICAL TRADES. PRIOR TO THE CLARIFICATION CUTOFF DATE, NOTIFY THE CONSULTANT OF ANY CONFLICTS IDENTIFIED.

1.9. THE DRAWINGS INDICATE GENERAL LOCATION AND ROUTING OF DEVICES, CONDUIT AND WIRING. COORDINATE ALL WORK WITH OTHER TRADES TO AVOID CONFLICT. REFER TO ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE SUBJECT TO SLIGHT REVISIONS TO ACCOMMODATE CONSTRUCTION CONDITIONS.

1.10. COORDINATE WORK SCHEDULE WITH BUILDING OWNER AND/OR GENERAL CONTRACTOR. CONFIRM PROJECT SCHEDULE, HOURS OF WORK AND ACCEPTABLE HOURS OF NOISY WORK. INCLUDE ALL WEEKEND, OVERNIGHT, AND OVERTIME WORK AS REQUIRED.

1.11. COORDINATE WITH OTHER TRADES WORKING ON SITE TO ENSURE ELECTRICAL INSTALLATION DOES NOT HOLD UP PROGRESS OF OTHER TRADES OR THE OVERALL PROJECT SCHEDULE.

1.12. PROVIDE ALL WORK FOR MECHANICAL EQUIPMENT INVOLVING 120V OR GREATER. ALL LOW VOLTAGE CONTROL WIRING AND ROUGH-IN TO BE DIV 15.

1.13. THE ELECTRICAL CONTRACTOR 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 IS NOT CLEAR, OBTAIN CLARIFICATION FROM THE CONSULTANT PRIOR TO PROCEEDING WITH THE WORK.

1.14. FIRE PROOF ALL FIRE RATED PENETRATIONS AFTER INSTALLATION. APPROVED SYSTEMS: HILTI, 3M, OR APPROVED ALTERNATE.

2. CODE, RULES AND REGULATIONS

2.1. INSTALLATIONS TO COMPLY WITH THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE, BC BUILDING CODE AND THE REQUIREMENTS OF THE LOCAL INSPECTION AUTHORITY HAVING JURISDICTION.

2.2. PROVIDE ALL NECESSARY MATERIAL AND LABOUR REQUIRED TO MEET THE REQUIREMENTS OF THESE CODES, RULES AND REGULATIONS EVEN THOUGH THE WORK MAY NOT BE SHOWN ON THE DRAWINGS OR MENTIONED IN THE SPECIFICATIONS.

3. PERMITS AND FEES

3.1. PRIOR TO STARTING WORK ON THE PROJECT SITE, OBTAIN ALL PERMITS REQUIRED BY LOCAL AUTHORITIES. CALL FOR INSPECTIONS WITH THE LOCAL INSPECTION AHJ AS REQUIRED AND SUBMIT ALL INSPECTION CERTIFICATES TO THE CONSULTANT.

3.2. SUBMIT TO THE LOCAL INSPECTION DEPARTMENT THE REQUIRED NUMBER OF DRAWING SETS AND INCLUDE IN THE TENDER ALL COSTS FOR DRAWINGS PRINTS.

4. APPROVAL OF MATERIALS

4.1. UNLESS OTHERWISE NOTED, EQUIPMENT AND MATERIAL TO BE NEW AND CERTIFIED BY A CERTIFICATION BODY ACCREDITED BY THE STANDARDS COUNCIL OF CANADA (SCC). WHERE THERE IS EQUIPMENT REQUIRED THAT IS NOT SCC APPROVED, OBTAIN SPECIAL APPROVAL FROM THE CONSULTANT AND PAY ALL ASSOCIATED FEES TO CERTIFY EQUIPMENT.

4.2. NO SUBSTITUTION OF MATERIALS IS PERMITTED WITHOUT THE WRITTEN ACCEPTANCE OF THE CONSULTANT 10 DAYS PRIOR TO TENDER CLOSING.

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

5. SUBMITTALS

5.1. ALLOW A MINIMUM OF FIVE WORKING DAYS FOR CONSULTANT TO REVIEW EACH SUBMITTAL.

5.2. SUBMIT SHOP DRAWINGS IN A TIMELY MANNER SUCH THAT THE PROJECT SCHEDULE IS NOT IMPACTED.

5.3. SUBMIT SHOP DRAWINGS CLEARLY INDICATING DETAILS OF MATERIAL, FABRICATION, LAYOUT, DIMENSIONS, CAPACITIES, PERFORMANCE CHARACTERISTICS, CERTIFICATION STANDARDS, WEIGHT, WIRING DIAGRAMS, AND OTHER RELEVANT INFORMATION.

5.4. PROVIDE SHOP DRAWINGS FOR ALL SUPPLIED EQUIPMENT. SHOP DRAWINGS ARE TO BE REVIEWED BY THE CONTRACTOR AND STAMPED WITH A DATE PRIOR TO SUBMITTING TO THE CONSULTANT FOR REVIEW.

5.5. SHOP DRAWINGS ARE TO BE PROJECT SPECIFIC AND INDICATE EXACT PRODUCT OPTIONS AND PART NUMBERS. UNMARKED SHOP DRAWINGS OR INFORMATION PROVIDED NOT PERTAINING TO THIS PROJECT WILL BE REJECTED.

5.6. REVIEW OF SHOP DRAWINGS BY THE CONSULTANT IS FOR CONFORMANCE WITH THE GENERAL DESIGN INTENT ONLY. THE REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY FOR ERRORS OR OMISSIONS IN THE SHOP DRAWINGS OR OF THEIR RESPONSIBILITY OF MEETING ALL REQUIREMENTS IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING DIMENSIONS OF EQUIPMENT ON SITE PRIOR TO SUBMITTING SHOP DRAWINGS.

5.7. THE CONTRACTOR IS PROVIDE ONE SET OF DRAWINGS TO BE USED AS RECORD DRAWINGS ON SITE. MAINTAIN A DAILY RECORD OF REVISIONS AND ADDITIONS TO THE ORIGINAL WORK IN RED INK.

5.8. AT COMPLETION OF THE PROJECT, CONTRACTOR TO CERTIFY AND STAMP AS-BUILT DRAWINGS INCLUDING THE DATE AND SIGNATURE. SUBMIT STAMPED COPIES TO THE CONSULTANT FOR RECORD DRAWING CREATION.

5.9. PROVIDE TO THE CONSULTANT THREE HARD COPIES AND ONE PDF SOFT COPY OF OPERATING AND MAINTENANCE MANUALS AT SUBSTANTIAL COMPLETION. SUBMIT AN ELECTRONIC DRAFT COPY TO THE CONSULTANT FOR REVIEW PRIOR TO PRINTING. MANUALS TO INCLUDE:
- INDEX OF CONTENTS
- DIVIDERS BETWEEN SECTIONS
- LIST OF SUPPLIERS WITH ADDRESSES, PHONE NUMBERS AND USEFUL CONTACT INFORMATION
- HEAVY DUTY BINDERS WITH PROJECT TITLE, PROJECT LOCATION, DATE OF COMPLETION, NAME AND ADDRESS OF CONSULTANTS, NAME AND ADDRESS OF CONTRACTOR
- CONTRACTOR'S WARRANTY CERTIFICATES
- CERTIFICATIONS INCLUDING INSPECTION DEPARTMENT CERTIFICATES, FIRE ALARM VERIFICATION REPORT, SEISMIC SCHEDULES FROM A RECOGNIZED SEISMIC ENGINEER, AND ANY OTHER REQUIRED REPORTS/CERTIFICATES
- SHOP DRAWINGS, TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY BULLETINS COMPONENT ILLUSTRATIONS, EXPLODED VIEWS, TECHNICAL DESCRIPTIONS OF ITEMS AND PARTS LISTS SEPARATED BY SECTIONS
- WIRING AND SCHEMATIC DIAGRAMS
- MANUFACTURE'S OPERATING AND MAINTENANCE INFORMATION FOR EACH RELEVANT PIECE OF EQUIPMENT
- ANY OTHER PERTINENT INFORMATION THAT WOULD ASSIST IN THE OPERATIONS OF THE EQUIPMENT

6.10 THE FOLLOWING DOCUMENTATION WILL BE REQUIRED TO BE SUBMITTED TO THE CONSULTANT AND ACCEPTED FOR OCCUPANCY AND SUBSTANTIAL COMPLETION:
- FIRE ALARM VERIFICATION REPORT
- SEISMIC SCHEDULES FROM A RECOGNIZED SEISMIC ENGINEER
- ELECTRICAL INSPECTION CERTIFICATE

6.11 THE FOLLOWING DOCUMENTATION WILL BE REQUIRED TO BE SUBMITTED TO THE CONSULTANT AND ACCEPTED FOR FINAL COMPLETION AND AUTHORIZATION OF FINAL PAYMENT:
- OPERATION AND MAINTENANCE MANUALS
- AS-BUILT DRAWINGS
- ALL REPORTS LISTED IN SECTION 6.10
- OWNER ACCEPTANCE OF SYSTEMS DEMONSTRATION AND TRAINING

7. CLEAN UP

7.1. REMOVE ALL DEBRIS FROM THE SITE IN A SAFE AND ENVIRONMENTALLY RESPONSIBLE MANNER AS IT OCCURS AND MAINTAIN A CLEAN WORK SITE.

7.2. TOUCH UP WITH MATCHING PAINT ANY EQUIPMENT THAT HAS BEEN DAMAGED DURING CONSTRUCTION.

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

8. GUARANTEE

8.1. PROVIDE A WRITTEN WARRANTY GUARANTEEING THAT THE WORK WILL BE FREE OF DEFECTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE UNLESS OTHERWISE INDICATED

8.2. REPLACE FORTHWITH, AT NO ADDITIONAL COST TO THE OWNER, ANY PART WHICH MAY PROVE TO BE DEFECTIVE WITHIN A PERIOD OF TWELVE MONTHS AFTER THE FINAL ACCEPTANCE OF THE COMPLETE HVAC SYSTEM, PROVIDED THAT SUCH FAILURE IS NOT DUE TO ANY IMPROPER USAGE OR ORDINARY WEAR AND TEAR.

8.3. NO CERTIFICATE GIVEN, PAYMENT MADE, PARTIAL OR ENTIRE USE OF THE EQUIPMENT BY THE OWNER, SHALL BE CONSTRUED AS ACCEPTANCE OF DEFECTIVE WORK.

9. SEISMIC RESTRAINTS

9.1. PROVIDE SEISMIC RESTRAINT AND ANCHORAGE FOR ALL ELECTRICAL EQUIPMENT AND SERVICES IN ACCORDANCE WITH THE CURRENT EDITION OF THE BUILDING CODE AND ALL APPLICABLE BUILDING BYLAWS.

9.2. THIS CONTRACTOR SHALL ENGAGE A SEISMIC RESTRAINT CONSULTANT TO DESIGN AND REVIEW SEISMIC RESTRAINTS FOR ALL WORK ASSOCIATED WITH DIVISION 26. THE SEISMIC RESTRAINT CONSULTANT SHALL SUPERVISE THEIR INSTALLATION AND SUBMIT THE REQUISITE ASSURANCES TO THE LOCAL MUNICIPAL AUTHORITIES.

9.3. SUBMIT AN ASSURANCE COMMITMENT LETTER FROM THE SEISMIC RESTRAINT CONSULTANT AT THE COMMENCEMENT OF THE PROJECT AND ALL REQUIRED SIGNED AND SEALED SCHEDULES AT PROJECT COMPLETION INCLUDING BUT NOT LIMITED TO SCHEDULES S-B AND S-C.

10. CONDUIT AND RACEWAY

10.1. RIGID STEEL CONDUIT: FOR ALL EXPOSED AND UNDERGROUND CONDUIT EXPOSED TO MECHANICAL DAMAGE. (MINIMUM SIZE: 3/4" (21mm))

10.2. ELECTRICAL METALLIC TUBING (EMT): INTERIOR POWER AND LIGHTING BRANCH CIRCUITS WHERE RUN CONCEALED ABOVE SUSPENDED CEILING, IN STUD WALLS, FURRED SPACES, AND WHERE NOT EXPOSED TO MECHANICAL DAMAGE, OR ABOVE 6' (1830mm) FROM FLOOR. (MINIMUM SIZE: 3/4" (21mm))

10.3. FLEXIBLE METALLIC CONDUIT: IN DRY LOCATIONS, CONNECTION TO TRANSFORMERS, (6' (1830mm) MAX.), VIBRATING EQUIPMENT (24" (610mm) MAX).

10.4. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT: IN DAMP AND WET LOCATIONS FOR CONNECTION TO ALL PUMP MOTORS, SOLENOID VALVES, HVAC EQUIPMENT AND SIMILAR DEVICES SHALL BE MADE USING LIQUID TIGHT FLEXIBLE METALLIC CONDUIT. PROVIDE SEPARATE GROUND WIRE INDEPENDENT OF CONDUIT, RUN INSIDE CONDUIT AND BONDED AT BOTH ENDS TO ENCLOSURES. MAXIMUM LENGTH OF 24" (610mm).

10.5. CONDUIT SYSTEM SHALL BE CONCEALED UNLESS EXPOSED WORK IS CLEARLY CALLED FOR ON DRAWINGS.

10.6. CONDUITS SHALL BE TIGHTLY COVERED AND WELL PROTECTED DURING CONSTRUCTION USING METALLIC BUSHINGS AND BUSHING "PENNIES" TO SEAL OPEN END.

10.7. IN ALL EMPTY CONDUITS OR DUCTS, INSTALL A 200 lb (90 kg) TENSILE STRENGTH POLYETHYLENE PULLING ROPE.

10.8. CONDUIT SYSTEMS SHALL BE ELECTRICALLY CONTINUOUS THROUGHOUT. INSTALL GROUNDING CONDUCTOR SIZED AS PER CANADIAN ELECTRICAL CODE (CEC). GROUND TO BE INSULATED GREEN, COPPER WIRE PULLED WITH PHASE AND/OR NEUTRAL CONDUCTORS.

10.9. LOCATIONS OF CONDUIT RUNS SHALL BE PLANNED IN ADVANCE OF THE INSTALLATION AND COORDINATED WITH THE DUCTWORK, PLUMBING, CEILING AND WALL CONSTRUCTION IN THE SAME AREAS AND SHALL NOT UNNECESSARILY CROSS OTHER CONDUITS OR PIPE, NOR PREVENT REMOVAL OF CEILING OR TILES OR PANELS, NOR BLOCK ACCESS TO MECHANICAL OR ELECTRICAL EQUIPMENT.

10.10. WHERE PRACTICAL, INSTALL CONDUITS IN GROUPS, IN PARALLEL, FOR VERTICAL AND HORIZONTAL RUNS AND AT ELEVATIONS THAT AVOID UNNECESSARY OFFSETS

10.11. EXPOSED CONDUIT SHALL BE RUN PARALLEL OR AT RIGHT ANGLES TO THE CENTERLINES OF COLUMNS, BEAMS AND OTHER STRUCTURAL LINES.

10.12. CONDUITS SHALL NOT BE PLACED CLOSER THAN 12" (300mm) FROM A PARALLEL HOT WATER OR STEAM LINE OR 3" (75mm) FROM SUCH LINES CROSSING PERPENDICULAR TO THE RUNS

10.13. ALL RACEWAY SYSTEMS SHALL BE SECURED TO THE BUILDING STRUCTURES USING SPECIFIED FASTENERS, CLAMPS AND HANGERS SPACED ACCORDING TO CODE REQUIREMENTS

10.14. SUPPORT SINGLE RUNS OF CONDUIT USING ONE HOLE PIPE STRAPS. WHERE RUN HORIZONTALLY ON WALLS IN DAMP OR WET LOCATION, INSTALL "CLAMP-BACKS" TO SPACE CONDUIT OFF THE SURFACE.

10.15. MULTIPLE CONDUIT RUNS SHALL BE SUPPORTED USING "TRAPEZE" HANGERS, FABRICATED FROM SPECIFIED CONSTRUCTION CHANNEL, MOUNTED TO 3/8" (9.5mm) DIAMETER, THREADED STEEL RODS SECURED TO BUILDING STRUCTURES. FASTEN CONDUIT TO CONSTRUCTING CHANNEL WITH STANDARD ONE HOLE PIPE CLAMPS OR THE EQUIVALENT.

10.16. RACEWAYS SHALL BE JOINED USING SPECIFIED COUPLING OR TRANSITION COUPLINGS WHERE DISSIMILAR RACEWAY SYSTEMS ARE JOINED.

10.17. CONDUITS SHALL BE SECURELY FASTENED TO CABINETS, BOXES, AND GUTTERS USING TWO LOCKNUTS AND AN INSULATING BUSHING OR SPECIFIED INSULATING CONNECTORS. INSTALL GROUNDING BUSHINGS OR BONDING JUMPERS ON ALL CONDUITS TERMINATING AT CONCENTRIC KNOCKOUTS.

10.18. CONDUIT TERMINATIONS EXPOSED AT WEATHERPROOF ENCLOSURES AND CAST OUTLET BOXES SHALL BE MADE WATERTIGHT USING SPECIFIED CONNECTORS AND HUBS.

10.19. ALL PENETRATIONS OF FIRE RATED ASSEMBLIES ARE TO BE SEALED WITH A ULC-APPROVED FIRESTOP SYSTEM. APPROVED SYSTEMS: HILTI, 3M, OR APPROVED ALTERNATE.

11. BOXES AND WIRING SERVICES

11.1. ALL OUTLETS SHALL FINISH FLUSH WITH BUILDING WALLS AND CEILING, EXCEPT WHERE EXPOSED WORK IS CALLED FOR. THERE SHALL BE NO GAP BETWEEN BOX AND WALL OR CEILING MATERIAL. ANY OPENING BETWEEN BOX AND WALL OR CEILING SHALL BE CAULKED AIRTIGHT.

11.2. INSTALL RAISED MUD RINGS ON ALL OUTLET BOXES AS REQUIRED TO FINISH FLUSH WITH SURFACE. COVERS SHALL BE OF A DEPTH TO SUIT THE WALL OR CEILING FINISH.

11.3. EXPOSED OUTLET BOXES AND BOXES IN DAMP AND WET LOCATIONS SHALL BE CAST METAL WITH GASKETED CAST METAL COVER PLATES.

11.4. OUTLET BOXES SHALL BE INSTALLED AT THE LOCATIONS AND ELEVATIONS SHOWN ON THE DRAWINGS, AS SPECIFIED HEREIN, OR AS SHOWN ON THE ARCHITECTURAL ELEVATION DRAWINGS IF AVAILABLE. MAKE ADJUSTMENTS IF CLARIFICATIONS TO ELEVATIONS ARE REQUIRED, CLARIFY WITH THE CONSULTANT PRIOR TO INSTALLATION.

11.5. OUTLET BOXES IN STUD WALL AND PARTITIONS SHALL NOT BE MOUNTED BACK-TO-BACK NOR SHALL THROUGH-WALL BOXES BE PERMITTED.

11.6. BOXES INSTALLED IN STUD WALLS SHALL BE EQUIPPED WITH BRACKETS DESIGNED FOR ATTACHING DIRECTLY TO THE STUDS OR SHALL BE MOUNTED ON HEAVY GAUGE GALVANIZED STEEL BOX SUPPORTS.

11.7. ELECTRICAL CONTRACTOR SHALL PROVIDE VAPOUR BARRIERS FOR ALL OUTLETS THAT ARE LOCATED IN THE EXTERIOR INSULATED WALLS AND CEILINGS.

11.8. FLOOR BOXES TO BE INSTALLED IN THE RAISED FLOOR AS SHOWN ON THE ELECTRICAL DRAWINGS. ADJUST HEIGHT TO SUIT EXISTING CONDITIONS. COVER PLATE FINISH TO BE COORDINATED WITH THE INTERIOR DESIGNER. MINIMUM 1" CONDUIT TO FLOOR BOXES.

11.9. MOUNTING HEIGHTS: MOUNTING HEIGHTS: MOUNTING HEIGHTS FROM FINISHED FLOOR TO CENTER LINE OF DEVICE BOX SHALL BE AS PER THE ARCHITECTURAL OR INTERIOR DESIGNER DRAWINGS. IF NO DIMENSIONS ARE PROVIDED, THE FOLLOWING DIMENSIONS SHALL BE USED, AND IN ACCORDANCE WITH HANDICAPPED ACCESSIBILITY REQUIREMENTS OF GOVERNING CODE.

12. CABLE AND WIRE

12.1. ALL CABLES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS AND WARRANTY.

12.2. ALL ASPECTS OF SPLICING AND TERMINATING SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS PUBLISHED PROCEDURES.

12.3. MAKE UP ALL SPLICES IN OUTLET BOXES WITH CONNECTORS AS SPECIFIED HEREIN WITH SEPARATE TAILS OF CORRECT COLOR TO BE MADE UP TO SPLICE. PROVIDE AT LEAST 6" (150mm) OF TAILS PACKED IN BOX AFTER SPLICE IS MADE UP.

12.4. ALL WIRE AND CABLE IN PANELS, TERMINAL CABINETS AND EQUIPMENT ENCLOSURES SHALL BE BUNDLED AND CLAMPED.

12.5. ALL FEEDERS LESS THAN 60A SHALL BE COPPER. FEEDERS LARGER THAN 60A MAY UTILIZE ALUMINIUM CONDUCTORS WITH ENGINEER APPROVAL.

12.6. MINIMUM WIRE SIZE SHALL BE NO. 12 AWG R90 COPPER.

12.7. ALL FEEDER CONDUCTORS TO HAVE A MAXIMUM VOLTAGE DROP OF 2% AT DESIGN LOAD. ALL BRANCH CIRCUIT CONDUCTORS TO HAVE A MAXIMUM VOLTAGE DROP OF 3% AT DESIGN LOAD.

13. WIRING DEVICES

13.1. SWITCHES

13.1.1. COMMERCIAL GRADE, WHITE, DECORATOR STYLE AVAILABLE FOR BACK AND SIDE WIRING. 20A, 120V OR 347V, SINGLE POLE, DOUBLE POLE, THREE-WAY OR FOUR-WAY AS INDICATED.

13.1.2. ACCEPTABLE MANUFACTURERS: HUBBELL, LEVITON, PASS & SEYMOUR, OR APPROVED ALTERNATE TO MATCH EXISTING.

13.2. RECEPTACLES

13.2.1. COMMERCIAL GRADE, WHITE, DECORATOR STYLE DUPLEX RECEPTACLE CSA TYPE 5-15R, 125V, 15A U-GROUNDED.

13.2.2. GROUND FAULT INTERRUPTER TYPE TO BE INDICATING, SPECIFICATION GRADE, IMPACT RESISTANT, U GROUND, COMPLETE WITH BREAKER AND RESET BUTTON.

13.2.3. ACCEPTABLE MANUFACTURERS: HUBBELL, LEVITON, PASS & SEYMOUR, OR APPROVED ALTERNATE TO MATCH EXISTING.

13.3. DIMMERS

13.3.1. FLUSH MOUNTED TYPE, WHITE. (1000 WATTS RATED)

13.3.2. ELECTRONIC WITH PRESET.

13.3.3. ACCEPTABLE MANUFACTURERS: HUBBELL, LEVITON, PASS & SEYMOUR, OR APPROVED ALTERNATE.

13.4. COVER PLATES

13.4.1. STAINLESS STEEL, 1mm THICK BRUSHED COVER PLATES.

13.4.2. WEATHERPROOF, DURABLE, 'IN-USE' RATED COVER PLATES COMPLETE WITH GASKETS FOR WP DUPLEX RECEPTACLES AS INDICATED.

13.4.3. INSTALL SINGLE THROW SWITCHES WITH HANDLE IN "UP" POSITION WHEN SWITCH CLOSED.

13.4.4. INSTALL RECEPTACLES/SWITCHES VERTICALLY IN GANG TYPE OUTLET BOX WHEN MORE THAN ONE RECEPTACLE IS REQUIRED IN ONE LOCATION.

14. PANEL BOARDS

14.1. EXISTING PANELS TO BE UTILIZED TO PROVIDE BRANCH POWER FOR LIGHTING AND POWER CIRCUITS.

14.2. UPDATE PANEL BOARD DIRECTORIES OF EXISTING PANELS: SHALL BE TYPEWRITTEN, ARRANGED IN NUMERICAL ORDER AND SHALL SHOW THE NUMBER OF THE CIRCUIT. THE ROOM NUMBERS SHALL BE VERIFIED WITH THE OWNER AND SHALL NOT NECESSARILY BE THOSE USED IN THE DRAWINGS. DESCRIPTIONS SHALL INCLUDE DETAILS SPECIFIC TO THE PROJECT SITE SUCH AS LOCATION, EQUIPMENT, ETC. MOUNT TWO COPIES OF PANEL DIRECTORIES INSIDE EACH PANEL BOARD.

14.3. BALANCE PANEL LOADS FOR EACH PHASE. ALLOW FOR RELOCATING CIRCUITS WITHIN PANEL TO BALANCE THE LOAD.

14.4. NEW PANEL BOARDS TO MATCH EXISTING SQUARE D PANEL BOARDS.

15. PROTECTIVE DEVICES

15.1. REUSE EXISTING BREAKERS WHERE POSSIBLE FOR ALL EXISTING PANELBOARDS. PROVIDE NEW BREAKERS AS REQUIRED TO PROVIDE BRANCH CIRCUITS AS SHOWN ON THE ELECTRICAL DRAWINGS.

15.2. MATCH KAIC RATING AND MANUFACTURER OF EXISTING EQUIPMENT FOR ALL NEW BREAKERS INSTALLED. EXISTING MANUFACTURER IS SQUARE D.

15.3. MANUAL MOTOR STARTERS: FRACTIONAL H.P. 1 PHASE MOTORS SHALL BE PROTECTED BY THERMAL O.L. RELAY INTEGRAL WITH THE DISCONNECT.

15.4. RATINGS: REFER TO DRAWINGS AND PANEL SCHEDULES FOR TRIP FRAME AND POLES REQUIRED. MINIMUM SHORT CIRCUIT RATING FOR 120/208V BREAKERS IS 10,000A IF NOT OTHERWISE INDICATED.

15.5. THE ELECTRICAL CONTRACTOR IS TO PROVIDE DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT AND WHERE INDICATED ON THE DRAWINGS. ELECTRICAL CONTRACTOR IS TO CONFIRM WITH THE MECHANICAL TRADE SIZE, ELECTRICAL CHARACTERISTICS AND LOCATION OF EQUIPMENT.

16. GROUNDING

16.1. ENCLOSURES OF EQUIPMENT, RACEWAYS, AND FIXTURES SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED. PROVIDE CODE-SIZED (UNLESS OTHERWISE INDICATED) COPPER, INSULATED GREEN EQUIPMENT GROUND WITH ALL BRANCH AND FEEDER CIRCUIT RUNS. EQUIPMENT GROUND SHALL ORIGINATE AT PANEL BOARD GROUND BUS AND SHALL BE BONDED TO ALL SWITCH AND RECEPTACLE BOXES AND ELECTRICAL EQUIPMENT ENCLOSURES.

17. RECORD DRAWING

17.1. ELECTRICAL CONTRACTOR TO PROVIDE AS-BUILT MARKUPS TO ENGINEER FOR RECORDS DRAWINGS AS PER SECTION 6 OF THE SPECIFICATIONS.

17.2. AS-BUILT MARKUPS ARE TO INDICATE THE FOLLOWING ITEMS: (AS APPLICABLE)

17.2.1. ALL REVISIONS TO DRAWINGS FROM SITE INSTRUCTIONS AND CHANGE ORDERS ARE TO BE INDICATED.

17.2.2. DEVICE LOCATION AND CIRCUITING WHERE DIFFERS FROM ORIGINAL DRAWINGS.

17.2.3. LUMINAIRE TYPE, LOCATION, CIRCUITING AND CONTROL WHERE DIFFERS FROM ORIGINAL DRAWINGS.

17.2.4. COMMUNICATION DROP ADDRESS.

17.2.5. FIRE ALARM DEVICE ADDRESS.

17.2.6. ALL ABANDONED JUNCTION BOXES AND CONDUITS.

17.2.7. CABLE TRAY ROUTING.

18. MAINTENANCE MANUALS

18.1. PROVIDE OPERATION AND MAINTENANCE MANUALS IN ACCORDANCE WITH SECTION 6 OF THE SPECIFICATIONS.

18.2. WIRING AND SCHEMATIC DIAGRAMS.

POWER & COMMUNICATION SYMBOL SCHEDULE

SYMBOL				DESCRIPTION	NOTES
WALL	ABOVE COUNTER	FLOOR	CEILING		
				15 AMP, 125V DUPLEX RECEPTACLE	
				15 AMP, 125V DUPLEX GROUND FAULT RECEPTACLE (GFCI)	
				15 AMP, 125V DUPLEX ARC FAULT PROTECTED RECEPTACLE	
				15/20 AMP, 125V DUPLEX RECEPTACLE	
				15/20 AMP, 125V DUPLEX GROUND FAULT RECEPTACLE (GFCI)	
				15 AMP, 15V QUAD RECEPTACLE	
				SPECIAL RECEPTACLE AS NOTED ON PLANS	
				SPECIAL POWER CONNECTION AS NOTED ON PLANS	
				50 AMP, 250V RANGE RECEPTACLE	
				TELEPHONE OUTLET	
				DATA OUTLET	
				COMBINATION COMMUNICATION OUTLET (#x TEL, #x DATA, #x HDMI/CATV)	
				TELEVISION OUTLET (HDMI / CATV AS NOTED)	
				SPECIAL COMMUNICATION OUTLET AS NOTED ON PLANS	
				PARKING PEDESTAL REFER TO DETAIL	
				MOTOR DISCONNECT SWITCH	
				JUNCTION BOX	
				GROUND REFERENCE BUSBAR	
				PANELBOARD - REFER TO PANEL SCHEDULES FOR DETAILS	
				LOW VOLTAGE LIGTHING CONTROL PANEL	
				EQUIPMENT TAG REFER TO MECHANICAL EQUIPMENT SCHEDULE	
				THERMOSTAT	

ER - EXISTING TO REMAIN
RL - RELOCATE EXISTING DEVICE AS INDICATED
RM - REMOVE EXISTING DEVICE
RR - REMOVE EXISTING DEVICE AND REPLACE WITH NEW
WP - WEATHERPROOF ENCLOSURE

ELECTRICAL SPECIFICATIONS

SCALE: NONE

#	REVISIONS	(YR/M/D)
2	ISSUED FOR TENDER	22/09/06
1	ISSUED FOR REVIEW	22/08/23

ISSUED FOR TENDER
NOT FOR CONSTRUCTION

Project

GIBSONS & DISTRICT AQUATIC FACILITY
ROOFTOP UNIT UPGRADE

953 GIBSONS WAY, GIBSONS, BC V0N 1V0

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Title

ELECTRICAL
SPECIFICATION

Scale: AS NOTED
Drawn: MM
Checked: SM
Project No.: 21-B338

Seal

Drawing No.

E0.1

Latest Revision No. 2

GENERAL NOTES:

1. COORDINATE WITH THE MECHANICAL CONTRACTOR TO DEMO EXISTING ELECTRICAL SERVICES.
2. ALL NEW BREAKERS TO MATCH EXISTING PANELBOARDS.
3. PROVIDE ALL NEW DISCONNECTS, ENSURE DISCONNECTS DO NOT LIMIT ACCESS TO UNIT.
4. ALL EXPOSED WIRING ON ROOF TO BE PROTECTED FROM THE SUN.
5. ELECTRICAL CONTRACTOR TO DEMOLISH ALL EXISTING FEEDERS BACK TO SOURCE. IF ROUGH-IN IS IN SUITABLE CONDITION TO BE RE-USED, EXISTING INFRASTRUCTURE MAY BE RE-USED FOR NEW FEEDS. PROVIDE ALL NEW DISCONNECTS FOR NEW MECHANICAL EQUIPMENT.
6. REFER TO DRAWING M3.1 FOR EQUIPMENT CABLE SIZES.

REPLACE EXISTING STARTER WITH 60A BREAKER FOR CU-1

(1) 600V MCC

SCALE: NONE

(2) 600V MCC DETAILS

SCALE: NONE

(3) PANEL A / B DETAILS

SCALE: NONE

REPLACE EXISTING BREAKER AS NOTED

PROPOSED PANEL A

MOUNTING - WALL
LOCATION - ELECTRICAL ROOM
FEEDER PANEL- CDP

VOLTAGE - 120/208
MAIN BUS - 225A

NOTE	DESCRIPTION	BKR	CIRCUIT		CIRCUIT		DESCRIPTION	NOTE
--	ELECTRICAL ROOM/ BOILER RM EMERG LGT	15	01	02	15	EXTERIOR LIGHTS	--	
--	COMMS PLUG ELEC RM	20	03	04	15	FOYER HEATING	--	
--	LAMP STANDARDS	15	05	06	15	SHOWERS EXHAUST FAN	--	
--	BOILER 1	15	07	08	20	S.E. POOL HALL EXHAUST FAN	--	
--	BOILER 2	15	09	10	15	N.E. POOL HALL EXHAUST FAN	--	
--	BOILER 3	15	11	12	15	S.W. POOL HALL EXHAUST FAN	--	
--	SPARE	15	13	14	40	PUMP ROOM SUB PANEL	--	
--	GRUNDFOS PUMPS 3,4,5 BOILER ROOM	15	15	16				
--	EXTERIOR LIGHTING	15	17	18	15	RAIN POOL CIRC PUMP	--	
--	MP CIRC PUMP	40	19	20				
			21	22	15	UNKNOWN	--	
			23	24	15	UNKNOWN	--	
--	BOILER 4 / ALL BOILERS	15	25	26	15	TECKMAR CONTROLLER	--	
--	BLANK	15	27	28	20	SUMP PUMP	--	
--	STRANTALL PLUG	15	29	30	20	SUMP PUMP	--	
--	CONTROL TRANSFORMER, ESC	15	31	32	20	CHLORINE ROOM EXHAUST	--	
			33	34	15	TEL BOARD	--	
--	P-1	15	35	36	15	LOBBY PUTLETS	--	
--	SPACE	--	37	38	15	OFFICE HEAT	--	
--	SPACE	--	39	40				
--	HOT TUB LIGHTS	15	41	42	15	EMERGENY LIGHT STAFF CHANGE ROOM	--	

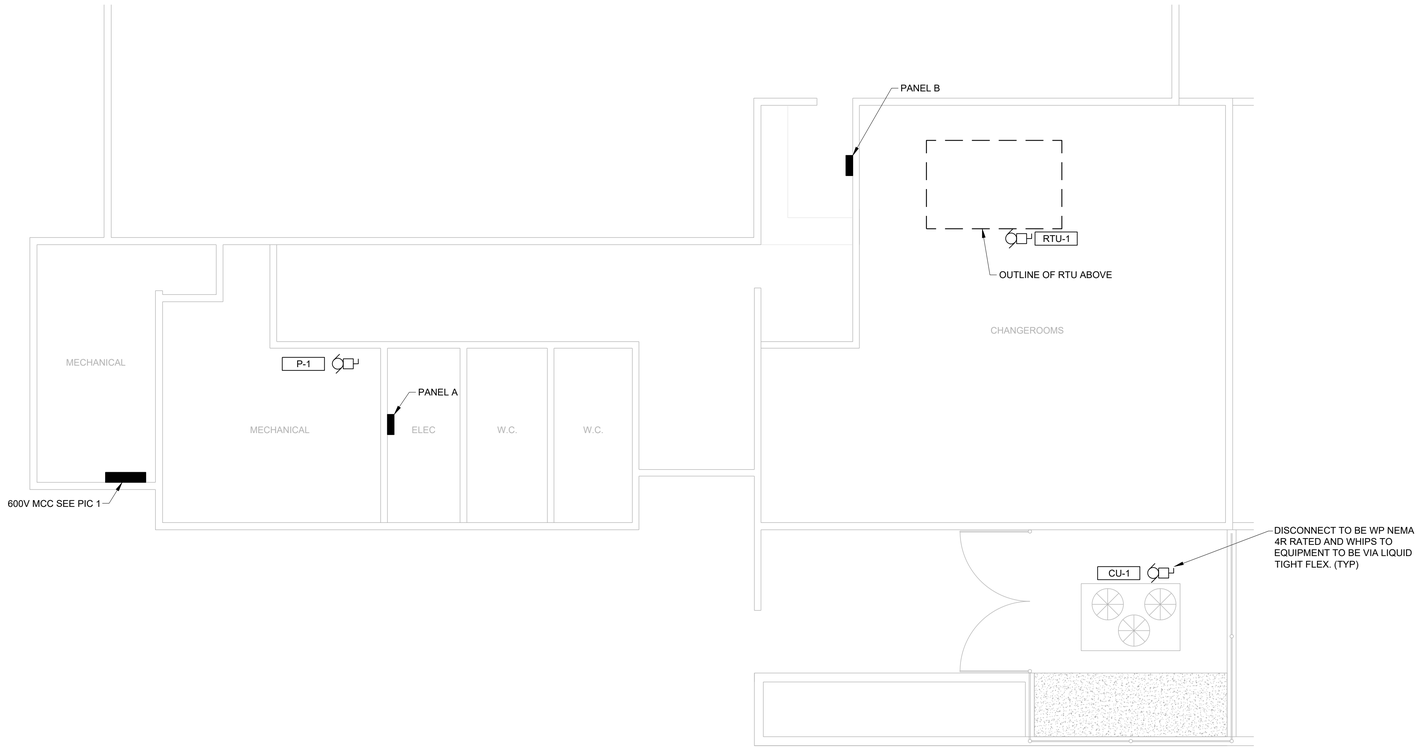
REPLACE EXISTING BREAKER AS NOTED

PROPOSED PANEL B

MOUNTING - WALL
LOCATION - ELECTRICAL ROOM
FEEDER PANEL- CDP
FEEDER BKR - 200A 3P

VOLTAGE - 120/208
MAIN BUS - 225A

NOTE	DESCRIPTION	BKR	CIRCUIT		CIRCUIT		DESCRIPTION	NOTE
--	EXIT LIGHT NORTH	15	01	02	15	EAST DECK LIGHTING	--	
--	OVERHEAD LIGHTS	20	03	04	15	SOUTH & WEST DECK LIGHTING	--	
--	OVERHEAD LIGHTS	15	05	06	15	NIGHT LIGHT	--	
--	CONTROL OFFICE PLUGS	15	07	08	20	OVERHEAD LIGHTS	--	
--	CONTROL OFFICE PLUGS	15	09	10	15	ALARM	--	
--	COUNTER/OFFICE PLUGS	15	11	12	15	STORE RM PLUGS/CIRC FANS	--	
--	HAND DRYER MENS	15	13	14	15	SOUTH POOL PLUG	--	
--	POOL CENTER LIGHTING	15	15	16	15	CONTROL OVERHEAD POOL HTRS	--	
--	WEST DECK LIGHTING	15	17	18	15	SOUTH DECK LIGHTING	--	
--	STORAGE ROOM	15	19	20	15	HAND DRYER - HC WC	--	
--	GFCI PLUG HC WC MEN CH	15	21	22	15	HAND DRYER FAM CH S	--	
--	FOYER & HALL LIGHTING	15	23	24	15	HAND DRYER FAM CH H	--	
--	CONV. PLUG FAM CH	15	25	26	15	CONV PLUGS M/W CH RMS	--	
--	GFCI PLUGS M/W CH RMS	15	27	28	15	HAND DRYER WOMEN CH W	--	
--	SP	15	29	30	15	HAND DRYER WOMEN CH E	--	
--	SP STORE RM JB	15	31	32	15	LIGHTING - WOMEN CH RM	--	
--	FOYER NIGHT LITE/EXISTS	15	33	34	15	LIGHTING MEN CH RM	--	
--	EXIT/ EMERGENCY LIGHTING	15	35	36	15	LIGHTING FAM CH RM	--	
			37	38	15	HAND DRYER MEN CH S	--	
--	ROOFTOP UNIT	60	39	40	15	GFCI PLUGS M/W CH RM	--	
			41	42	15	EXTERIOR LITE - S & W	--	



EXISTING PARTIAL ROOF PLAN

SCALE: 3/16" = 1'-0"

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2	ISSUED FOR TENDER	22/09/06
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Project

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Title

PROPOSED ELECTRICAL PLANS

Scale: AS NOTED
Drawn: MM
Checked: SM
Project No.: 21-B338
Seal

Drawing No.

E1.1

Latest Revision No. 2

1.0 GENERAL NOTES:

- RELOCATED ROOF TOP UNIT ON EXISTING ROOF STRUCTURE. NEW UNIT 2200 lbs, APPROX. 1000 lbs HEAVIER THAN EXISTING.
- RTU-1 FRAME AND CONNECTIONS DESIGNNED TO BCBC 2018.

LOCATION: GIBSONS, BC
ELEVATION: +/- 28m
IMPORTANCE FACTOR: NORMAL

RTU1:
DL = 2300lbs / 10.2kN

SNOW:
NO ADDED SNOW PILING, NEW UNIT LOCATION WITHIN EXISTING SNOW PILING ZONE AT 10' ROOF STEP.

SEISMIC:
Sa(0.2) = 0.841, Sa(0.5) = 0.755, PGA = 0.366, Assumed Site Class "C"
Cp = 1.0, Ar = 1.0, Rp = 1.25, "MACHINERY, RIGIDLY CONNECTED"

- COMPLETE WORK IN CONFORMANCE WITH BCBC 2018 AND REGIONAL BY-LAWS.
- CONFORM TO WORKSAFE BC SAFE WORKING REQUIREMENTS.
- CONTRACTOR IS RESPONSBILE FOR IMPLEMENTATION OF THE DESIGN.
- REPORT ANY CONFLICT OR CONDITION THAT MAY ADVERSELY AFFECT ADEQUATE PROJECT EXECUTION IMMEDIATELY UPON DISCOVERY. OBTAIN WRITTEN APPROVAL FROM THE ENGINEER BEFORE PROCEEDING.
- EXISTING CONSTRUCTION ASSUMED. CONTRACTOR TO CHECK ALL EXISTING DIMENSIONS, CLEARANCES AND TOLERANCES BEFORE PROCEEDING WITH WORK AND/OR MANUFACTURING.
- DRAWINGS ARE DIAGRAMMATIC AND INCLUDED MINIMUM CONSTRUCTION REQUIREMENTS.
- SUBMIT PROPOSED ALTERNATES OR REQUESTS FOR CLARIFICATION TO THE ENGINEER. OBTAIN WRITTEN APPROVAL BEFORE PROCEEDING.
- ENGINEER WILL REVIEW WORK FROM TIME-TO-TIME TO CHECK GENERAL CONFORMANCE WITH THE DESIGN INTENT.
- INCLUDED IS THE DESIGN OF THE VERTICAL AND LATERAL FORCE RESISTING SYSTEM FOR THE RTU, NAMELY COMPRISED OF WOOD AND CONCRETE.
- SHORING AND TEMPORARY WORKS HAVE NOT BEEN REVIEWED OR DESIGNED.
- FIRE RESISTANCE AND RATINGS ARE NOT ADDRESSED BY THE ENGINEER.
- SCAN SLAB FOR EMBEDDED ELECTRICAL OR OTHER SERVICES BEOFRE DRILLING.
- DO NOT MAKE OPENINGS IN BEAMS OR CONCRETE WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
- OBTAIN APPROVAL FROM ENGINEER BEFORE CONCEALING: ROUGH FRAMING AND ROOF SLAB CONNECTIONS.

2.0 WOOD:

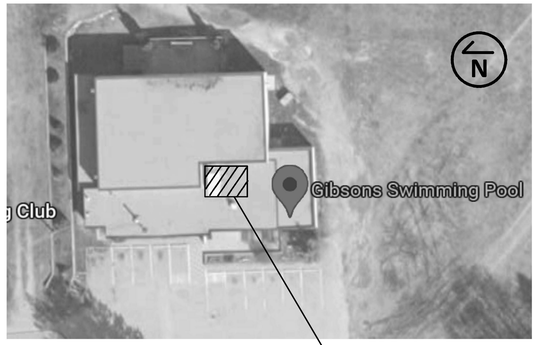
- INSTALL WOOD IN CONFORMANCE WITH BCBC 2018 PART 9.23 "WOOD FRAMING."
- DO NOT INSTALL LUMBER WITH MOISTURE CONTENT >19%.
- INSTALL SIMPSON CONNECTOR HARDWARE AND WEYERHAEUSER ENGINEERED LUMBER COMPONENTS IN STRICT ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

3.0 STEEL:

- WOOD BOLTS TO BE A307.
- STEEL BOLTS TO BE A325.
- ALL EXPOSED STEEL TO BE HDG OR SUFFICIENTLY COATED FOR MARINE EXPOSURE.

NOTES:

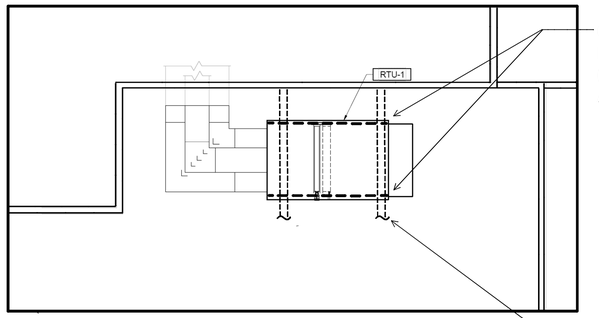
- REFER TO BES MECHANICAL DRAWING "GIBSONS & DISTRICT AQUATIC FACILITY ROOFTOP UNIT UPGRADE" DATED AUG 25, 2022 FOR INSTALLATION REQUIREMENTS
- RTU SCHEMATICS FROM TRANE DATED JULY 21 2022
- AERIAL PHOTO FROM GOOGLE MAPS
- SUBMIT TRANE CONNECTION LOCATION AND DESIGN, AND PROOF OF UNIT SEISMIC RATING, PRIOR TO INSTALLATION



NEW INSTALLATION LOCATION

AERIAL KEY PLAN

NTS

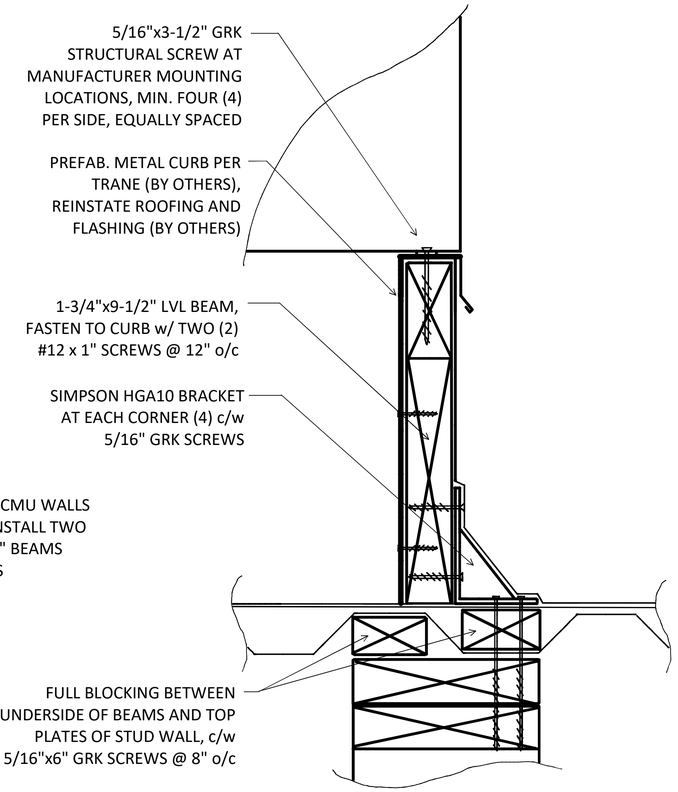


CENTER RTU1 OVER CMU WALLS BELOW (SHOWN), INSTALL TWO (2) LVL 1-3/4"x9-1/2" BEAMS ACROSS CMU WALLS

EXISTING CMU WALLS BELOW, TYP.

RTU LOCATION PLAN

NTS



5/16"x3-1/2" GRK STRUCTURAL SCREW AT MANUFACTURER MOUNTING LOCATIONS, MIN. FOUR (4) PER SIDE, EQUALLY SPACED

PREFAB. METAL CURB PER TRANE (BY OTHERS), REINSTATE ROOFING AND FLASHING (BY OTHERS)

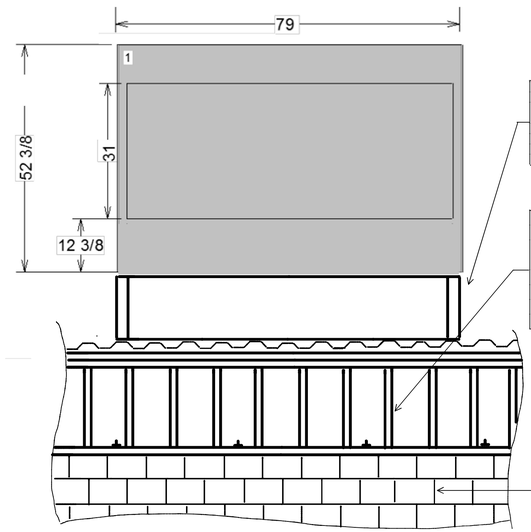
1-3/4"x9-1/2" LVL BEAM, FASTEN TO CURB w/ TWO (2) #12 x 1" SCREWS @ 12" o/c

SIMPSON HGA10 BRACKET AT EACH CORNER (4) c/w 5/16" GRK SCREWS

FULL BLOCKING BETWEEN UNDERSIDE OF BEAMS AND TOP PLATES OF STUD WALL, c/w 5/16"x6" GRK SCREWS @ 8" o/c

CURB AND BEAM SECTION

NTS



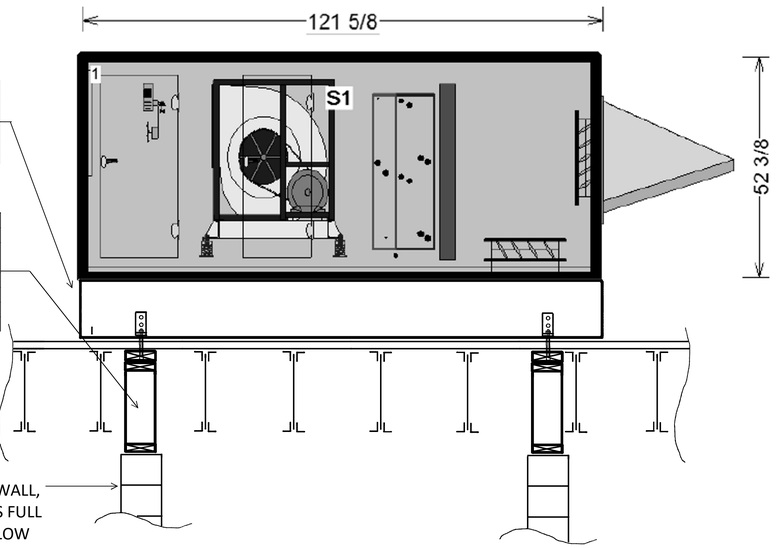
PREFAB. PERIM. METAL CURB BY OTHERS

STUD WALL; 2x6 @ 16 o/c c/w 1/2" ANCHOR BOLT @24" o/c

EXIST. CMU WALL, GROUT CELLS FULL HEIGHT BELOW RTU-1

RTU END ELEVATION

NTS



RTU SIDE ELEVATION

NTS

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REVISIONS

NO.	DATE	DESCRIPTION
1	1 SEPT 2022	DRAFT FOR CLIENT REVIEW
2	2 SEPT 2022	METAL PREFAB. CURB CHANGE

GIBSONS AQUATIC FACILITY

953 GIBSONS WAY,
GIBSONS, BC

title:
RTU FRAME PLAN AND ELEVATIONS

scale: NTS
date: 1 SEPT 22
by: BC

job: TE2206
drawing: **S101**
seal:

DRAFT NOT FOR CONSTRUCTION