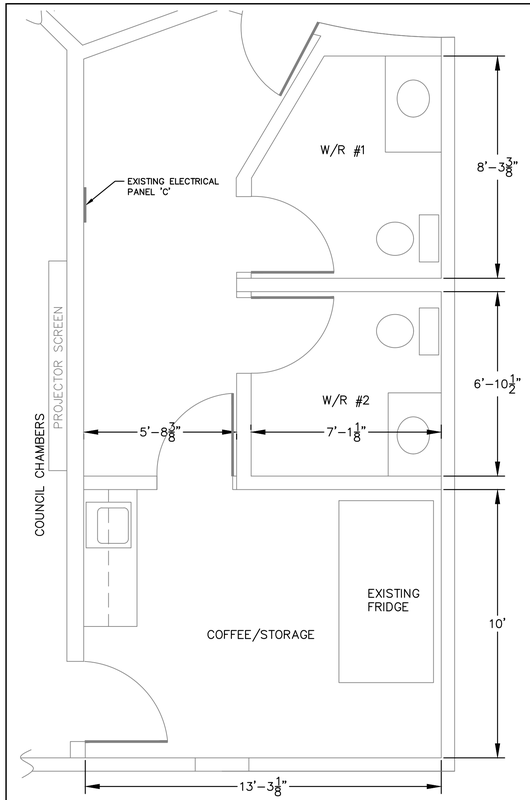
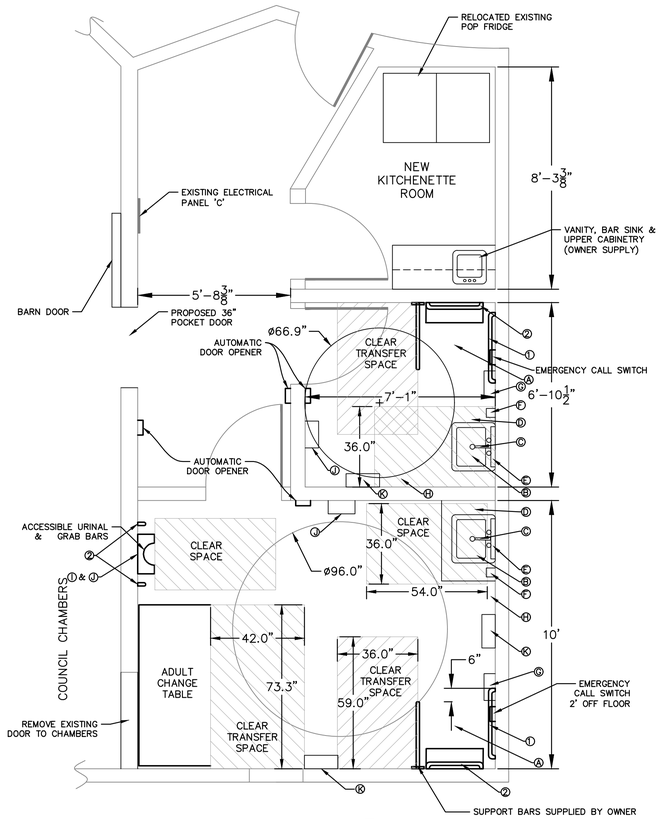


EXISTING CONDITIONS

SCALE: 3/8"=1'-0"



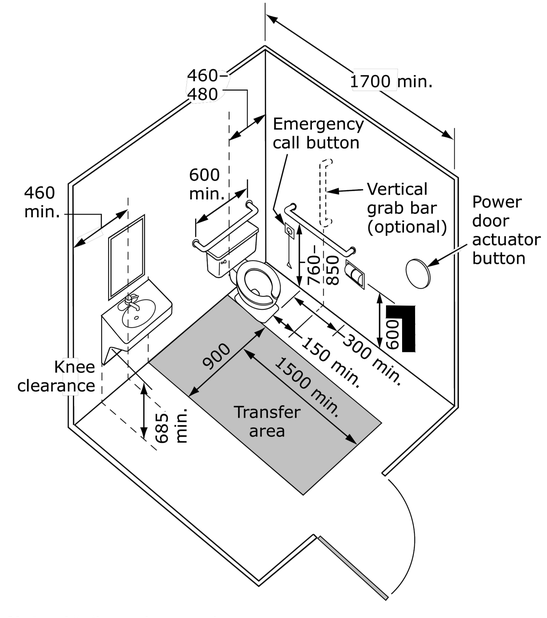
NEW LAYOUT

SCALE: 3/8"=1'-0"

REF#	ITEM	DESCRIPTION
A	TOILET	SEE DRAWING M-501, OWNER SUPPLIED.
B	SINK	SEE DRAWING M-501, OWNER SUPPLIED.
C	FAUCET	SEE DRAWING M-501, OWNER SUPPLIED.
D	VANITY	BARRIER FREE VANITY (COLOR CHOICE BY OWNER)
E	MIRROR	OWNER SUPPLIED.
F	SOAP	DISPENSER BOBRICK MODEL B-40 OR B-826.18, OWNER SUPPLIED.
G	TOILET TISSUE	DISPENSER, SINGLE JUMBO-ROLL, BOBRICK MODEL B-2890, OWNER SUPPLIED.
H	PAPER TOWEL	DISPENSER, BOBRICK MODEL B-72860 (MANUAL), OWNER SUPPLIED. DISPENSER, BOBRICK MODEL B-72974 (AUTOMATIC), OWNER SUPPLIED.
I	URINAL W/ FLUSHER	SEE DRAWING M-501, OWNER SUPPLIED.
J	HAND DRYER	OWNER SUPPLIED
K	GARBAGE	REUSE EXISTING
1	GRAB-BAR	30"x30"x1.5"ø WALL MOUNTED BAR. BOBERICK MODEL B-6898.99, OWNER SUPPLIED.
2	GRAB-BAR	24"x1.5"ø WALL MOUNTED BAR. BOBERICK MODEL B-6806x24, OWNER SUPPLIED.

GENERAL NOTES:

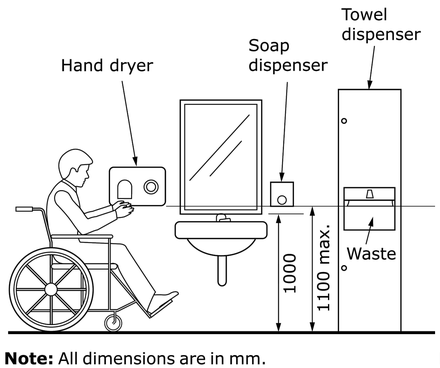
1) ALL WORK TO BE DONE IN ACCORDANCE WITH THE NATIONAL BUILDING CODE OF CANADA, 2015.
2) NEW GYPROC WALLS TO BE TAPED, FILLED AND SANDED. APPLY ONE COAT OF THE LATEX PRIMER SEALER AND TWO COAT OF LATEX PAINT. TOP COAT COLOUR BY OWNER'S SELECTION.
3) NEW FLOORING TO BE INSTALLED TO BE ARMSTRONG VINYL 12X12 TILE AND 12X12 TILE BASE. COLOUR AND PATTERN OWNER'S CHOICE.
4) REPAIRS TO CONCRETE FLOOR AFTER INSTALLATION OF UNDER-SLAB PLUMBINGS TO BE 3000PSI CONCRETE. MAKE SMOOTH TRANSITION FROM NEW CONCRETE TO EXISTING.
5) ADD BLOCKING SUPPORT IN WALLS FOR ALL GRAB BAR ATTACHMENTS.
6) CEILING TILES TO BE USG RADAR BASIC ACOUSTICAL PANELS -2'X2'X$\frac{5}{8}$". CEILING TILES IN KITCHEN TO BE FIRE RATED.
7) SEE DRAWING M501 FOR PLUMBING FIXTURES.
8) WASHROOM ACCESSORIES TO BE MOUNTED AS PER LAYOUT DETAILS.
9) COUNTER TOP TO BE BELANGER LAMINATES - FORMICA SERIES (OR AN APPROVED EQUAL) - MARBELLA PROFILE. STANDARD WIDTH 25 $\frac{1}{2}$" AND $\frac{5}{8}$" PARTICLE CORE. COLOUR TO BE CHOSEN BY OWNER. OPEN CUPBOARD SHELVING TO BE DIAMOND NOW - TRUE COLOR SERIES (OR AN APPROVED EQUAL) - C/W SHELVING,
10) WASHROOM DOORS ARE TO BE EQUIPPED WITH CSA COMPLIANT HARDWARE.
11) MICROWAVE AND FRIDGE - OWNER SUPPLIED.



Note: All dimensions are in mm.

UNIVERSAL WASHROOM

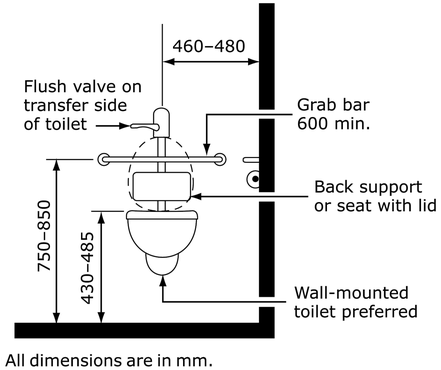
NTS



Note: All dimensions are in mm.

WASHROOM ACCESSORY HEIGHTS

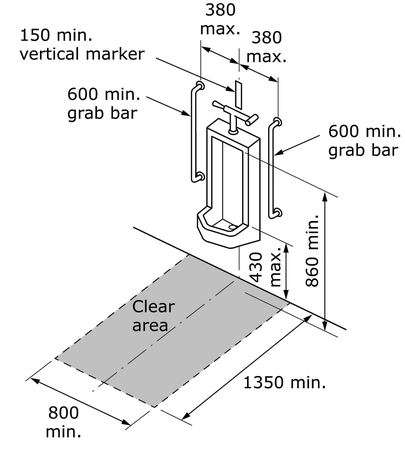
NTS



Note: All dimensions are in mm.

TYPICAL TOILET LAYOUT

NTS



Note: All dimensions are in mm.

TYPICAL URINAL LAYOUT

NTS

NO.	DATE	REVISIONS	DWG.	CHK.
2	24/01/23	ISSUED FOR TENDER	KAC	GAU
1	21/02/08	ISSUED FOR REVIEW	KAC	GAU

STRAIT ENGINEERING LIMITED
PORT HAWKESBURY, NOVA SCOTIA

REGISTERED PROFESSIONAL ENGINEER
DATE: 24/01/23
D.G.MYETTE
9914
PROVINCE OF NOVA SCOTIA

CLIENT:
MUNICIPALITY OF THE COUNTY OF ANTIGONISH

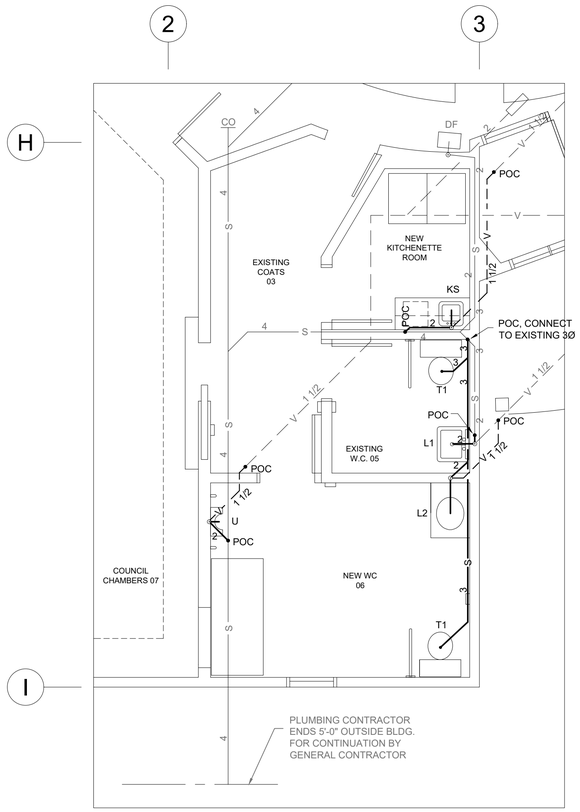
PROJECT:
MUNICIPAL OFFICE - ACCESSIBLE WASHROOM UPGRADES

DWG.	KAC
CKD.	GAU
APP.	DGM
SCALE:	AS-SHOWN
DATE:	FEB 2021

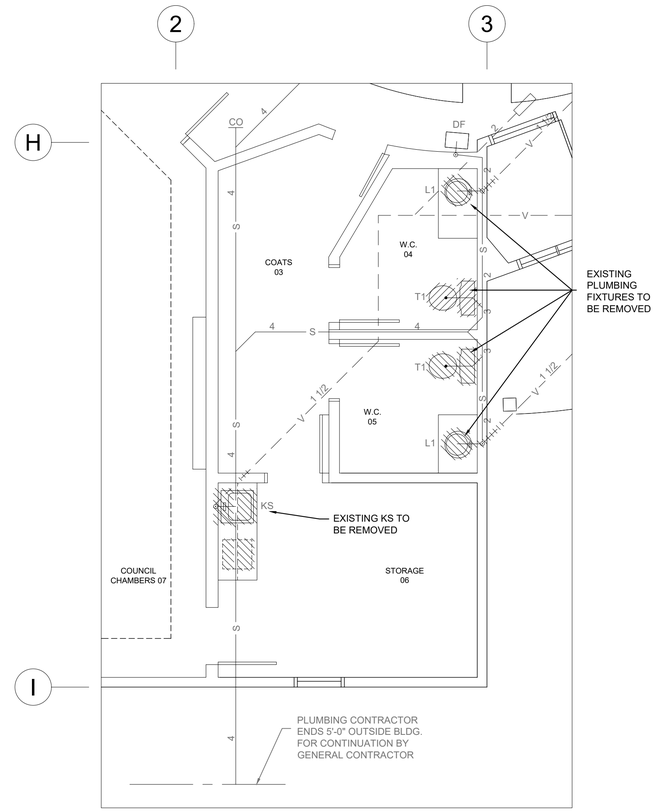
PLAN & DETAILS

PROJECT 21-03

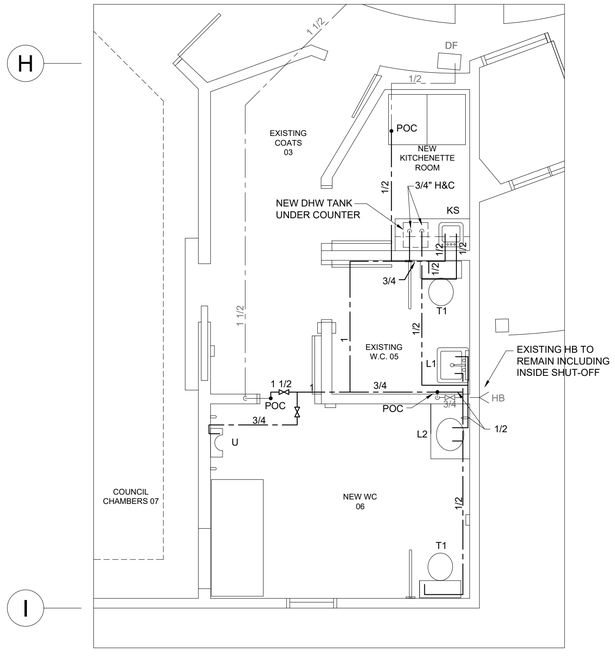
DRAWING 10



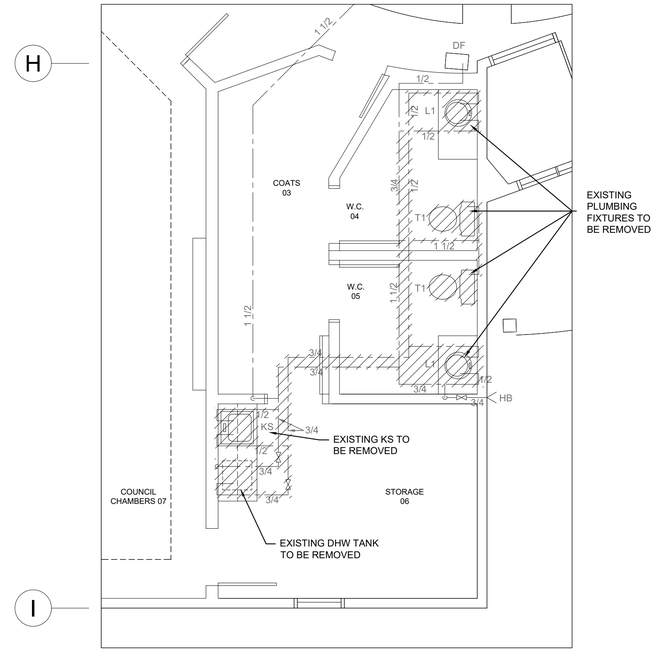
2 / P-101 MAIN FLOOR - DRAINAGE REVISED
SCALE: 1/4" = 1'-0"



1 / P-101 MAIN FLOOR - DRAINAGE REMOVALS
SCALE: 1/4" = 1'-0"



4 / P-101 MAIN FLOOR - DOMESTIC WATER REVISED
SCALE: 1/4" = 1'-0"

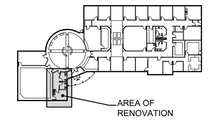


3 / P-101 MAIN FLOOR - DOMESTIC WATER REMOVALS
SCALE: 1/4" = 1'-0"

STRAIT ENGINEERING LIMITED

PORT HAWKESBURY, NOVA SCOTIA

KEY PLAN



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A.H. Roy & Associates Ltd.
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Tel: (902) 863-2955 E-mail:ahroyoffice@ahroy.ca

A.H.ROY File No. 2021-2875

GRAPHIC SCALE

DATE	MARK	ISSUE
11 Mar '22	1	ISSUED FOR TENDER

STAMP

REGISTERED PROFESSIONAL ENGINEER
DIM'Y 11/3/2022
V.J.BELLIVEAU
2509
PROVINCE OF NOVA SCOTIA

SCALE	1/4" = 1'-0"
DRAWN BY:	M.M.
CHECKED BY:	V.J.B.
REVIEWED BY:	V.J.B.
APPROVED BY:	V.J.B.
AS-BUILT CHECK	
DATE:	January 2022

PROJECT
MUNICIPAL BUILDING
Accessible Washroom Upgrades

ANTIGONISH, NS

PROJECT NO.: -

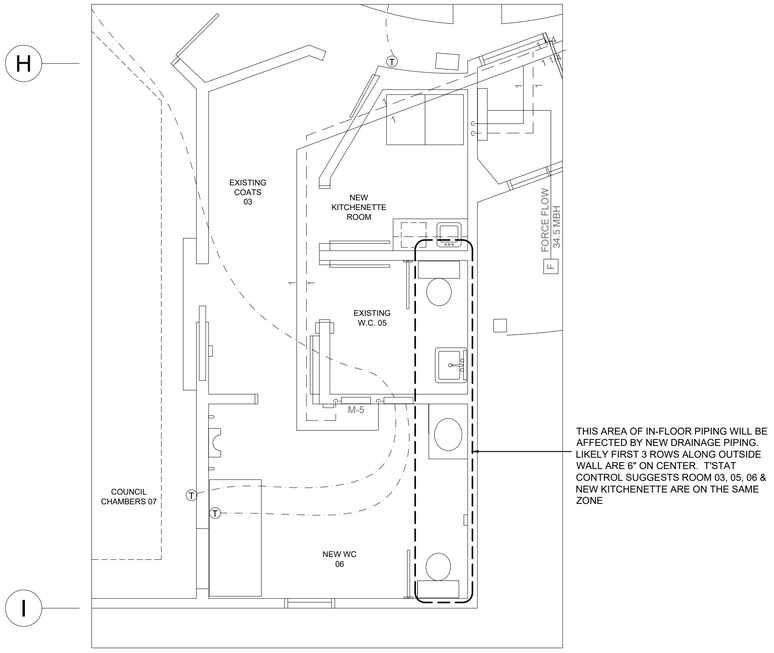
SHEET TITLE
MAIN FLOOR

DRAINAGE & DOM. WATER REMOVALS & REVISED

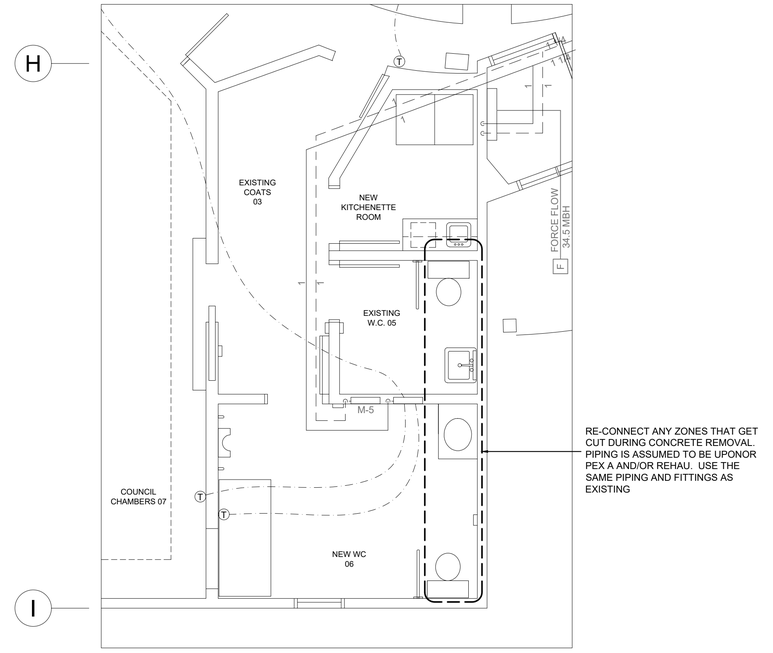
INTERNAL NO.: I/O

P-101

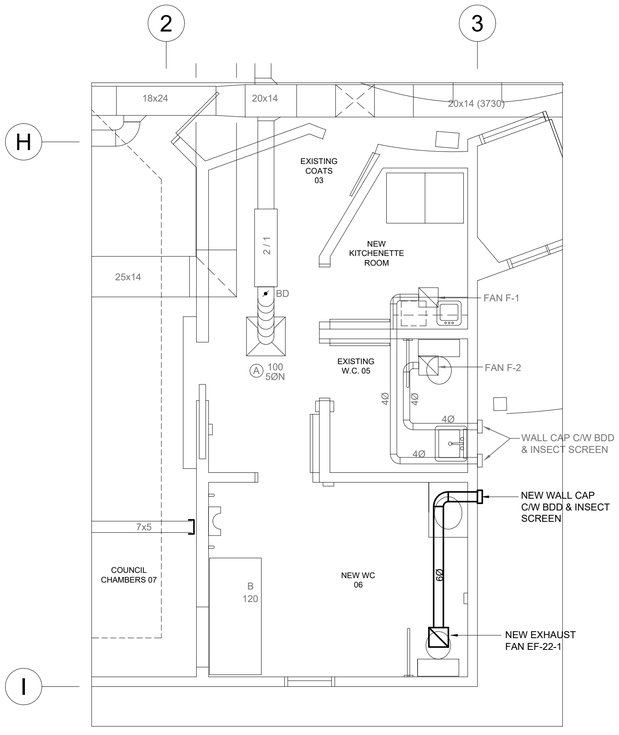
SHEET - OF -



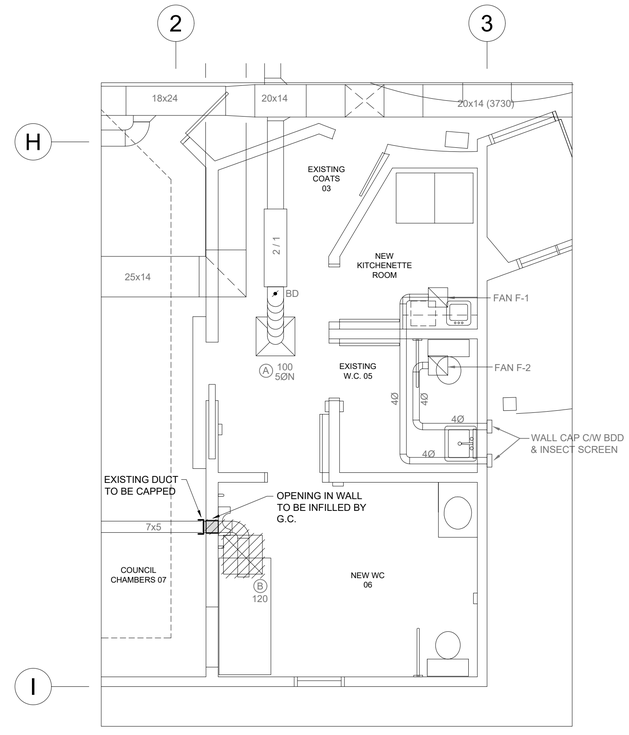
2 / M-101 MAIN FLOOR - HEATING REVISED
SCALE: 1/4" = 1'-0"



1 / M-101 MAIN FLOOR - HEATING REMOVALS
SCALE: 1/4" = 1'-0"



4 / M-101 MAIN FLOOR - VENTILATION REVISED
SCALE: 1/4" = 1'-0"

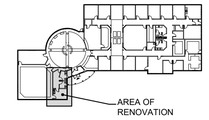


3 / M-101 MAIN FLOOR - VENTILATION REMOVALS
SCALE: 1/4" = 1'-0"

STRAIT ENGINEERING LIMITED

PORT HAWKESBURY, NOVA SCOTIA

KEY PLAN



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A.H.ROY File No. 2021-2875

GRAPHIC SCALE

DATE	MARK	ISSUE
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STAMP

REGISTERED PROFESSIONAL ENGINEER
DIM'Y 11/3/2022
V.J.BELLIVEAU
2509
PROVINCE OF NOVA SCOTIA

SCALE	1/4" = 1'-0"
DRAWN BY:	M.M.
CHECKED BY:	V.J.B.
REVIEWED BY:	V.J.B.
APPROVED BY:	V.J.B.
AS-BUILT CHECK	
DATE:	January 2022

PROJECT
MUNICIPAL BUILDING
Accessible Washroom Upgrades

ANTIGONISH, NS

PROJECT NO.: -

SHEET TITLE
MAIN FLOOR

HEATING & VENTILATION REMOVALS & REVISED

INTERNAL NO.: I/O

M-101

SHEET - OF -

SCHEDULE No.1/M-501 PLUMBING FIXTURE SCHEDULE

REF #	FIXTURE	SPECIFICATION	CW	HW	SAN	VENT
T1	TOILET - FLOOR MOUNTED TANK TYPE	ZURN Z5555-K HET SERIES, ECO-VANTAGE, ELONGATED FRONT, VITREOUS CHINA, TWO PIECE TOILET (1.28 gpf/4.8lpf), 1000g MAP, 20 TO 80 psi, 3 BOLT TANK-TO-BOWL CONNECTION, 2" FLUSH TOWER, ANTI-SIPHON BALL COCK, 12" ROUGH-IN, 2 1/2" TRAPWAY, INSULATED TANK, LEVER HANDLE - RIGHT OR LEFT. SEAT; ZURN Z-5958 SS-EL ELONGATED WHITE, OPEN FRONT TOILET SEAT W/ COVER & SS CHECK HINGES. Z5972-COMB. CLOSET BOLT WAX RING KIT, Z-8800-CR STOP WITH FLEXIBLE CLOSET RISER. TANK COVER SHALL HAVE BOLT DOWN DEVICE.	1/2"	-	3"	1 1/2"
U	URINAL	ZURN Z5755-U ULTRA LOW FLOW VITREOUS CHINA C/W 3/4" TOP SPUD, 2" IPS OUTLET, 14" EXTENDING RIM FOR HANDICAP COMPLIANCE, WITH RIM MOUNTED NO HIGHER THAN 17" AFF C/W ZTR6203-QRT-LL ELECTRONIC FLUSH VALVE & ZURN Z-1221 SERIES CARRIER	3/4"	-	2"	1 1/2"
L1	BASIN - WALL HUNG (BARRIER FREE DESIGN & GENERAL USE) FOR TIGHT SPACES	AMERICAN STANDARD 'MURRO' 0954-000/0059-020 COUNTERTOP BASIN, 4" (102mm) CENTERS, 22" x 21" x 7 1/2" DEEP, VITREOUS CHINA, REAR OVERFLOW, FOR CONCEALED ARM SUPPORT, TRIM FITTINGS; AMERICAN STANDARD 7385.000.002 RELIANT 3 FAUCET, C.P., 4" C.C. SOLID BRASS LEAD-FREE BODY, 1/4 TURN CERAMIC DISC VALVE CARTRIDGES, WITH VANDAL-PROOF 1.84 GPM (8L) FLOW AERATOR OUTLET AND CAST METAL LEVER HANDLES. McGUIRE #155A DRAIN, C.P. OPEN GRID. C.P. 'P' TRAP 17 GAUGE, 1 1/4" AND ESCUTCHEON. McGUIRE H1651LKN3RB SUPPLIES, C.P. POLISHED, SHORT HORIZONTAL WITH V.P. LOOSE KEY ANGLE STOPS, ESCUTCHEONS AND BRAIDED FLEXIBLE RISERS. SMITH SERIES #700-M31M CARRIER, HEAVY DUTY WITH ONE PIECE CONSTRUCTION STEEL CHANNEL LEGS BLOCK BASE FEET SUPPORT AND EXTENDED CONCEALED ARMS. PROVIDE AMERICAN STANDARD #0059.020 SEMI CHINA PEDESTAL TO COVER EXPOSED PIPING AS PER LOCAL CODES.	1/2"	1/2"	1 1/2"	1 1/4"
L2	BASIN COUNTERTOP	ZURN Z5114 COUNTERTOP BASIN, 4" (102mm) CENTERS, 22" x 21" x 7 1/2" DEEP, VITREOUS CHINA, REAR OVERFLOW, TRIM FITTINGS; AMERICAN STANDARD 7385.000.002 RELIANT 3 FAUCET, C.P., 4" C.C. SOLID BRASS LEAD-FREE BODY, 1/4 TURN CERAMIC DISC VALVE CARTRIDGES, WITH VANDAL-PROOF 1.84 GPM (8L) FLOW AERATOR OUTLET AND CAST METAL LEVER HANDLES. McGUIRE #155A DRAIN, C.P. OPEN GRID. C.P. 'P' TRAP 17 GAUGE, 1 1/4" AND ESCUTCHEON. McGUIRE H1651LKN3RB SUPPLIES, C.P. POLISHED, SHORT HORIZONTAL WITH V.P. LOOSE KEY ANGLE STOPS, ESCUTCHEONS AND BRAIDED FLEXIBLE RISERS.	1/2"	1/2"	1 1/2"	1 1/4"
KS	ONE COMPART-MENT SS SINK (WORK ROOMS/ GENERAL AREAS)	KINDRED MODEL Q5L 1313-6-2 SS SINK, 2 HOLE 4" (100mm) CENTERS, 13 5/8" x 13 5/8" x 6" DEEP, COUNTER MOUNTED, BACK LEDGE, GRADE 18-8 TYPE 302 STAINLESS STEEL, SINGLE COMPARTMENT, STAIN FINISHED RIM AND BOWL, SELF-RIMMING, WITH CRUMP CUP STRAINER AND SOUND DEADENING CHICAGO FAUCETS #895-V-XK FAUCET, C.P. 4" (100mm) C.C. DECK MOUNTED, SOLID CAST BRASS LEAD-FREE BODY, 1/4 TURN CERAMIC DISC VALVE CARTRIDGES, SWING SPOUT WITH VANDAL-RESISTANT 1.84 GPM (8L) FLOW AERATOR OUTLET AND CAST BRASS LEVER HANDLES. McGUIRE #H2167NS SUPPLIES, C.P. POLISHED RIGID HORIZONTAL WITH WHEEL HANDLE ANGLE STOPS, ESCUTCHEONS AND FLEXIBLE METAL RISERS. McGUIRE #8912C 'P' TRAP, C.P. POLISHED CAST BRASS 1 1/2" (38mm) WITH CLEANOUT, LONG TUBE LENGTH AND ESCUTCHEON.	1/2"	1/2"	1 1/2"	1 1/4"
DWH	DOMESTIC HOT WATER TANK (UNDER COUNTER)	GIANT MODEL 103 ETE, 2 Gallon CAPACITY, 120V ELECTRICS C/W PLUG & CHORD, 1500 watts C/W TEMP/PRESS RELIEF VALVE, 3/4" DRAIN AND 2" PLASTIC SPILL PAN	3/4"	3/4"	-	-

NOTE: MANUFACTURERS LISTED ARE APPROVED EQUIVALENT, SEE SPECIFICATION FOR APPROVED MANUFACTURERS

SCHEDULE No.2/M-501 SCHEDULE OF FANS

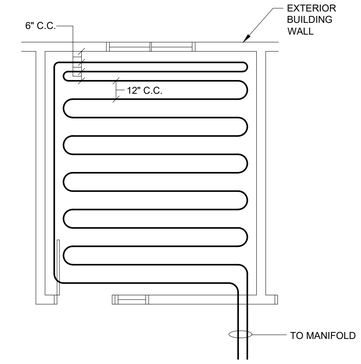
FAN No.	SERVICE	LOCATION	MANUFACT.	MODEL	SIZE	CAPACITY (CFM)	STATIC PRESSURE	R.P.M.	HORSE POWER	ELECTRICS	DISCONN. SWITCH	BACK DRAFT DAMPER	SCREEN	REMARKS
EF-22-1	NEW WR 06	CEILING	COOK	GCVF	180	130	0.625	1675	31.9 WT	115/1/60	YES	YES	YES	-

GENERAL SYMBOL LEGEND

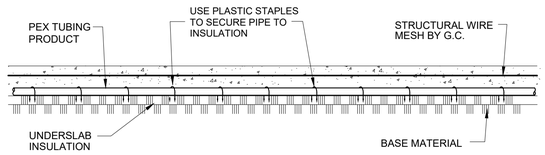
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- S — SANITARY DRAINAGE
- V — VENT LINE
- A — A — SHOKTROL, SIZE = A
- CO — CLEAN-OUT
- (T) — TEMPERATURE SENSOR
- SHUT-OFF VALVE
- BD — BALANCING DAMPER IN DUCT
- FD — FIRE DAMPER IN DUCT
- FLEXIBLE DUCTWORK
- SUPPLY / RETURN AND/OR EXHAUST — DIFFUSERS AND/OR GRILLES
- EXISTING PIPING, EQUIPMENT, ETC. TO BE REMOVED
- POC — 'POINT OF CONNECTION' NEW TO EXISTING

NOTES (All drawings)

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL THE CONTRACT DOCUMENTS INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL CHECK AND VERIFY ALL GRADES AND MEASUREMENTS ON THE JOB SITE & REPORT ANY DISCREPANCIES TO THE ENGINEER IN WRITING BEFORE COMMENCEMENT OF THE WORK.
3. NOTWITHSTANDING WHATEVER MAY BE INDICATED ON THESE DRAWINGS AND/OR MECHANICAL SPECIFICATIONS REGARDING PHASE, VOLTAGE, SIZE OF MOTORS. THIS CONTRACTOR SHALL BE DEEMED TO EXAMINE ELECTRICAL DRAWINGS BEFORE TENDERING AND/OR ORDERING EQUIPMENT WITH MECHANICAL MOTORS OR ELECTRICAL CONNECTIONS TO ENSURE THAT EQUIPMENT QUOTED AND/OR ORDERED IS COMPATIBLE WITH ELECTRICAL DRAWINGS & SYSTEM VOLTAGES AVAILABLE.



1 / M-501 TYPICAL FLOOR PIPING ARRANGEMENT
N.T.S. (Typical of Existing)

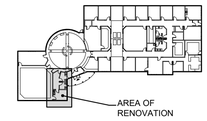


NOTE:
1. ON SUSPENDED SLAB, SECURE PIPE TO Q-DECK WITH C-CLAMPS, SECURE TO DECK
2. INFLOOR PIPING TO BE LOCATED AT THE BOTTOM OF THE SLAB.
3. WIRE TIES OR TIE WRAPS CAN BE USED, BUT AN ADDITIONAL LAYER OF WIRE MESH WILL BE REQUIRED AND SUPPLIED BY MECH. CONTR.

2 / M-501 RADIANT FLOOR CONSTRUCTION
N.T.S. (Typical of Existing)

STRAIT ENGINEERING LIMITED
PORT HAWKESBURY, NOVA SCOTIA

KEY PLAN



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Tel: (902) 863-2955 E-mail:ahroyoffice@ahroy.ca

A.H.ROY File No. 2021-2875

GRAPHIC SCALE

DATE	MARK	ISSUE
11 Mar '22	1	ISSUED FOR TENDER

STAMP

REGISTERED PROFESSIONAL ENGINEER — DIM/Y 11/3/2022 — V.J.BELLIVEAU 2509 — PROVINCE OF NOVA SCOTIA

SCALE	AS NOTED
DRAWN BY:	M.M.
CHECKED BY:	V.J.B.
REVIEWED BY:	V.J.B.
APPROVED BY:	V.J.B.
AS-BUILT CHECK	
DATE:	January 2022

PROJECT
MUNICIPAL BUILDING
Accessible Washroom Upgrades

ANTIGONISH, NS

PROJECT NO.: -

SHEET TITLE
MECHANICAL

DETAILS & SCHEDULES

INTERNAL NO.: I/O

M-501

SHEET - OF -

PART 1 - GENERAL

1.1 REFERENCES

.1 NATIONAL BUILDING CODE LATEST EDITION.
.2 NATIONAL PLUMBING CODE LATEST EDITION.
.3 CANADIAN REGISTRATION NUMBERS (CRNS), PROVINCE OF NOVA SCOTIA.

1.2 INSPECTIONS

.1 NEW PIPING TO BE INSPECTED PRIOR TO HYDROSTATIC TEST BY DESIGN ENGINEER AND BY AUTHORITY HAVING JURISDICTION.

.2 CONTRACTOR TO CONTACT DEPARTMENT OF LABOUR BOILER INSPECTOR FOR REQUIREMENTS FOR INSPECTION AND TESTING.

.3 COSTS FOR INSPECTION TO BE COVERED BY CONTRACTOR.

1.3 EQUIPMENT LIST

.1 COMPLETE LIST OF EQUIPMENT AND MATERIALS TO BE USED ON THIS PROJECT AND FORMING PART OF TENDER DOCUMENTS BY ADDING MANUFACTURER'S NAME, MODEL NUMBER AND DETAILS OF MATERIALS, AND SUBMIT FOR APPROVAL.

1.4 EQUIPMENT INSTALLATION

.1 UNIONS OR FLANGES: PROVIDE FOR EASE OF MAINTENANCE AND DISASSEMBLY.

.2 SPACE FOR SERVICING, DISASSEMBLY AND REMOVAL OF EQUIPMENT AND COMPONENTS: PROVIDE AS RECOMMENDED BY MANUFACTURER OR AS INDICATED.

.3 EQUIPMENT DRAINS: PIPE TO FLOOR DRAINS.

.4 INSTALL EQUIPMENT, RECTANGULAR CLEANOUTS AND SIMILAR ITEMS PARALLEL TO OR PERPENDICULAR TO BUILDING LINES.

.5 RE-ALIGN ALL PUMPS AND FANS FOR TRUE ALIGNMENT AFTER INSTALLATION.

1.5 PROTECTION OF OPENINGS

.1 PROTECT EQUIPMENT AND SYSTEMS OPENINGS FROM DIRT, DUST, AND OTHER FOREIGN MATERIALS WITH MATERIALS APPROPRIATE TO SYSTEM.

.2 SEAL ALL DUCTWORK OPENINGS WITH 6 MIL PLASTIC TO PROTECT IT FROM DIRT, DUST AND FOREIGN MATERIALS DURING THE COURSE OF THE DAY'S INSTALLATION. FURTHER ENSURE THAT AT THE END OF THE DAY, ALL OPEN JOINTS ARE CLOSED OFF. TAPE ALL PLASTIC WITH DUCT TAPE. COVER AND PROTECT ALL UN-INSTALLED DUCTWORK BEFORE IT IS INSTALLED.

1.6 EQUIPMENT SUPPORTS

.1 EQUIPMENT SUPPORTS NOT SUPPLIED BY EQUIPMENT MANUFACTURER: FABRICATE FROM STRUCTURAL GRADE STEEL. SUBMIT STRUCTURAL CALCULATIONS WITH SHOP DRAWINGS.

.2 MOUNT BASE MOUNTED EQUIPMENT ON CHAMFERED EDGE HOUSEKEEPING PADS, MINIMUM OF 4 IN. HIGH AND 6 IN. LARGER THAN EQUIPMENT DIMENSIONS ALL AROUND.

1.7 DRAIN VALVES

.1 LOCATE AT LOW POINTS AND AT SECTION ISOLATING VALVES UNLESS OTHERWISE SPECIFIED.

.2 MINIMUM NPS 3/4 UNLESS OTHERWISE SPECIFIED: BRONZE, WITH HOSE END MALE THREAD AND COMPLETE WITH CAP AND CHAIN.

1.8 DEMONSTRATION AND OPERATING AND MAINTENANCE INSTRUCTIONS

.1 SUPPLY TOOLS, EQUIPMENT AND PERSONNEL TO DEMONSTRATE AND INSTRUCT OPERATING AND MAINTENANCE PERSONNEL IN OPERATING, CONTROLLING, ADJUSTING, TROUBLE-SHOOTING AND SERVICING OF ALL SYSTEMS AND EQUIPMENT DURING REGULAR WORK HOURS, PRIOR TO ACCEPTANCE.

.2 WHERE DEEMED NECESSARY, OWNER MAY RECORD THESE DEMONSTRATIONS ON VIDEO TAPE FOR FUTURE REFERENCE.

1.9 OPERATION AND MAINTENANCE MANUAL

.1 OPERATION AND MAINTENANCE MANUAL.

.2 OPERATION DATA TO INCLUDE:
.1 CONTROL SCHEMATICS FOR EACH SYSTEM INCLUDING ENVIRONMENTAL CONTROLS.
.2 DESCRIPTION OF EACH SYSTEM AND ITS CONTROLS.
.3 OPERATION INSTRUCTION FOR EACH SYSTEM AND EACH COMPONENT.
.4 DESCRIPTION OF ACTIONS TO BE TAKEN IN EVENT OF EQUIPMENT FAILURE.
.5 VALVES SCHEDULE AND FLOW DIAGRAM.
.6 COLOUR CODING CHART.

.3 MAINTENANCE DATA SHALL INCLUDE:
.1 SERVICING, MAINTENANCE, OPERATION AND TROUBLE-SHOOTING INSTRUCTIONS FOR EACH ITEM OF EQUIPMENT.

.4 PERFORMANCE DATA TO INCLUDE:
.1 EQUIPMENT MANUFACTURER'S PERFORMANCE DATA SHEETS WITH POINT OF OPERATION AS LEFT AFTER COMMISSIONING IS COMPLETE.
.2 TESTING, ADJUSTING AND BALANCING REPORTS.

.5 APPROVALS:
.1 SUBMIT 3 COPIES OF DRAFT OPERATION AND MAINTENANCE MANUAL.

1.10 CLEANING

.1 CLEAN MECHANICAL SYSTEMS IN ACCORDANCE WITH DIVISION 22 & 23.

.2 CLEAN INTERIOR AND EXTERIOR OF ALL SYSTEMS INCLUDING STRAINERS.

.3 IN PREPARATION FOR FINAL ACCEPTANCE, CLEAN AND REFURBISH ALL EQUIPMENT AND LEAVE IN OPERATING CONDITION INCLUDING REPLACEMENT OF ALL FILTERS IN ALL AIR AND PIPING SYSTEMS.

1.11 AS-BUILT DRAWINGS

.1 SITE RECORDS:
.1 ENGINEER WILL PROVIDE 1 SET OF REPRODUCIBLE MECHANICAL DRAWINGS. PROVIDE SETS OF WHITE PRINTS AS REQUIRED FOR EACH PHASE OF THE WORK. MARK THEREON ALL CHANGES AS WORK PROGRESSES AND AS CHANGES OCCUR AND RETURN TO ENGINEER FOR INCORPORATION INTO RECORD DRAWINGS.

1.12 DRIVE GUARDS

.1 PROVIDE GUARDS FOR UNPROTECTED DRIVES.

.2 PROVIDE MEANS TO PERMIT LUBRICATION AND USE OF TEST INSTRUMENTS WITH GUARDS IN PLACE.

1.13 IDENTIFICATION

.1 LOCATION OF NAMEPLATES: IN CONSPICUOUS LOCATION TO FACILITATE EASY READING FROM OPERATING FLOOR AND TO PROPERLY IDENTIFY EQUIPMENT AND/OR SYSTEM.

.2 LOCATION OF IDENTIFICATION ON PIPING & DUCTWORK SYSTEMS
.1 ON LONG STRAIGHT RUNS IN OPEN AREAS IN BOILER ROOMS, EQUIPMENT ROOMS, GALLERIES, TUNNELS : AT MORE THAN 50 FT. INTERVALS AND MORE FREQUENTLY IF REQUIRED TO ENSURE THAT AT LEAST ONE IS VISIBLE FROM ANY ONE VIEWPOINT IN OPERATING AREAS AND WALKING AISLES.
.2 ADJACENT TO ALL CHANGES IN DIRECTION.
.3 AT LEAST ONCE IN EACH SMALL ROOM THROUGH WHICH PIPING OR DUCTWORK PASSES.
.4 ON BOTH SIDES OF VISUAL OBSTRUCTION OR WHERE RUN IS DIFFICULT TO FOLLOW.
.5 ON BOTH SIDES OF SEPARATIONS SUCH AS WALLS, FLOORS AND PARTITIONS.
.6 WHERE PIPING IS INSTALLED IN PIPE CHASES, CEILING SPACES, GALLERIES OR OTHER CONFINED SPACES, AT ENTRY AND EXIT POINTS AND AT EACH ACCESS OPENING.
.7 AT BEGINNING AND END POINTS OF EACH RUN AND AT EACH PIECE OF EQUIPMENT IN RUN.
.8 AT POINT IMMEDIATELY UPSTREAM OF MAJOR MANUALLY OPERATED OR AUTOMATICALLY CONTROLLED VALVES, DAMPERS, ETC.
.9 IDENTIFICATION TO BE EASILY AND ACCURATELY READABLE.

PART 2 - PRODUCTS

2.1 INSULATION

.1 FIRE AND SMOKE RATING
.1 IN ACCORDANCE WITH CAN/ULC-S102.
.1 MAXIMUM FLAME SPREAD RATING : 25.
.2 MAXIMUM SMOKE DEVELOPED RATING: 50.

.2 P-1 FORMED MINERAL FIBER TO 400°F
.1 APPLICATION: FOR PIPING VALVES AND FITTINGS ON:
.1 DOMESTIC COLD WATER AND HOT WATER TEMPERATURE 150° F W/ VAPOR BARRIER.
.2 MATERIALS:
.1 CGSB 51-GP-9M, RIGID MINERAL FIBER SLEEVING FOR PIPING.
.2 ACCEPTABLE MATERIALS: MANSON ALLEY-K, FIBERGLAS DOUBLESURE, KNAUF FIBERGLASS PIPE INSULATION

.3 THERMAL CONDUCTIVITY "K" SHALL NOT EXCEED .236 BTU/H/SQ.FT.°F AT 75°F MEAN TEMPERATURE WHEN TESTED IN ACCORDANCE WITH ASTM C335. THICKNESS:

FLUID TEMP. (°F)	NOMINAL PIPE SIZES (NPS) 1 AND UNDER	1-1/4-2	2-1/2-4	6 & OVER
	THICKNESS (IN)			
40- 150	1/2	1	1	1

.3 D-4 MINERAL FIBER RIGID AND/OR FLEXIBLE WITH VAPOUR BARRIER TO 150°F
.1 APPLICATION: ON COLD OR DUAL TEMPERATURE RECTANGULAR DUCTING.
.1 EXHAUST AIR DUCTING FROM EXHAUST LOUVER TO 10'-0" MIN. FRESH AIR AND EXHAUST AIR DUCTS TO HRV AND ALL DUCTS IN ATTIC SPACE. ALL SUPPLY DUCTWORK FOR DUCTLESS SPLITS.

.2 MATERIAL:
.1 CGSB 51-GP-10M, AND 11 M; CGSB 51-GP-52MA VAPOUR BARRIER, JACKET AND FACING MATERIAL.
.2 ACCEPTABLE MATERIAL: MANSON AK BOARD, FIBERGLAS VAPOR SEAL INSULATION, KNAUF INSULATION BOARD
.3 RIGID EXPOSED, FLEXIBLE WHERE CONCEALED.
.3 THICKNESS:
.1 ONE AND A HALF (1 1/2) IN. FOR SUPPLY AND EXHAUST WHERE CONCEALED AND TWO (2) IN. RIGID WHERE EXPOSED.

.4 FASTENINGS
.1 PIPEWORK:
.1 TAPE: SELF ADHESIVE, ALUMINUM, ULC LABELED FOR LESS THAN 25 FLAME SPREAD AND LESS THAN 50 SMOKE DEVELOPED.
.1 ACCEPTABLE MATERIAL: FATTAL INSULTAPE, BY S., FATTAL CANVAS INC.
.2 LAP SEAL ADHESIVE: QUICK-SETTING FOR JOINTS AND LAP SEALING OF VAPOUR BARRIERS.
.1 ACCEPTABLE MATERIAL: BAKOR 230-06; CHILDERS CP.80, FOSTER 87-75 ASBESTOS FREE AT 240 SQ. FT/GAL.

.3 LAGGING ADHESIVE: FIRE RETARDANT COATING.
.1 ACCEPTABLE MATERIAL: BAKOR 120-09; CHILDERS CP.50A-HV2, FOSTER 30-36 ASBESTOS FREE AT 50 SQ.FT.\GAL.

.2 DUCTWORK:
.1 TAPE: SELF ADHESIVE, 4 IN. WIDE, ALUMINUM, ULC LABELED FOR LESS THAN 25 FLAME SPREAD AND LESS THAN 50 SMOKE DEVELOPED.
.1 ACCEPTABLE MATERIAL: FATTAL INSULTAPE BY S. FATTAL CANVAS INC.
.2 CONTACT ADHESIVE: QUICK-SETTING.
.1 ACCEPTABLE MATERIAL: BAKOR 230-06; ARMSTRONG 520, CHILDERS CP.82, FOSTER 85-20 ASBESTOS FREE, 200 SQ. FT/GAL.
.3 LAP SEAL ADHESIVE: QUICK-SETTING FOR JOINTS AND LAP SEALING OF VAPOUR BARRIERS.
.1 ACCEPTABLE MATERIAL: BAKOR 230-06, CHILDERS CP.80, FOSTER 85-75 ASBESTOS FREE, 240 SQ.FT./GAL.
.4 FOR CANVAS:
.1 WASHABLE ADHESIVE FOR CEMENTING CANVAS LAGGING CLOTH TO DUCT INSULATION.
.2 ACCEPTABLE MATERIAL: BAKOR 120-18; CHILDERS CP-52, FOSTER 8142W ASBESTOS FREE, 50 SQ.FT./GAL.

.5 PINS.
.1 WELD PINS, 12 GA. DIAMETER, FOR INSTALLATION PRIOR TO APPLYING INSULATION. LENGTH TO SUIT THICKNESS OF INSULATION. NYLON RETAIN CLIPS 1 1/4 IN. SQUARE.
.2 ACCEPTABLE MATERIAL: DURO DYNE SPOTTER PINS AND SPOTTER CLIPS OR STOP CLIPS AS REQUIRED.

.5 JACKETS: PIPE, DUCT & EQUIPMENT
.1 CANVAS.
.1 APPLY IN EXPOSED AREAS: ULC LISTED PLAIN WEAVE, COTTON FABRIC AT 6 OZ.
.2 ON CONCEALED VALVES AND FITTINGS: ULC LISTED, PLAIN WEAVE COTTON FABRIC AT 3 OZ.
.3 ACCEPTABLE MATERIAL: ALPHA MARITEX 3451-RW, CLAIRMONT DIPLAG 60, S. FATTAL THERMOCANVAS.
.2 PVC PRE CURL 15 MIL PVC JACKET

.6 ACCESSORIES
.1 FITTINGS REMOVABLE FLEXIBLE OR PRE-MOLDED INSULATION WITH CANVAS OR PVC JOINT.
.2 REMOVABLE PRE-FABRICATED INSULATION PADS C/W JACKET:
.1 VALVES OVER 2".

2.2 ACCESS DOORS

.1 SUPPLY AND INSTALL AS NECESSARY TO GAIN ACCESS TO ALL CONCEALED MECHANICAL EQUIPMENT FOR OPERATING, INSPECTING, ADJUSTING, SERVICING.

.2 SIZES: EXCEPT AS INDICATED OTHERWISE, TO BE MINIMUM SIZES AS FOLLOWS:
.1 FOR BODY ENTRY: 600 X 600 MM (24 X 24 IN).
.2 FOR HAND ENTRY: 300 X 300 MM (12 X 12 IN).

.3 CONSTRUCTION: ROUNDED SAFETY CORNERS, CONCEALED HINGES, SCREWDRIVER LATCH, ANCHOR STRAPS, ABLE TO OPEN 180E.

.4 MATERIALS:
.1 TILED OR MARBLE SURFACES AND OTHER SPECIAL AREAS: STAINLESS STEEL WITH BRUSHED SATIN OR POLISHED FINISH AS DIRECTED BY CONSULTANT.
.2 ALL OTHER AREAS: PRIME COATED STEEL.

.5 ACCEPTABLE MATERIALS: BUENSOD, LEHAGE, ZURN AND ACORDOR.

2.3 HANGERS

.1 ATTACHMENTS; FABRICATE HANGERS, SUPPORTS AND SWAY BRACES IN ACCORDANCE WITH ANSI B31.1 AND MSS-SP-58.

.2 UPPER ATTACHMENTS
.1 CONCRETE:
.1 INSERTS FOR CAST-IN-PLACE CONCRETE: GALVANIZED STEEL WEDGE FOR PIPE NPS 3/4 THROUGH NPS 8, GRINNELL FIG. 281
.2 CARBON STEEL PLATE WITH CLEVIS, FOR SURFACE MOUNT; MALLEABLE IRON SOCKET AND EXPANSION CASE AND BOLT. MINIMUM TWO EXPANSION CASES AND BOLTS FOR EACH HANGER, GRINNELL, PLATE FIG. 49, EYE NUT FIG. 290, EXPANSION CASE FIG 117.
.2 STEEL BEAM (BOTTOM FLANGE):
.1 COLD PIPING NPS 2 AND UNDER: MALLEABLE IRON C CLAMP ; GRINNELL FIG. 61, MYATT FIG.586.
.2 COLD PIPING NPS 2-1/2 AND LARGER AND ALL HOT PIPING: MALLEABLE IRON BEAM CLAMP ; GRINNELL FIG. 229, MYATT FIG. 510.
.3 STEEL BEAM (TOP):
.1 COLD PIPING NPS 2 AND UNDER: MALLEABLE IRON "TOP OF BEAM" C CLAMP; GRINNELL FIG. 61, MYATT FIG. 586.
.2 COLD PIPING NPS 2-1/2 AND LARGER AND ALL HOT PIPING: STEEL JAW, HOOK ROD WITH NUT, SPRING WASHER AND PLAIN WASHER; GRINNELL FIG. 227, MYATT FIG. 505.
.4 STEEL JOIST:
.1 COLD PIPING NPS 2 AND UNDER: STEEL WASHER PLATE WITH DOUBLE LOCKING NUTS; GRINNELL FIG. 60, MYATT FIG. 545.
.2 COLD PIPING NPS 2-1/2 AND LARGER AND ALL HOT PIPING; STEEL WASHER PLATES WITH DOUBLE LOCKING NUT, CARBON STEEL CLEVIS AND MALLEABLE IRON SOCKET; GRINNELL: WASHER PLATE, FIG. 60; CLEVIS, FIG. 66; EYE NUT, FIG. 290; MYATT: WASHER PLATE FIG. 545; CLEVIS, FIG. 530; EYE NUT, FIG. 480.
.5 STEEL CHANNEL OR ANGLE (BOTTOM):
.1 COLD PIPING NPS 2 AND UNDER; MALLEABLE IRON C CLAMP; GRINNELL FIG. 86, MYATT FIG. 586.
.2 COLD PIPING NPS 2-1/2 AND LARGER AND ALL HOT PIPING; UNIVERSAL CHANNEL CLAMP; GRINNELL FIG. 226, MYATT FIG. 503.
.6 STEEL CHANNEL OR ANGLE (TOP):
.1 COLD PIPING NPS 2 AND UNDER; MALLEABLE IRON "TOP OF BEAM" C CLAMP; GRINNELL FIG. 61, MYATT FIG. 586.
.2 COLD PIPING NPS 2-1/2 AND LARGER AND ALL HOT PIPING: STEEL JAW, HOOK ROD WITH NUT, SPRING WASHER AND PLAIN WASHER, GRINNELL FIG. 227, MYATT FIG. 506.

.3 MIDDLE ATTACHMENT (ROD):
.1 CARBON STEEL THREADED ROD CADMIUM PLATED FINISH; GRINNELL FIG. 146, MYATT FIG. 434.

.4 PIPE ATTACHMENT:
.1 SUSPENDED HOT PIPING, STEEL AND COPPER, WITH HORIZONTAL MOVEMENT IN EXCESS OF 1 IN; HOT STEEL PIPING WITH MIDDLE ATTACHMENT (ROD) 12 IN. OR LESS; PIPE ROLLER; GRINNELL FIG. 174, MYATT FIG. 258.
.2 BOTTOM SUPPORTED HOT PIPING, STEEL AND COPPER: PIPE ROLLER STAND; GRINNELL FIG. 271, MYATT FIG. 265.

.5 RISER CLAMPS: STEEL OR CAST IRON PIPE: BLACK CARBON STEEL; GRINNELL FIG. 261, MYATT FIG. 182.

.6 SADDLES AND SHIELDS: REFRIGERATION NPS 1-1/4 AND OVER: PROTECTIVE SADDLE WITH INSULATION UNDER SADDLE; GRINNELL FIG. 160 TO 166, MYATT FIG. 210 TO 240.

2.4 PLUMBING - WATER

.1 PIPE

.2 DOMESTIC, COLD SYSTEMS, WITHIN BUILDING, COPPER TUBE AND FITTINGS, HARD DRAWN TYPE L: TO ASTM B88M. BRANCH RUN-OUTS AFTER ISOLATION VALVE TYPE L COPPER AND/OR PEX POTABLE WATER PIPING. PEX PIPE JOINTS TO BE OF A TYPE APPROVED BY THE MANUFACTURER.

.3 SOLDER/BRAZING: LEAD FREE UP TO 2 inches; SILVER SOLDER, TEN (10) feet FROM DOMESTIC HOT WATER HEATER.

.4 TEFLON TAPE: FOR THREADED JOINTS.

.5 VIEGA OR APOLLO PRO-PRESS FITTINGS

.6 BALL VALVES: NPS 2 AND UNDER, SOLDERED, JENKINS 902B, TOYO 5049, CRANE 9322, WATTS B6000, NH 504, MIL BA150, KITZ, LEAD FREE.

2.5 PLUMBING - DRAINAGE

.1 COPPER TUBE AND FITTINGS; ABOVE GROUND SANITARY: TYPE DWV W/ CAST BRASS OR WROUGHT COPPER FITTINGS, UP TO 2" TO: ASTM B306. LEAD FREE SOLDER.

.2 CAST IRON PIPING AND FITTINGS; TO: CAN/CSA-B70, MECHANICAL JOINTS, TO BE USED IN MECHANICAL ROOMS.

.3 PIPING AND FITTINGS; PVC - DWV PIPING TO: CAN/CSA-B181.1, CAN/CSA-B181.2 IN EXPOSED AREAS. USE PVC-DWV TYPE XFR SOLVENT WELD FOR PVC TO B181.2 AND B182.1: TO ASTM D2564, TWO PART CLEANER AND CEMENT.

.4 UNDERGROUND: AVS-DWV WITH SOLVENT JOINTS TO CAN/CSA B181.1

2.6 PLUMBING - SPECIALITIES

.1 CLEANOUTS; ZURN ZN-1400-2C/W ETCO T-CONE STOPPER, SMITH 4020 C/W ETCO T-CONE STOPPER, ABOVE GRADE BIBBY MODEL H4031, MIFAB.

.2 VACUUM BREAKERS; WATTS 288A, FEBCO 715A.

.3 HOSE BIBBS AND SEDIMENT FAUCETS; EMCO 3741, CRANE C5046.

.4 PLUMBING FIXTURES AND TRIM, ZURN, AMERICAN STANDARD, KOHLER, CHICAGO, DELTA, AS PER PLUMBING FIXTURE SCHEDULE ON PLAN. ALL TRIM TO BE LEAD FREE CERTIFIED.

2.7 VENTILATION

.1 REFERENCES:
.1 SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
.2 SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, 2ND EDITION (1995) AND ADDENDUM NO. 1, [1997].
.3 SMACNA HVAC DUCT LEAKAGE TEST MANUAL, [1985], TECHNICAL RESEARCH UPDATE-92. LATEST 1995.

.2 SEAL CLASSIFICATION: CLASS C: TRANSVERSE JOINTS AND CONNECTIONS MADE AIR TIGHT WITH GASKETS AND SEALANT.

.3 SEALANT - WATER BASED, HIGH PRESSURE C/W LONG STRAND TELFON TEMPERATURE RANGE OF MINUS 90°F TO PLUS 200°F.

.4 DUCT LEAKAGE; IN ACCORDANCE WITH SMACNA HVAC DUCT LEAKAGE TEST MANUAL.

.5 FITTINGS: FABRICATION: TO SMACNA.

.6 GALVANIZED STEEL ; LOCK FORMING QUALITY: TO ASTM A525M, Z90 ZINC COATING; THICKNESS, FABRICATION AND REINFORCEMENT: TO ASHRAE AND SMACNA.

.7 HANGERS AND SUPPORTS:
.1 STRAP HANGERS: OF SAME MATERIAL AS DUCT BUT NEXT SHEET METAL THICKNESS HEAVIER THAN DUCT. MAXIMUM SIZE DUCT SUPPORTED BY STRAP HANGER: 20 IN.
.2 HANGER CONFIGURATION: TO ASHRAE AND SMACNA.
.3 HANGERS: BLACK STEEL ANGLE WITH BLACK STEEL RODS TO ASHRAE AND SMACNA FOLLOWING TABLE:

DUCT SIZE (INCHES)	ANGLE SIZE (INCHES)	ROD SIZE (INCHES)
UP TO 30"	1X1X3/16"	1/4"
31" TO 42"	1½X1½X3/16"	1/4"
43" TO 60"	1½X1½X3/16"	3/8"
61" TO 84"	2X2X3/16"	3/8"
85" TO 96"	2X2X1/4"	3/8"
97" AND OVER	2X2X1/4"	3/8"

.4 UPPER HANGER ATTACHMENTS:
.1 FOR CONCRETE: MANUFACTURED CONCRETE INSERTS.
.1 ACCEPTABLE MATERIAL: MYATT FIG. 485.
.2 FOR STEEL JOIST: MANUFACTURED JOIST CLAMP OR STEEL PLATE WASHER.
.1 ACCEPTABLE MATERIAL: GRINNELL FIG. 61 OR 86 FOR JOIST CLAMPS, GRINNELL FIG. 60 FOR PLATE WASHER.
.3 FOR STEEL BEAMS: MANUFACTURED BEAM CLAMPS:
.1 ACCEPTABLE MATERIAL: GRINNELL FIG 60.

.8 FLEXIBLE CONNECTIONS; FRAME: GALVANIZED SHEET METAL FRAME 16 GA. THICK WITH FABRIC CLENCHED BY MEANS OF DOUBLE LOCKED SEAMS. FIRE RESISTANT, SELF EXTINGUISHING, NEOPRENE COATED GLASS FABRIC, TEMPERATURE RATED AT MINUS 105°F TO PLUS 195°F, DENSITY OF 0.266 LBS/SQ.IN.

.9 ACCESS DOORS IN DUCTS & PLENUMS
.1 NON-INSULATED DUCTS: SANDWICH CONSTRUCTION OF SAME MATERIAL AS DUCT, ONE SHEET METAL THICKNESS HEAVIER, MINIMUM 1/4" THICK COMPLETE WITH SHEET METAL ANGLE FRAME.
.2 INSULATED DUCTS: SANDWICH CONSTRUCTION OF SAME MATERIAL AS DUCT, ONE SHEET METAL THICKNESS HEAVIER, MINIMUM 1/4" THICK COMPLETE WITH SHEET METAL ANGLE FRAME AND ONE (1) INCH THICK RIGID GLASS FIBRE INSULATION.
.3 GASKETS: NEOPRENE, ALL ACCESS DOORS.
.4 HARDWARE:
.1 UP TO 12" X 12" : 2 SASH LOCKS COMPLETE WITH SAFETY CHAIN.
.2 13" TO 18" : 4 SASH LOCKS COMPLETE WITH SAFETY CHAIN.
.3 19" TO 40" : PIANO HINGE AND MINIMUM 2 HANDLES.
.4 DOORS OVER 3 FT.: PIANO HINGE AND 2 HANDLES OPERABLE FROM BOTH SIDES.
.5 HOLD OPEN DEVICES.
.6 12" X 12" GLASS VIEWING PANELS.
.7 ACCEPTABLE MATERIAL: HANDLES; VENTRITE #310.

.10 MULTI-LEAF DAMPERS; EXTRUDED ALUMINUM, INTERLOCKING BLADES, COMPLETE WITH EXTRUDED VINYL SEALS, SPRING STAINLESS STEEL SIDE SEALS, FORMED AND WELDED GALVANIZED STEEL FRAME; PRESSURE FIT SELF-LUBRICATED BRONZE BEARINGS; LINKAGE: PLATED STEEL TIE RODS, BRASS PIVOTS AND PLATED STEEL BRACKETS, COMPLETE WITH PLATED STEEL CONTROL ROD; TAMCO 9000 FOR FRESH AIR AND EXHAUST AND 1000 FOR RETURN; NAILOR.

.11 FANS GENERAL ; CAPACITY: FLOW RATE, TOTAL STATIC PRESSURE, BHP W, EFFICIENCY, REVOLUTIONS PER MINUTE, POWER, MODEL, SIZE, SOUND POWER DATA AND AS INDICATED ON SCHEDULE; FANS: STATICALLY AND DYNAMICALLY BALANCED, CONSTRUCTED IN CONFORMITY WITH AMCA 99; ACCESSORIES AND HARDWARE: MATCHED SETS OF V-BELT DRIVES, ADJUSTABLE SLIDE RAIL MOTOR BASES, BELT GUARDS, COUPLING GUARDS, FAN INLET OUTLET SAFETY SCREENS, INLET, OUTLET DAMPERS AND VANES AND AS INDICATED; FACTORY PRIMED BEFORE ASSEMBLY IN COLOUR STANDARD TO MANUFACTURER.

.12 SUPPLY DIFFUSERS AND GRILLES EQUAL TO NAILOR, EH PRICE, TITUS, EQUAL TO NAILOR RNS FOR SUPPLY, NAILOR 81 FOR EXHAUST & RETURN AND NAILOR 61DH FOR GATHERING ROOM RETURNS. ALL SUPPLY DIFFUSERS ARE 24x24. ALL RETURN AND EXHAUST TO BE C/W 3/4" BORDER.

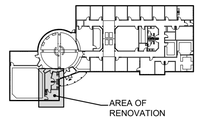
.13 TESTING, ADJUSTING AND BALANCING (TAB):
.1 ALL TAB SHALL BE DONE BY AN AABC AIR BALANCING CONTRACTOR, SCOPE OF WORK, ALL VENTILATION, DUCTLESS FAN COILS, HRV AND EXHAUST FAN.

2.8 HEATING

.1 DISTURB AS LITTLE AS POSSIBLE OF THE EXISTING IN-FLOOR HEATING. WHERE IN-FLOOR IS CUT TO REMOVE CONCRETE, INSTALL NEW PIPE AND FITTINGS OF THE SAME MANUFACTURER. TAKE PICTURES OF ALL REPAIRS AND FLOW WATER THRU PIPING BEFORE CONCRETE IS RE-POURED.

STRAIT ENGINEERING LIMITED
PORT HAWKESBURY, NOVA SCOTIA

KEY PLAN



LOGO

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1	11 Mar '22	ISSUED FOR TENDER

GRAPHIC SCALE

STAMP

SCALE	NO SCALE
DRAWN BY:	M.M.
CHECKED BY:	V.J.B.
REVIEWED BY:	V.J.B.
APPROVED BY:	V.J.B.
AS-BUILT CHECK	
DATE:	January 2022

PROJECT
MUNICIPAL BUILDING
Accessible Washroom Upgrades

ANTIGONISH, NS

PROJECT NO.: -

SHEET TITLE
MECHANICAL SPECIFICATIONS SHEET No.1

INTERNAL NO.: I/O

M-511

SHEET - OF -

PART 3 - EXECUTION

3.1 PREPARATION

.1 LAY OUT WORK IN ACCORDANCE WITH LINES AND GRADES AS INDICATED.

.2 VERIFY LINES, LEVELS, DIMENSIONS AS INDICATED AGAINST ESTABLISHED BENCHMARKS. REPORT DISCREPANCIES TO ENGINEER AND OBTAIN WRITTEN INSTRUCTION.

.3 WHEN REQUIRED BY ENGINEER, PROVIDE DRAWINGS SHOWING RELATIVE LOCATIONS OF VARIOUS SERVICES.

3.2 FIRESTOPPING

.1 MATERIAL AND INSTALLATION WITHIN ANNULAR SPACE BETWEEN PIPES, DUCTS, INSULATION AND ADJACENT FIRE SEPARATION, INCLUDING FLOOR DRAINS AND SHOWER DRAINS.

.2 UNINSULATED UNHEATED PIPES NOT SUBJECT TO MOVEMENT: NO SPECIAL PREPARATION.

.3 UNINSULATED HEATED PIPES SUBJECT TO MOVEMENT: WRAP WITH NON-COMBUSTIBLE SMOOTH MATERIAL TO PERMIT PIPE MOVEMENT WITHOUT DAMAGING FIRESTOPPING MATERIAL OR INSTALLATION.

.4 INSULATED PIPES AND DUCTS: ENSURE INTEGRITY OF INSULATION AND VAPOUR BARRIERS.

3.3 PIPE SUPPORTS

.1 INSTALL TO MANUFACTURER'S RECOMMENDATIONS.

3.4 VALVES

.1 INSTALL ISOLATING VALVES AT BRANCH TAKE-OFFS, AT PIECES OF EQUIPMENT AND ELSEWHERE AS INDICATED.

.2 INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

.3 INSTALL IN ACCESSIBLE LOCATIONS.

.4 DEPENDING UPON PIPING CONFIGURATION AND EASE OF OPERATION, ON HORIZONTAL PIPES INSTALL WITH STEM HORIZONTAL OR ABOVE.

.5 VALVES TO BE ACCESSIBLE FOR MAINTENANCE WITHOUT REMOVING ADJACENT PIPING.

3.5 HANGER SPACING AND INSTALLATION

.1 SPACING AND MIDDLE ATTACHMENT (ROD) DIAMETER AS SPECIFIED IN PARAGRAPHS BELOW OR AS IN TABLE BELOW, WHICHEVER IS MORE STRINGENT.
- .1 PLUMBING PIPING: MOST STRINGENT REQUIREMENTS OF CANADIAN PLUMBING CODE, PROVINCIAL CODE, OR AUTHORITY HAVING JURISDICTION.
- .2 COPPER PIPING: UP TO NPS 1/2: EVERY 5 FT.
- .3 WITHIN 12 IN. OF EACH HORIZONTAL ELBOW.

PIPE SIZE: NPS	ROD DIAMETER	MAXIMUM SPACING STEEL	MAXIMUM SPACING COPPER
UP TO 1-1/4	3/8 IN	7'	6'
1-1/2	3/8 IN	9'	8'
2	3/8 IN	10'	9'

.2 INSTALL HANGER SO THAT ROD IS VERTICAL UNDER OPERATING CONDITIONS.

.3 ADJUST HANGERS TO EQUALIZE LOAD.

.4 SUPPORT FROM TOP OF STRUCTURAL MEMBERS. WHERE STRUCTURAL BEARING DOES NOT EXIST OR INSERTS ARE NOT IN SUITABLE LOCATIONS, PROVIDE SUPPLEMENTARY STRUCTURAL STEEL MEMBERS.

3.6 HYDROSTATIC PRESSURE TESTS

.1 PRESSURE TESTS ARE REQUIRED TO VERIFY QUALITY ASSURANCE.

.2 GIVE ENGINEER MINIMUM OF 48 HOURS NOTICE OF INTENTION TO PERFORM PRESSURE TESTS.

.3 AFTER INSTALLATION AND BEFORE CONCEALING, SUBJECT PIPING TO HYDROSTATIC PRESSURE TESTS TO 1.5 TIMES MAXIMUM WORKING PRESSURE AND MAINTAIN TEST PRESSURE WITHOUT LOSS FOR 24 HOURS.

.4 PRIOR TO TESTS, ISOLATE EQUIPMENT AND OTHER PARTS WHICH ARE NOT DESIGNED TO WITHSTAND TEST PRESSURE OR TEST MEDIA.

.5 PROVIDE ADDITIONAL SUPPORTS TO STEAM PIPING AS REQUIRED AND REMOVE AFTER TESTING IS SUCCESSFULLY COMPLETED.

.6 CONDUCT TESTS IN PRESENCE OF ENGINEER AND AS REQUIRED BY THE BOILER INSPECTOR.

.7 BEAR COSTS FOR TESTS, FOR REPAIRS OR REPLACEMENT, RETESTING, MAKING GOOD.

3.7 INSULATION

.1 PIPEWORK:
- .1 APPLY INSULATION MATERIALS, ACCESSORIES AND FINISHES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS SPECIFIED HEREIN.
- .2 INSTALL IN ACCORDANCE WITH ANSI/NFPA 90A AND ANSI/NFPA 90B.
- .3 SEAL AND FINISH EXPOSED ENDS AND OTHER TERMINATIONS WITH INSULATING CEMENT.
- .4 FINISH CANVAS WITH TWO (2) COATS LAGGING ADHESIVE.

.2 DUCTWORK:
- .1 APPLY INSULATION MATERIALS, ACCESSORIES AND FINISHES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS SPECIFIED. FINISH CANVAS WITH TWO (2) COATS LAGGING ADHESIVE, FULL COVERAGE.
- .2 USE STAND-OFFS FOR DUCT MOUNTED CONTROL ACCESSORIES.
- .3 APPLY 18 GA. THICK GALVANIZED SHEET METAL CORNERS TO DUCTWORK IN MECHANICAL ROOMS.
- .4 INSTALL IN ACCORDANCE WITH ANSI/NFPA 90A AND ANSI/NFPA 90B.
- .5 MECHANICAL FASTENINGS: ON RECTANGULAR DUCTS, USE 50% COVERAGE OF INSULATING CEMENT AND WELD PINS AT NOT MORE THAN 8 IN. CENTRES, BUT NOT LESS THAN 2 ROWS PER SIDE AND BOTTOM.

3.8 PLUMBING - DRAINAGE

.1 INSTALLATION:
- .1 INSTALL BURIED PIPE ON 6 IN. BED OF CLEAN WASHED SAND, SHAPED TO ACCOMMODATE HUBS AND FITTINGS, TO LINE AND GRADE AS INDICATED. BACKFILL WITH 6 IN. OF CLEAN WASHED SAND.
- .2 INSTALL PIPING PARALLEL AND CLOSE TO WALLS AND CEILINGS TO CONSERVE HEADROOM AND SPACE, AND TO GRADE AS INDICATED.
- .3 GRADE PIPING AT 1/8" PER FOOT.
- .4 INSTALL FIRE STOP RINGS AND/OR FIRE STOP FLOOR SLEEVES AT EACH FLOOR OR WALL PENETRATION.

3.9 VENTILATION

.1 DO WORK IN ACCORDANCE WITH ANSI/NFPA 90A, ANSI/NFPA 90B ASHRAE CSA B228.1 AND SMACNA AS INDICATED.

.2 DO NOT BREAK CONTINUITY OF INSULATION VAPOUR BARRIER WITH HANGERS OR RODS. INSULATE STRAP HANGERS 4 IN. BEYOND INSULATED DUCT.

.3 SUPPORT RISERS IN ACCORDANCE WITH ASHRAE AND SMACNA AS INDICATED.

.4 INSTALL BREAKAWAY JOINTS IN DUCTWORK ON EACH SIDE OF FIRE SEPARATION.

.5 INSTALL PROPRIETARY MANUFACTURED FLANGED DUCT JOINTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

.6 STRAP HANGERS: INSTALL IN ACCORDANCE WITH SMACNA.

.7 ANGLE HANGERS: COMPLETE WITH LOCKING NUTS AND WASHERS.

.8 HANGER SPACING: IN ACCORDANCE WITH ASHRAE, SMACNA - AS FOLLOWS:

DUCT SIZE (INCHES)	SPACING (INCHES)
TO 60"	120
61" AND OVER	100

.9 PROVIDE WATERTIGHT DUCT FOR: SLOPE EXHAUST DUCT BACK TO LOUVER.

.10 FORM BOTTOM OF HORIZONTAL DUCT WITHOUT LONGITUDINAL SEAMS. SEAL ALL OTHER JOINTS WITH DUCT SEALER.

.11 APPLY SEALANT TO OUTSIDE OF JOINT TO MANUFACTURER'S RECOMMENDATIONS.

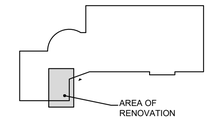
.12 BED TAPE IN SEALANT AND RECOAT WITH MINIMUM OF 1 COAT OF SEALANT TO MANUFACTURERS RECOMMENDATIONS.

.13 FLEXIBLE CONNECTIONS - INSTALLATION
- .1 INSTALL IN FOLLOWING LOCATIONS:
  - .1 INLETS AND OUTLETS OF EXHAUST AND RETURN AIR FANS.
- .2 ACCESS DOORS AND VIEWING PANELS:
  - .1 SIZE:
    - .1 12" X 12" FOR SERVICING ENTRY.
    - .2 8" X 8" FOR VIEWING.
- .3 LOCATION:
  - .1 AT FIRE AND SMOKE DAMPERS.
  - .2 AT CONTROL DAMPERS.
  - .3 AT DEVICES REQUIRING MAINTENANCE.
  - .4 AT LOCATIONS REQUIRED BY CODE.
  - .5 AT EXHAUST AIR PLENUMS.
  - .6 AT 30' INTERVALS FOR DUCT CLEANING.

.14 FIRE DAMPERS; INSTALL IN ACCORDANCE WITH ANSI/NFPA 90A AND IN ACCORDANCE WITH CONDITIONS OF ULC LISTING; MAINTAIN INTEGRITY OF FIRE SEPARATION.

STRAIT ENGINEERING LIMITED
PORT HAWKESBURY, NOVA SCOTIA

KEY PLAN



LOGO

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A.H.ROY File No. 2021-2875

GRAPHIC SCALE

DATE	MARK	ISSUE
11 Mar '22	1	ISSUED FOR TENDER

STAMP

SCALE	NO SCALE
DRAWN BY:	M.M.
CHECKED BY:	V.J.B.
REVIEWED BY:	V.J.B.
APPROVED BY:	V.J.B.
AS-BUILT CHECK	
DATE:	January 2022

PROJECT
MUNICIPAL BUILDING
Accessible Washroom Upgrades

ANTIGONISH, NS

PROJECT NO.: -

SHEET TITLE

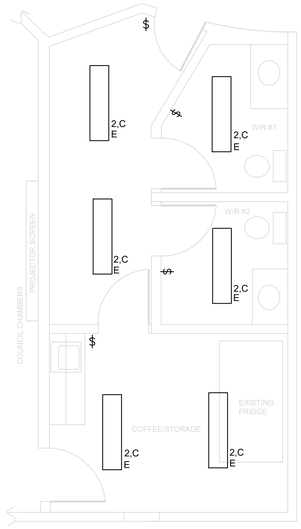
MECHANICAL SPECIFICATIONS SHEET No.2

INTERNAL NO.: I/O

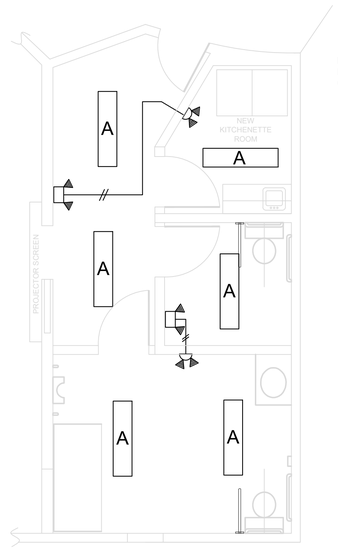
M-512

SHEET - OF -

NOTES
1. SUFFIX E INDICATES EXISTING TO BE REMOVED
2. NO SUFFIX INDICATES EXISTING TO REMAIN



DETAIL 1 EXISTING ELECTRICAL LAYOUT
SCALE 1/4" =1'-0"



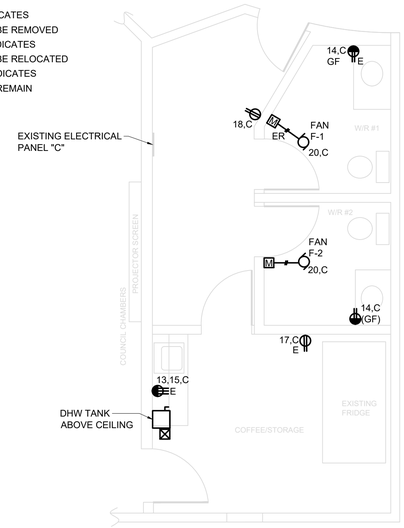
PROVIDE NEW TYPE "A" LIGHT FIXTURES & WIRE TO EXISTING CIRCUITRY

DETAIL 4 REVISED ELECTRICAL LAYOUT
SCALE 1/4" =1'-0"

TABLE 1/40 ELECTRICAL LEGEND

- NEMA 5-15R TYPE GROUNDED DUPLEX RECEPTACLE AND STAINLESS STEEL COVERPLATE ASSEMBLY AS PER SPEC MTD. 18" A.F.F. WIRED TO 1P-15A BREAKER UNLESS OTHERWISE NOTED. SUFFIX WP INDICATES C/W WEATHERPROOF COVERPLATE SUFFIX GF INDICATES PROTECTED BY GROUND FAULT TYPE BREAKER.
- NEMA 5-15R TYPE RECEPTACLE SAME AS ABOVE BUT MOUNT AT 48" A.F.F.
- SAME AS ABOVE BUT SPLITWIRED & WIRED TO 2P-15A BREAKER.
- NEMA 5-20R TYPE RECEPTACLE SAME AS ABOVE FOR EMERGENCY BATTERY PACK MOUNTED AT 7'-6" A.F.F.
- M — MANUAL STARTER SUPPLIED & INSTALLED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED. SUFFIX PL INDICATES C/W PILOT LIGHT. (USE WEATHERPROOF TYPE IF INSTALLED OUTDOORS OR IN WET AREAS) INSTALL FLUSH MOUNTED MODEL IN FINISHED AREAS AND SURFACE MOUNTED MODEL (ON SURFACE TYPE BOX) WHERE CONDUIT IS RUN EXPOSED SUCH AS IN PENTHOUSE AREA.
- FUSIBLE DISCONNECT SWITCH C/W FUSES AS PER SPEC.BY ELECT.CONT'R.
- SINGLE PHASE MOTOR TO BE WIRED BY THE ELECTRICAL CONTRACTOR WITH HP AS NOTED. NOTE: ELECTRICAL CONTRACTOR MUST VERIFY EXACT LOCATION OF ALL MOTORS ON ALL MECHANICAL DRAWINGS AND/OR SHOP DRAWINGS BEFORE INSTALLING CONDUIT & BOXES FOR SAME. SUFFIX FF WITHIN SYMBOL INDICATES FORCE FLOW UNIT & SUFFIX UH INDICATES UNIT HEATER.
- DIRECT CONNECTION FROM OUTLET BOX TO TERMINAL BOX OF UNIT.
- FEEDER OR BRANCH CIRCUIT WIRING RUN CONCEALED IN CEILING OR WALL SPACE ON UNDERSIDE OF SLAB IF NO CEILING. QUANTITY OF CROSS STROKES INDICATES QUANTITY OF CONDUCTORS.
- $ $$ $$$ — 15A 120V SINGLE, DOUBLE & 3-GANG RESPECTIVELY TUMBLER SWITCH MTD. 48" A.F.F. C/W APPROVED SIZE BOX OR BOXES & BRUSHED ALUMINUM COVERPLATES. SUFFIX 3 INDICATES 3-WAY.
- REMOTE HEAD — EMERGENCY LIGHTING BATTERY STANPRO CAT#SLA-12072-2S-5LAWH-AT & C/W 2-5W MR16 HEADS. REMOTE HEADS TO BE STANPRO CAT#N2-06-12V5WLJWH
- PB — PUSH BUTTON STATION FOR DOOR OPERATOR. PROVIDE 2 GANG OUTLET BOX & RUN ¾"C TO CEILING & TO OPERATOR.
- A — TYPE A LIGHT FIXTURE TO BE STANPRO. L2STH SERIES 1'X4' LED LIGHT FIXTURE CAT#L2STN-48LS3-Q/3C FEATURING 4000 LUMEN, 3500K 80 CRI LIGHT SOURCE & C/W FROSTED DIFFUSER.

NOTES
1. SUFFIX E INDICATES EXISTING TO BE REMOVED
2. SUFFIX ER INDICATES EXISTING TO BE RELOCATED
3. NO SUFFIX INDICATES EXISTING TO REMAIN



DETAIL 2 EXISTING ELECTRICAL LAYOUT
SCALE 1/4" =1'-0"

DETAIL 4 REVISED ELECTRICAL LAYOUT
SCALE 1/4" =1'-0"

SHEET 36"x 24"

SEL STRAIT ENGINEERING LTD. CONSULTING ENGINEERS
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2	ISSUED FOR TENDER	10 FEB 2022
1	ISSUED FOR PRELIMINARY REVIEW	02 FEB 2022
REVISIONS		DATE

A — Detail No.
B — Drawing No.

PROJECT
Antigonish Municipal Building Renovation
Accessible Washroom Upgrades

LOCATION
ANTIGONISH, NOVA SCOTIA

DRAWING
EXISTING AND REVISED LAYOUTS

SCALE	DATE
AS NOTED	Jan. 2022

DRAWN BY	CHECKED	REVIEWED
D.C.	P.J.D.	

APPROVED | DEPT. APPROVAL

SEAL

REGISTERED PROFESSIONAL ENGINEER — DATE FEB 10/2022 — P. J. Doiron — 3676 — PROVINCE OF NOVA SCOTIA

SEAL

DEPT. JOB No. —

CONSULTANT'S NO. 2021–2875

TENDER NO.

DRAWING NO. 40

TABLE 1/41 ELECTRICAL SPECIFICATION

PART 1 GENERAL

1. SUPPLY, INSTALL & REMOVE ALL MATERIAL DESCRIBED THEREIN AND ON THE DRAWINGS SO AS TO FORM A COMPLETE AND OPERATIONAL JOB.

2. RUN ALL CONDUIT & CABLE PARALLEL OR PERPENDICULAR TO BUILDING LINES.

3. ALL CABLES AND CONDUITS SHALL BE SUPPORTED INDEPENDENTLY OF EXISTING PIPES, CONDUITS AND EQUIPMENT. CONDUITS AND CABLE SHALL NOT LAY DIRECTLY UPON THE CEILING FROM SUPPORT. CABLES AND CONDUITS SHALL RUN A MINIMUM OF 6" FROM HOT WATER LINES.

4. ALL CABLES SHALL BE TAGGED AT BOTH ENDS USING PANDUIT PLD TYPE LABELS.

5. ALL CONDUIT RUNS SHALL CONTAIN A PULL CORD TO ACCOMMODATE FUTURE INSTALLATIONS.

6. ALL BRANCH CIRCUITS AND COMPONENTS ON DISTRIBUTION PANELS AND FUSIBLE DISCONNECT SWITCHES SHALL BE PROPERLY IDENTIFIED AS TO WHAT THEY SERVE, FEED, ETC., SO AS TO PROVIDE FOR EASE OF MAINTENANCE, USE BLACK LAMOCOID NAME PLATES WITH WHITE LETTERS OUTSIDE UNITS & DIRECTORY INSIDE PANELS. ALL BRANCH CIRCUIT CONDUCTORS WITHIN PANELS SHALL BE LACED WITH T&B TY-RAP CABLE TIES AND SHALL BE IDENTIFIED ON THE TYPE SELF LAMINATING LABELS INSTALLED IN A "FLAGGED" MANNER. UPDATE PANEL DIRECTORIES WITH NEW CIRCUIT CONNECTIONS IN A TYPED MANNER. ALL RECEPTACLES SHALL ALSO BE IDENTIFIED WITH LAMACOID PLATES RIVETED TO BLOCK WALLS & GLUED TO DRYWALL. COLOR CODED DOTS ARE TO BE USED ON T-BAR CEILING SPLINES TO IDENTIFY ELECTRICAL DEVICES, JUNCTION BOXES, ETC. THAT ARE ABOVE T-BAR CEILING.

7. FIRE SEAL ANY PENETRATIONS USING FIRE SEALING PRODUCT APPROVED FOR USE WITH THE ASSEMBLY BEING INSTALLED, FOR ALL CONDUITS RUNNING BETWEEN SUITES OR FLOORS. THE APPLICATION SPECIFIC SHOP DRAWING SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW BY THE CONSULTANT PRIOR TO INSTALLATION.

8. DURING CONSTRUCTION AND AT THE COMPLETION OF THIS PROJECT, THE SITE SHALL BE LEFT NEAT, TIDY AND FREE OF DEBRIS.

9. ALL BRANCH CIRCUIT WIRING SHALL BE ACCOMPLISHED USING RW90 CABLE IN EMT CONDUIT RUN CONCEALED OR BY BX CABLE CONCEALED. ALL CABLE AS WELL AS CONDUIT & RACEWAY SHALL B SIZED IN ACCORDANCE WITH THE ELECTRICAL CODE. REPLACE EXISTING BRANCH WIRING AS REQUIRED. USE SURFACE RACEWAY ON CONCRETE WALLS.

10. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL THE CONTRACT DOCUMENTS INCLUDING ARCHITECTURAL & MECHANICAL DRAWINGS & SPECIFICATIONS.

11. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH ALL REQUIREMENTS OF THE NSPI & CANADIAN ELECTRICAL CODE CSA STANDARD C.22.1 PART 1 & THE REQUIREMENTS OF THE FIRE MARSHALL'S OFFICE AS MINIMUM STANDARDS. THESE STANDARDS TOGETHER WITH ALL LOCAL OR MUNICIPAL RULES, REGULATIONS AND ORDINANCES SHALL BE CONSIDERED AS THE LATEST APPROVED EDITIONS AT THE TIME OF TENDER CLOSING. IN NO INSTANCE SHALL THE STANDARD ESTABLISHED BY THE CONTRACT DOCUMENTS, BE REDUCED BY ANY CODES.

12. THE CONTRACTOR SHALL OBTAIN ALL SUCH PERMITS REQUIRED BEFORE AND/OR AFTER COMPLETION OF THE ELECTRICAL WORK AND SHALL FURNISH THE OWNER AND/OR ENGINEER WITH A CERTIFICATE OF FINAL INSPECTION FROM THE INSPECTION DEPARTMENT OF THE ELECTRIC UTILITY, THE CONTROL. SHALL BE RESPONSIBLE FOR CHECKING WITH THE INSPECTION AUTHORITIES PRIOR TO THE INSTALLATION & SHALL MAKE ANY ADJUSTMENTS NECESSARY. INCLUDE FOR ALL COSTS LEVIED BY THE LOCAL POWER & TELEPHONE UTILITIES.

13. THE CONTRACTOR SHALL MAKE A CAREFUL EXAMINATION OF THE EXISTING EQUIPMENT AND THE SITE OF THE WORK AND THE EXISTING CONDITIONS IN ORDER TO BECOME ACQUAINTED WITH THE EXTENT OF THE WORK INVOLVED AND WITH ANY DIFFICULTIES WITH THE INSTALLATION OF EQUIPMENT. NO ALLOWANCES OF EXTRAS WILL BE ALLOWED FOR EXTRA EXPENSE DUE TO CONDITIONS ENCOUNTERED DURING THE COURSE OF THE WORK THAT COULD HAVE BEEN DETERMINED BY A SITE VISIT.

14. THE WORK SHALL BE GUARANTEED FOR A PERIOD OF 12 MONTHS AFTER FINAL ACCEPTANCE.

15. ALL EQUIPMENT AND EXPOSED NON-CURRENT CARRYING METAL, CONDUITS AND PARTS SHALL BE PERMANENTLY AND EFFICIENTLY GROUNDED TO MEET MINIMUM OF THE C.E.C. SECTION 10. ALSO ENSURE ADDITIONAL STANDARDS OF THE ELECTRIC UTILITY & M.T.&T. & ALIANT ARE ADHERED TO

16. ALL OUTLETS MAY BE RELOCATED UP TO 15' PROVIDED THE ENGINEER NOTIFIES THE CONTRACTOR BEFORE THE OUTLET IS INSTALLED.

17. ALL EQUIPMENT SPECIFICATIONS & SHOP DRAWINGS SHALL BE INCLUDED IN THE OPERATIONS & MAINTENANCE MANUALS. PROVIDE SHOP DRAWINGS FOR ALL NEW EQUIPMENT PROVIDED ON THE PROJECT. PROVIDE RECORD DRAWINGS WHEN PROJECT IS COMPLETE INDICATING ALL CHANGES TO THE DRAWINGS.

18. THIS CONTRACTOR IS TO REMOVE ALL REDUNDANT OUTLET BOXES, CONDUIT AND/OR CABLE.

PART 2 - POWER DISTRIBUTION

1. ALL POWER WIRES SHALL BE STRANDED RW90 COPPER IN EMT CONDUIT UNLESS OTHERWISE NOTED. USE STEEL SET SCREW CONNECTORS FOR EMT. AC90 (BX) MAY BE USED FOR CONCEALED BRANCH CIRCUIT WIRING.

2. SUPPLY AND INSTALL A GREEN INSULATED BOND #12AWG MIN. IN ALL NEW POWER CONDUIT DO NOT USE BARE BONDING WIRES. PROVIDE SEPARATE BOND FOR EACH CIRCUIT IN AREAS WHERE COMPUTERS WILL BE USED (i.e. CASH REGISTERS)

3. TEST THAT ALL POWER WIRES ARE FREE OF SHORTS, GROUNDS, ETC., AND THAT INSULATION VALUES ARE PER CEC.

4. LIQUID SEAL FLEXIBLE METAL CONDUIT, NOT SMALLER THAN 3/8"' INSIDE DIAMETER, SHALL BE USED FOR CONNECTIONS TO ALL MOTORS AND VIBRATING EQUIPMENT, WITH A MAXIMUM OF #12 AWG IN 3/8" CONDUIT.

5. WIRE SIZED TO BE INCREASED TO MEET CEC REQUIREMENTS OR AS OTHERWISE NOTED, WHICHEVER IS LARGER.

6. WIRING ON CONDUITS EXCEEDING 50 VOLTS TO GROUND, SHALL BE OF SOFT DRAWN, STRANDED COPPER OF 98% CONDUCTIVITY, AND OF FULL AWG SIZE AS FOLLOWS:
   - 6.1. INSULATION TYPE SHALL BE RW90 X-LINK, RATED AT 600 VOLTS
   - 6.2. INSULATION COVERINGS FOR GROUND AND/OR BOND CONDUCTORS TO BE THERMOPLASTIC TYPE "TW75" RATED AT 600 VOLTS.
   - 6.3. MINIMUM WIRE SIZE UNLESS NOTED OTHERWISE SHALL BE #12 AWG.
   - 6.4. THE FOLLOWING TABLE IS TO BE USED TO COMPENSATE FOR VOLTAGE DROP FOR ALL 120V, 15A BRANCH CIRCUIT WIRING, AND IS TO INCLUDE BOTH "VERTICAL" AND "HORIZONTAL" LENGTHS OF CONDUCTOR RUNS. HOWEVER THE VOLTAGE DROP CALCULATION SHALL BE DONE AND WIRE SIZE INCREASED IF REQUIRED.

CIRCUIT RUN LENGTH	PHASE WIRE SIZE	BOND WIRE SIZE
1' TO 80'	#12	#14
81' TO 125'	#10	#12
126' TO 185'	#8	#10

7. PROVIDE 20A BREAKERS FOR ALL T-SLOT RECEPTACLES IN CORRIDORS

8. ALL STRANDED CONDUCTORS PRIOR TO TERMINATING UNDER DEVICE BOLTS SUCH AS CIRCUIT BREAKERS, LIGHT SWITCHES, RECEPTACLES, ETC., ARE TO BE TWISTED TOGETHER SO AS TO FORM A SINGLE CONDUCTOR TO ENSURE A RELIABLE MECHANICAL CONNECTION.

9. TYE-WRAPPING TO THE NEUTRAL WITH ITS RESPECTIVE PHASE CONDUCTORS ARE TO HAVE THEIR RESPECTIVE PHASE CONDUCTORS TYE-WRAPPED TOGETHER IN ACCORDANCE TO METHODS DESCRIBED PREVIOUSLY.

10. ALL FEEDERS OR BRANCH CIRCUITS WHICH DO NOT HAVE NEUTRAL CONDUCTORS ARE TO HAVE THEIR RESPECTIVE PHASE CONDUCTORS TYE-WRAPPED TOGETHER IN ACCORDANCE TO THE METHODS DESCRIBED PREVIOUSLY.

11. ALL PHASE CONDUCTOR SIZES UP TO AND INCLUDING #2 AWG AND NEUTRALS, BONDS AND GROUND CONDUCTORS UP TO AND INCLUDING #3/O AWG SHALL BE COLOR CODED AS FOLLOWS:

PHASE "A"	RED
PHASE "B"	BLACK
PHASE "C"	BLUE
NEUTRAL	WHITE OR GREY
BOND	GREEN
GROUND	GREEN

12. RECEPTACLES ARE TO BE WHITE IN COLOR AND BE SPECIFICATION GRADE SUCH AS HUBBELL 5252 SERIES C/W MATCHING COVER PLATES MADE OF STAINLESS STEEL.

13. PROVIDE NEW BREAKERS IN EXISTING PANELS AS REQUIRED. COMPLETE PANEL DIRECTORIES INDICATING CIRCUITS.

14. PROVIDE WEATHERPROOF EQUIPMENT AS INDICATED ON THE DRAWINGS FOR MECHANICAL EQUIPMENT LOCATED OUTDOORS

15. PROVIDE CONNECTIONS TO ALL MECHANICAL EQUIPMENT ON PROJECT.

16. PROVIDE CONNECTIONS TO ALL OWNER SUPPLIED EQUIPMENT.

17. CONDUIT TO BE RUN CONCEALED. ALL CABLES AS WELL AS CONDUIT & RACEWAYS SHALL BE SIZED IN ACCORDANCE WITH THE ELECTRICAL CODE. USE AC90 CABLE FOR BRANCH CIRCUIT DROPS IN CONCEALED AREAS. HOME RUNS FROM ALL OUTLETS OR CIRCUITS SHALL BE RW90. AC90 (BX) CABLE WILL NOT BE USED FOR HOME RUNS.

18. PANELBOARDS ARE TO BE C/W FACTORY INSTALLED BONDING TERMINAL STRIPS. IF MORE THAN ONE STRIP EXISTS BOND THEM TOGETHER WITH BONDING CONDUCTOR OF THE SAME SIZE AS THAT ACCOMPANYING THE PANEL FEEDER.

19. BRANCH CIRCUIT PANELBOARDS (225A AND SMALLER)
   - 19.1. EACH BRANCH CIRCUIT SHALL BE CLEARLY IDENTIFIED ON A TYPEWRITTEN DIRECTORY, WITH DIRECTORY BEING PROTECTED BY A CLEAR PLASTIC COVER
   - 19.2. PANELBOARD ENCLOSURES ARE NOT TO BE LESS THAN 20" IN TOTAL WIDTH.
   - 19.3. BRANCH CIRCUIT PANELBOARDS ARE TO BE FITTED WITH LOCK TYPE DOORS.
   - 19.4. PANEL BOARDS ARE TO BE C/W THE FOLLOWING:
     - 19.4.1. MINIMUM OF 10% SPARE 15A 1 POLE CIRCUIT BREAKERS
     - 19.4.2. MINIMUM OF 10% SPARE SPACES FOR 1 POLE CIRCUIT BREAKERS
     - 19.4.3. MINIMUM OF 10% OF BREAKER LOCKING DEVICES, BASED ON TOTAL NUMBER OF CIRCUIT BREAKERS THAT PANEL CAN ACCEPT.

PART 3 - LIGHTING

1. SUBMISSIONS FOR LIGHTING APPROVED EQUALS ARE TO MEET ALL SPECIFIED STANDARDS INDICATED FOR EACH TYPE. SUBMISSIONS MUST BE APPROVED PRIOR TENDER CLOSING.

2. LED LUMINAIRES ARE TO TESTED TO THE IES-TM21-12 STANDARD TO LUMEN MAINTAINANCE

3. ALL LUMINAIRES TO HAVE COLOUR TEMPERATURE THAT MATCH EXISTING AND/OR EACH OTHER.

5. EMERGENCY LIGHTING SHALL BE FED WITH THE SAME CIRCUITRY AS THE NORMAL POWERED LIGHTING IN THE AREA TO WHICH THE EMERGENCY LIGHTING IS INTENDED TO SERVICE.

SHEET 36"x 24"

SEL STRAIT ENGINEERING LTD. CONSULTING ENGINEERS
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REVISIONS		DATE
2	ISSUED FOR TENDER	10 FEB 2022
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Accessible Washroom Upgrades

LOCATION
ANTIGONISH, NOVA SCOTIA

DRAWING
ELECTRICAL SPECIFICATIONS

SCALE	DATE
AS NOTED	Jan. 2022

DRAWN BY	CHECKED	REVIEWED
D.C.	P.J.D.	

APPROVED | DEPT. APPROVAL

SEAL

REGISTERED PROFESSIONAL ENGINEER DATE FEB 10/2022 P. J. Doiron 3676 PROVINCE OF NOVA SCOTIA

SEAL

DEPT. JOB No. —

CONSULTANT'S NO. 2021–2875

TENDER NO.

DRAWING NO. 41