MECHANICAL NOTES

MECHANICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS FOR THIS PROJECT.

1 GENERAL:
.1 CONFORM WITH APPLICABLE REQUIREMENTS OF THE MINISTRY OF LABOUR, AND THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
.2 DO COMPLETE INSTALLATION IN ACCORDANCE WITH THE FOLLOWING:
 .1 ONTARIO BUILDING CODE (OBC);
 .2 NATURAL GAS AND PROPANE INSTALLATION CODE (GAS CODE);
 .3 ASHRAE;
 .4 SMACNA;
 .5 NFPA;
 .6 ALL OTHER RELEVANT CODES AND STANDARDS, AS APPLICABLE.
.3 OBTAIN ALL PERMITS REQUIRED FOR THE INSTALLATION OF MECHANICAL TRADES WORK, ARRANGE FOR INSPECTIONS AND TESTS, AND PAY ALL FEES AND COSTS FOR THE PERMITS, INSPECTIONS AND FEES. OBTAIN PERMITS IMMEDIATELY AFTER NOTIFICATION OF AWARD OF CONTRACT.
.4 PROVIDE THREE COPIES OF COMPLETE OPERATING AND MAINTENANCE INSTRUCTIONS FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT. BIND INSTRUCTIONS IN 3-RING BINDERS. INCLUDE THE FOLLOWING:
 .1 SCHEMATIC DIAGRAM OF ELECTRICAL SYSTEMS.
 .2 CONTROL SHOP DRAWINGS AND OPERATING SEQUENCE INCLUDING WIRING OF COMPONENTS.
 .3 WIRING DIAGRAM OF CONTROL PANELS.
 .4 OPERATING INSTRUCTIONS, INCLUDING START-UP AND SHUT-DOWN PROCEDURE.
 .5 MAINTENANCE INSTRUCTIONS INCLUDING PREVENTIVE MAINTENANCE INSTRUCTIONS FOR COMPONENTS OF THE EQUIPMENT.
 .6 COMPLETE PARTS LIST OF ASSEMBLIES AND THEIR COMPONENT PARTS, SHOWING MANUFACTURER'S NAME, CATALOGUE NUMBER, AND NEAREST REPLACEMENT SOURCE.
 .7 LIST OF RECOMMENDED SPARE PARTS AND QUANTITY OF EACH ITEM TO BE STOCKED.
 .8 MANUFACTURERS' WARRANTIES AND GUARANTEES.
.5 CLEAN ALL MECHANICAL SYSTEMS AT PROJECT COMPLETION.
.6 COMPLETE AS-BUILT DRAWINGS SHOWING ALL CHANGES AS WORK PROGRESSES.

2 CONTRACTOR QUALIFICATIONS:
.1 ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE "TRADE QUALIFICATION AND APPRENTICESHIP ACT" AND REGULATIONS, BY PERSONS WHO HOLD THE FOLLOWING CERTIFICATES OF QUALIFICATION (AS APPLICABLE):
 .1 PLUMBER;
 .2 REFRIGERATION & AIR CONDITIONING SYSTEMS MECHANIC;
 .3 RESIDENTIAL AIR CONDITIONING SYSTEMS MECHANIC;
 .4 SHEET METAL WORKER.
.2 ALL FUELS-RELATED WORK TO BE CARRIED OUT IN ACCORDANCE WITH TSSA REQUIREMENTS AND ONTARIO REGULATION 215/01, "FUEL INDUSTRY CERTIFICATES" BY PERSONS WHO HOLD THE APPROPRIATE CERTIFICATES FOR THE WORK BEING PERFORMED.

3 EXISTING FACILITIES AND DEMOLITION:
.1 LOCATE AND PROTECT ALL EXISTING EXTERIOR SITE SERVICES.
.2 RETAIN AND PROTECT ALL EXISTING INTERIOR SERVICES AND BUILDING FABRIC. MAKE GOOD ANY AND ALL DAMAGE RESULTING FROM THIS WORK.
.3 CONNECTIONS TO EXISTING SERVICES SHALL BE COORDINATED WITH THE OWNER.
.4 EXECUTE WORK WITH LEAST POSSIBLE INTERFERENCE OR DISTURBANCE TO NORMAL USE OF THE EXISTING BUILDING.
.5 EXISTING SANITARY PIPING:
 .1 PERFORM A CAMERA INSPECTION OF THE EXISTING SANITARY SERVICE TO CONFIRM EXISTING SANITARY PIPE SIZE, LOCATION AND CONDITION. REPORT ANY PIPE BLOCKAGES, INADEQUATE SLOPES, LOW SPOTS, AND POOR CONDITION TO ENGINEER, FOR COMMENT AND DIRECTION.
 .2 FLOOR CUTTING:
  .1 CONDUCT THERMAL IMAGING OF THE FLOOR IN ALL AREAS OF FLOOR CUTTING AND REMOVAL, TO LOCATE BURIED ELECTRICAL SERVICES (IF ANY).
  .2 CAREFULLY SAWCUT FLOOR TO PERMIT INSTALLATION OF NEW SANITARY PIPING.
  .3 REINSTATE FLOOR TO ORIGINAL CONDITION, FOLLOWING INSTALLATION OF NEW PLUMBING.
.6 DESIGNATED SUBSTANCES:
 .1 DESIGNATED SUBSTANCES SHALL BE TREATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS.
 .2 SHOULD ANY DESIGNATED SUBSTANCES BE ENCOUNTERED IN THE AREA OF CONSTRUCTION, ALL WORK SHALL STOP IMMEDIATELY, AND THE OWNER AND ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
 .3 IF APPLICABLE, ASBESTOS REMOVAL SHALL BE COMPLETED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND ONTARIO REGULATION 278 "DESIGNATED SUBSTANCE - ASBESTOS ON CONSTRUCTION PROJECTS AND IN BUILDINGS AND REPAIR OPERATIONS".

4 FIXTURES AND EQUIPMENT:
.1 PROVIDE SHOP DRAWINGS AND PRODUCT DATA FOR ALL MECHANICAL FIXTURES AND EQUIPMENT FOR APPROVAL, PRIOR TO PROCUREMENT.
.2 INSTALL ALL MECHANICAL FIXTURES AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
.3 LOCATE ALL EQUIPMENT WITH CLEARANCES, AS REQUIRED BY THE MANUFACTURER, THE FUEL CODES, AND ALL OTHER CODES AND REGULATIONS, INCLUDING THE FOLLOWING CLEARANCES:
 .1 TO PERMIT PROPER EQUIPMENT OPERATION;
 .2 TO PERMIT SUFFICIENT AIRFLOW AROUND EQUIPMENT;
 .3 FOR EQUIPMENT SERVICE;
 .4 SUFFICIENT DISTANCE FROM COMBUSTIBLE MATERIAL;
 .5 WITH SUFFICIENT VENT CLEARANCES;
 .6 SUFFICIENT DISTANCE FROM ROOF EDGES OR OTHER HAZARDS.

5 EQUIPMENT SUPPLIED BY OTHERS:
.1 MAKE ALL MECHANICAL SERVICE CONNECTIONS TO EQUIPMENT SUPPLIED BY OTHERS.
.2 CONFIRM ALL SERVICE CONNECTIONS WITH MANUFACTURER AND SUPPLIER, PRIOR TO INSTALLATION. THIS SHALL INCLUDE ALL CONNECTION SIZES, LOCATIONS AND DETAILS, AND SHALL TAKE INTO ACCOUNT EQUIPMENT CLEARANCES AND INSTALLATION REQUIREMENTS.

6 PIPING AND ESCUTCHEONS:
.1 PROVIDE DIELECTRIC UNIONS AT ALL PIPING LOCATIONS WHERE DISSIMILAR METALS ARE JOINED.
.2 PROVIDE ESCUTCHEONS ON ALL PIPES PASSING THROUGH WALLS, PARTITIONS, FLOORS AND CEILINGS, CHROME, NICKEL PLATED BRASS OR TYPE 302 STAINLESS STEEL.

7 ACCESS DOORS:
.1 SUPPLY ACCESS DOORS, AS REQUIRED IN DUCTWORK AND WALL/CEILING ASSEMBLIES, TO ALL CONCEALED MECHANICAL EQUIPMENT AND OPERATING DEVICES. ACCESS DOORS IN WALL/CEILING ASSEMBLIES TO BE INSTALLED BY OTHER TRADES.
.2 ACCESS DOORS SHALL BE FIRE-RATED TYPE, WHERE USED IN FIRE-RATED ASSEMBLIES, AND SHALL MATCH THE RATING OF THE ASSEMBLY.

8 PIPE INSULATION:
.1 INSTALL IN ACCORDANCE WITH THERMAL INSULATION ASSOCIATION OF CANADA (TIAC) NATIONAL STANDARDS.
.2 MAX. FLAME SPREAD RATING: 25.
.3 MAX. SMOKE DEVELOPED RATING: 50.
.4 DOMESTIC COLD WATER (DCW):
 .1 1" RIGID MOULDED MINERAL FIBRE WITH VAPOUR RETARDER JACKET.
 .2 INSULATE ALL PIPING IN FLOORS, WALLS AND CEILINGS, TO POINT OF FIXTURE CONNECTIONS.
.5 DOMESTIC HOT WATER (DHW):
 .1 1" RIGID MOULDED MINERAL FIBRE FOR PIPING UP TO 1-1/4" SIZE
 .2 INSULATE ALL PIPING IN FLOORS, WALLS AND CEILINGS, TO POINT OF FIXTURE CONNECTIONS.
.6 OUTER JACKET:
 .1 CONCEALED LOCATIONS: ALL SERVICE JACKET.
 .2 EXPOSED LOCATIONS: PVC JACKET.
 .3 MECHANICAL/SERVICE ROOMS: PVC JACKET.

9 WATER SERVICE AND WATER SUPPLY PIPING:
.1 ABOVE GROUND: COPPER TUBE, HARD DRAWN, TYPE L. CAN. OR US MANUFACTURE, INCLUDING FITTINGS. LEAD-FREE SOLDER.
.2 WATER SUPPLY PIPING IS SHOWN SCHEMATICALLY. ALL PIPING SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
.3 INSTALL TUBING CLOSE TO BUILDING STRUCTURE TO MINIMIZE FURRING, CONSERVE HEADROOM AND SPACE. GROUP EXPOSED PIPING AND RUN PARALLEL TO WALLS.
.4 ISOLATE ALL EQUIPMENT, FIXTURES AND BRANCHES WITH VALVES.
.5 TEST WATER SYSTEM AT 1½ TIMES SYSTEM OPERATING PRESSURE OR MINIMUM 860 KPA, WHICHEVER IS GREATER. TEST PRESSURE AND TIMEFRAME SHALL BE AS REQUIRED BY OBC 7.3.7.2.
.6 FLUSH OUT, DISINFECT AND RINSE SYSTEM, PRIOR TO CONSTRUCTION COMPLETION.
.7 TRAP SEAL PRIMERS AND ACCESS TO THEM, SHALL BE LOCATED IN THE WASHROOM OR AREA THAT THEY SERVE.
.8 SUPPLY AND INSTALL WATER HAMMER ARRESTORS AT THE MIDPOINT AND END OF RUNS OF WATER SUPPLY PIPING AS REQUIRED BY OBC 7.6.1.14.

10 DRAINAGE, WASTE AND VENT PIPING:
.1 COORDINATE SANITARY SERVICE INSTALLATIONS WITH SUPPLY AUTHORITY.
.2 APPROXIMATE SUB-FLOOR PIPING ELEVATIONS HAVE BEEN INDICATED ON THE DRAWINGS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING FINAL INVERTS BASED ON SITE CONDITIONS.
.3 BELOW GROUND/FLOOR:
 .1 ABS DWV SOLID WALL SCHEDULE 40, CERTIFIED TO CAN/CSA STANDARD B181.1.
 .2 PVC DWV SOLID WALL SCHEDULE 40, CERTIFIED TO CAN/CSA STANDARD B181.2.
 .3 CAST IRON.
 .4 PVC DWV, TYPE SDR26 SDR35.
.4 ABOVE GROUND:
 .1 CAST IRON, TYPE DWV.
 .2 COPPER, TYPE DWV.
 .3 PVC DWV SOLID WALL SCHEDULE 40, CERTIFIED TO CAN/CSA STANDARD B181.2, FOR NONCOMBUSTIBLE CONSTRUCTION (FLAME-SPREAD RATING NOT MORE THAN 25 PER CAN/ULC-S102.2).
 .4 PVC DWV SOLID WALL SCHEDULE 40, CERTIFIED TO CAN/CSA STANDARD B181.2, FOR NONCOMBUSTIBLE CONSTRUCTION (FLAME-SPREAD RATING NOT MORE THAN 25 AND SMOKE DEVELOPED CLASSIFICATION NOT MORE THAN 50 PER CAN/ULC-S102.2 - PLENUMS).
.5 PROVIDE CLEANOUTS AS REQUIRED BY THE ONTARIO BUILDING CODE.
.6 VENT COMPLETE PLUMBING SYSTEM IN ACCORDANCE WITH THE ONTARIO BUILDING CODE.

11 GAS PIPING:
.1 STEEL PIPE, SCHEDULE 40, SEAMLESS, SCREWED FITTINGS.
.2 SLOPE PIPING DOWN IN DIRECTION OF FLOW TO LOW POINTS.
.3 TEST SYSTEM IN ACCORDANCE WITH NATURAL GAS AND PROPANE INSTALLATION CODE.

12 DUCTWORK:
.1 RECTANGULAR DUCT:
 .1 RIGID GALVANIZED STEEL, LOCK FORMING QUALITY TO ASTM A653/A653M
 .2 THICKNESS, FABRICATION, REINFORCEMENT AND SUPPORT/ATTACHMENT TO ASHRAE OR SMACNA.
.2 ROUND DUCT:
 .1 RIGID GALVANIZED STEEL, LOCK FORMING QUALITY TO ASTM A653/A653M
 .2 THICKNESS, FABRICATION, REINFORCEMENT AND SUPPORT/ATTACHMENT TO ASHRAE OR SMACNA.
 .3 FLEXIBLE BRANCH DUCT (PERMITTED WITHIN 2m/6ft FROM OUTLET):
  .1 ALL METAL TYPE: TRIPLE LOCK, ALUMINUM CORRUGATED DUCT, MANUFACTURED USING AN ALUMINUM STRIP, WHICH IS SPIRALLY WOUND AND MECHANICALLY JOINED TOGETHER FORMING AN AIR TIGHT AND LEAKPROOF SEAM.
.3 SEAL CLASSIFICATION:
 .1 CLASS A: LONGITUDINAL SEAMS, TRANSVERSE JOINTS, DUCT WALL PENETRATIONS AND CONNECTIONS MADE AIRTIGHT WITH SEALANT AND TAPE.
.4 FITTINGS
 .1 FABRICATION: TO SMACNA.
 .2 RADIUSED ELBOWS.
  .1 RECTANGULAR: STANDARD WITH CENTRELINE RADIUS 1.5 TIMES DUCT DIMENSION, WITH SINGLE THICKNESS TURNING VANES.
  .2 ROUND: FIVE PIECE WITH CENTRELINE RADIUS 1.5 TIMES DIAMETER.
 .3 MITRED ELBOWS, RECTANGULAR: WITH DOUBLE THICKNESS TURNING VANES.
.5 BRANCHES:
 .1 RECTANGULAR MAIN AND BRANCH: WITH RADIUS ON BRANCH 1.5 TIMES WIDTH OF DUCT 45 DEGREES ENTRY ON BRANCH.
 .2 ROUND MAIN AND BRANCH: ENTER MAIN DUCT AT 45 DEGREES WITH CONICAL CONNECTION.
 .3 PROVIDE VOLUME CONTROL DAMPER IN BRANCH DUCT NEAR CONNECTION TO MAIN DUCT.
 .4 MAIN DUCT BRANCHES: WITH SPLITTER DAMPER.
.6 TRANSITIONS:
 .1 DIVERGING: 20 DEGREES MAXIMUM INCLUDED ANGLE.
 .2 CONVERGING: 30 DEGREES MAXIMUM INCLUDED ANGLE.
.7 FIRE STOPPING
 .1 RETAINING ANGLES AROUND DUCT, ON BOTH SIDES OF FIRE SEPARATION IN ACCORDANCE WITH SECTION.
 .2 FIRE STOPPING MATERIAL AND INSTALLATION MUST NOT DISTORT DUCT.
.8 DAMPERS:
 .1 MANUFACTURE TO SMACNA STANDARDS.
.2 SINGLE BLADE DAMPERS:
  .1 FABRICATE FROM SAME MATERIAL AS DUCT, BUT ONE SHEET METAL THICKNESS HEAVIER. V_GROOVE STIFFENED.
  .2 SIZE AND CONFIGURATION TO RECOMMENDATIONS OF SMACNA.
  .3 LOCKING QUADRANT (WITH SHAFT EXTENSION TO ACCOMMODATE INSULATION THICKNESS, IF REQUIRED).
  .4 INSIDE AND OUTSIDE NYLON END BEARINGS.
  .5 CHANNEL FRAME OF SAME MATERIAL AS ADJACENT DUCT, COMPLETE WITH ANGLE STOP.
.9 DUCT LEAKAGE: IN ACCORDANCE WITH SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL.
.10 ALL DUCT AND SEAL MATERIALS TO HAVE A FLAME SPREAD RATING OF LESS THAN 25 AND A SMOKE DEVELOPED CLASSIFICATION OF LESS THAN 50.
.11 PROVIDE FLEXIBLE CONNECTIONS AT ALL EQUIPMENT DUCT CONNECTION POINTS.

13 DUCT INSULATION:
.1 REFER TO DRAWING FOR DUCT THAT IS IDENTIFIED TO BE INSULATED.
.2 INSTALL IN ACCORDANCE WITH THERMAL INSULATION ASSOCIATION OF CANADA (TIAC) NATIONAL STANDARDS.
.3 MAX. FLAME SPREAD RATING: 25.
.4 MAX. SMOKE DEVELOPED RATING: 50.
.5 THERMAL INSULATION - RECTANGULAR DUCT:
 .1 1" (R4.3) RIGID MINERAL FIBRE BOARD WITH VAPOUR RETARDER JACKET.
 .2 ALUMINUM JACKET WITH MOISTURE BARRIER.

14 MECHANICAL FIRE PROTECTION:
.1 REFER TO ARCHITECTURAL DRAWINGS, TO VERIFY LOCATION OF ALL FIRE SEPARATIONS AND FIRE-RATED MEMBRANES.
.2 ALL PIPING SHALL BE TIGHTLY FITTED AND SEALED WITH FIRESTOPPING MATERIAL AT ALL FIRE SEPARATIONS AND FIRE-RATED MEMBRANES.
.3 FIRE DAMPERS:
 .1 FIRE DAMPERS SHALL BE CAN/ULC-S112 (STANDARD METHOD OF FIRE TEST OF FIRE DAMPER ASSEMBLIES) LISTED AND LABELED.
 .2 FIRE DAMPERS SHALL BE NFPA 80 (STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES), NFPA 90A (STANDARD FOR THE INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS), AND NFPA 101 (LIFE SAFETY CODE) COMPLIANT.
 .3 DUCTWORK SHALL BE FITTED WITH FIRE DAMPERS AT ALL FIRE SEPARATIONS AND FIRE-RATED MEMBRANES.
 .4 SUPPLY AND INSTALL ACCESS DOORS IN ARCHITECTURAL FINISH (WALL, CEILING OR FLOOR) TO ACCESS DUCT, IN COMMON AREA WHERE POSSIBLE.
 .5 SUPPLY AND INSTALL TIGHTLY-FITTED ACCESS DOOR IN DUCT TO ACCESS, INSPECT AND RESET FIRE DAMPER.
 .6 TYPES:
  .1 STATIC - FOR USE IN AIR HANDLING SYSTEMS THAT SHUTDOWN UPON FIRE ALARM.
 .7 RATING:
  .1 1-1/2 HR (30MIN TO 2HR FIRE RESISTANCE RATING).
.4 FIRE DAMPER AND DUCT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS, AND SHALL BE SEALED WITH FIRESTOPPING MATERIAL.
.5 ALL MECHANICAL MATERIALS USED WITHIN CEILING RETURN AIR PLENUMS SHALL FLAME-SPREAD RATING NOT MORE THAN 25 AND SMOKE DEVELOPED CLASSIFICATION NOT MORE THAN 50 PER CAN/ULC-S102.2.
.6 MOCK-UPS:
 .1 PREPARE MOCK-UPS OF TYPICAL FIRESTOP INSTALLATION OF THE FOLLOWING, FOR REVIEW AND APPROVAL BY THE OWNER, ENGINEER AND MUNICIPAL BUILDING INSPECTOR:
  .1 SANITARY PIPING - WALL AND CEILING/FLOOR FIRE SEPARATION;
  .2 DCW AND DHW PIPING - WALL AND CEILING/FLOOR FIRE SEPARATION;
  .3 FIRE DAMPER INSTALLATION - WALL AND CEILING/FLOOR FIRE SEPARATION.
 .2 ALL FIRESTOP INSTALLATIONS SHALL BE COMPLETED IN ACCORDANCE WITH THE APPROPRIATE PRODUCT INSTALLATION INSTRUCTIONS, AND THE REFERENCED UL/ULC LISTING AND/OR TEST STANDARD.
 .3 SUPPLY A COPY OF THE PRODUCT INSTALLATION INSTRUCTIONS WITH ULC LISTING AND/OR TEST STANDARD REFERENCE, FOR EACH INSTALLATION.
 .4 MOCK-UP MAY REMAIN AS PART OF WORK.

15 MECHANICAL IDENTIFICATION:
.1 IDENTIFY MECHANICAL EQUIPMENT WITH LAMICOID NAMEPLATES.
.2 LABEL ALL PIPING AT LEAST ONCE IN EVERY ROOM, AND AT NO MORE THAN 25 FT CENTERS.

16 EARTHQUAKE LOAD:
.1 ALL MECHANICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE EARTHQUAKE LOAD AND EFFECTS REQUIRED BY THE ONTARIO BUILDING CODE.
.2 MECHANICAL ELEMENTS AND COMPONENTS (EQUIPMENT, PIPES, DUCTS, ETC.), AND THEIR CONNECTIONS TO THE BUILDING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SMACNA/ANSI SEISMIC RESTRAINT MANUAL OR OTHER GUIDELINE REFERENCED IN THE ONTARIO BUILDING CODE.
.3 PROVIDE SHOP DRAWINGS FOR SUPPORT, CONNECTIONS AND SEISMIC RESTRAINT OF ALL MECHANICAL EQUIPMENT, PIPES AND DUCTS, INCLUDING, BUT NOT LIMITED TO:
 .1 AIR HANDLING AND PTAC UNITS;
 .2 TYPICAL DUCT SUPPORTING SYSTEM;
 .3 TYPICAL SAN, DCW, DHW PIPE SUPPORTING SYSTEM;
 .4 TYPICAL GAS PIPE SUPPORTING SYSTEM.
 THESE SHOP DRAWINGS SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE PROVINCE OF ONTARIO, WITH EXPERIENCE IN SEISMIC ENGINEERING.
.4 FOLLOWING PROJECT COMPLETION, SEISMIC ENGINEER SHALL PROVIDE A LETTER OF FINAL SITE REVIEW.
.5 CONTRACTOR SHALL CARRY THE COST OF THE SEISMIC ENGINEERING, INCLUDING SITE REVIEWS, DESIGN AND SHOP DRAWING PREPARATION.

17 EQUIPMENT AND MATERIALS SUPPORT:
.1 ALL MECHANICAL EQUIPMENT, PIPING, DUCTWORK, AND RELATED ITEMS SHALL BE SECURELY SUPPORTED, ATTACHED AND FASTENED TO BUILDING STRUCTURE.
.2 PIPE HANGERS AND SUPPORTS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH MSS STANDARD SP-58, PIPE HANGERS AND SUPPORTS - MATERIALS, DESIGN, MANUFACTURE, SELECTION, APPLICATION, AND INSTALLATION.

18 COORDINATION:
.1 INFORMATION INVOLVING ACCURATE DIMENSIONING OF THE BUILDING SHALL BE TAKEN FROM SITE BY CONTRACTOR.
.2 DRAWINGS ARE IN DIAGRAMMATIC FORM, INTENDED TO CONVEY THE SCOPE OF WORK AND GENERAL ARRANGEMENT FOR EQUIPMENT. COORDINATE PHYSICAL LOCATION OF ALL EQUIPMENT WITH OTHER TRADES AND ALLOW FOR ANY ADDITIONAL PIPING, DUCTING, FITTINGS, SUPPORTS, ETC., IN ORDER TO AVOID INTERFERENCE AND FACILITATE THE WORK.
.3 CONTRACTOR TO MAKE ANY NECESSARY MODIFICATIONS OR ADDITIONS, WITHOUT CHARGE, TO ACCOMMODATE SITE CONDITIONS AND COORDINATION.
.4 COORDINATE ALL MECHANICAL EQUIPMENT WIRING, INCLUDING LOW VOLTAGE CONTROL WIRING, WITH ELECTRICAL TRADES.

19 START-UP, COMMISSIONING AND TRAINING:
.1 COMMISSIONING:
 .1 START-UP AND COMMISSION THE FOLLOWING SYSTEMS:
  .1 PLUMBING FIXTURES;
  .2 HVAC.
 .2 PERFORM SYSTEMATIC TESTS, PROCEDURES AND CHECKS ON SYSTEMS, AS FOLLOWS:
  .1 TO VERIFY OPERATION IN ACCORDANCE WITH CONTRACT DOCUMENTS, DESIGN CRITERIA AND INTENT, AND MANUFACTURER'S REQUIREMENTS;
  .2 TO ENSURE APPROPRIATE DOCUMENTATION IS PROVIDED;
  .3 TO EFFECTIVELY TRAIN BUILDING OPERATIONAL STAFF.
 .3 SYSTEMS ARE TO BE OPERATED AT FULL CAPACITY, WITH CORRECTION OF ALL DEFICIENCIES AND ADJUSTMENTS TO MEET OPTIMUM PERFORMANCE.
 .4 PROVIDE WRITTEN REPORT AT END OF COMMISSIONING OUTLINING EQUIPMENT OPERATIONAL CONDITIONS AND PARAMETERS.
.2 TESTING, ADJUSTING AND BALANCING:
 .1 TEST, ADJUST AND BALANCE (TAB) ALL PLUMBING AND HVAC EQUIPMENT AND SYSTEMS; INCLUDING THE FOLLOWING:
  .1 PTAC UNITS;
  .2 AIR HANDLING UNITS.
 .2 TAB PROCEDURE SHALL BE COMPLETED IN ACCORDANCE WITH ASHRAE STANDARD 111, MEASUREMENT, TESTING, ADJUSTING AND BALANCING OF BUILDING HVAC SYSTEMS.
 .3 PROVIDE DETAILED REPORT AT END OF TAB, IN ACCORDANCE WITH THE REPORTING PROCEDURES OF ASHRAE STANDARD 111.
.3 DEMONSTRATION AND TRAINING:
 .1 DEMONSTRATE OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS TO OWNER'S PERSONNEL ONE WEEK PRIOR TO DATE OF FINAL INSPECTION
 .2 PRIOR TO DEMONSTRATION AND TRAINING, ENSURE THAT EQUIPMENT HAS BEEN INSPECTED AND PUT INTO OPERATION, INCLUDING COMPLETION OF COMMISSIONING AND TESTING, ADJUSTING, AND BALANCING.
 .3 DEMONSTRATE START_UP, OPERATION, CONTROL, ADJUSTMENT, TROUBLE_SHOOTING, SERVICING, AND MAINTENANCE OF EACH ITEM OF EQUIPMENT.
 .4 INSTRUCT PERSONNEL IN PHASES OF OPERATION AND MAINTENANCE USING OPERATION AND MAINTENANCE MANUALS AS BASIS OF INSTRUCTION. REVIEW CONTENTS OF MANUAL IN DETAIL TO EXPLAIN ASPECTS OF OPERATION AND MAINTENANCE.

PACKAGED TERMINAL AIR CONDITIONING (PTAC) UNIT SCHEDULE

UNIT	DESCRIPTION	HEATING Heat Pump (Btu/hr)	HEATING Electric (kW)	COOLING Heat Pump (Btu/hr)	INDOOR AIRFLOW (cfm)	OUTSIDE AIR (cfm)	ELECTRICAL VOLT	PHASE	MCA	MOCP	ACCEPTABLE PRODUCT	NOTES
PTAC-1	PACKAGED TERMINAL	11200	3.3	12100	420/353	70	240	1	18.6	20	LG #LP	STANDARD:
PTAC-2	HEAT PUMP UNIT											- HIGH ENERGY EFFICIENCY
											OR APPROVED EQUAL	- AUTO RESTART
												- DIGITAL CONTROL DISPLAY
												- TEMPERATURE LIMITING
												- ENERGY SAVER MODE
												- FREEZE ROOM PROTECTION
												- CONDENSER ANTI-CORROSION
												- ULTRA QUIET OPERATION
												- POWER CORD
												OPTIONS:
												- WALL SLEEVE
												- CONDENSATE DRAIN KIT
												- LEVELLING LEGS
												EXTERIOR GRILLE:
												- ALUMINUM CLEAR

REGISTER, GRILLE & DIFFUSER SCHEDULE

UNIT	DESCRIPTION	CONSTRUCTION	CONFIGURATION PATTERN	BLADE SPACING	FRAME	FINISH	ACCEPTABLE PRODUCT
S1	SA DIFFUSER	STEEL	4 CONE	-	LAY-IN INVERTED T	OFF-WHITE	EH PRICE
	CEILING		FIXED		DRYWALL FLANGE	(MATCH EXISTING)	#SCD STEEL
	SQUARE CONE		AIR PATTERN				
							OR APPROVED EQUAL
R1	EGG CRATE RA	STEEl	FIXED GRID	12x12x25mm	LAY-IN INVERTED T	WHITE/OFF-WHITE	EH PRICE
	CEILING			1/2x1/2x1in	DRYWALL FLANGE		#81
							OR APPROVED EQUAL

PLUMBING FIXTURE SCHEDULE

UNIT	DESCRIPTION	PIPE SIZE TRAP (in) (mm)	WASTE (in) (mm)	VENT (in) (mm)	DCW (in) (mm)	DHW (in) (mm)	ACCEPTABLE PRODUCT	NOTES
WC-1	WATER CLOSET - TANK	INT	3"	2"	1/2"	-	WATERCLOSET - AMERICAN STANDARD #2462 (CADET)	PRESSURE ASSISTED, ELONGATED WHITE
			75	50	13	-	SEAT - CENTOCO	HEAVY DUTY, OPEN FRONT SEAT WITH COVER, WHITE, SS HINGE
							OR APPROVED EQUAL	MAX. WATER CONSUMPTION - 6.0 Lpf, 1.6 gpf
								DIM L x W x H - 768 x 521 x 743 mm, 30.25 x 20.5 x 29.25 in
								RIM HEIGHT - 381 mm, 15 in
WC-2	WATERCLOSET - TANK	INT	3"	2"	1/2"	-	WATERCLOSET - AMERICAN STANDARD #2315 228	ROUND FRONT, WHITE
	CHILD'S		75	50	13	-	(BABY DEVORO)	HEAVY DUTY, OPEN FRONT SEAT WITH COVER, WHITE, SS HINGE
							SEAT - AMERICAN STANDARD #5001G.055	MAX. WATER CONSUMPTION - 4.8 Lpf, 1.07 gpf
							OR APPROVED EQUAL	DIM L x W x H - 633 x 439 x 611 mm, 25 x 17.25 x 24 in
								RIM HEIGHT - 260 mm, 10.25 in
LA-1	LAVATORY	1-1/2	1-1/2"	1-1/4"	1/2"	1/2"	AMERICAN IMAGINATIONS	WHITE, POP-UP DRAIN
	WALL HUNG	38	38	32	13	13	#AI-1331	OVERALL DIM - W x FTB x D - 500 x 350 x 108 mm, 19.75x13.75x4.25 in
							AMERICAN STANDARD	
							#7385 SINGLE LEVER FAUCET	MAX. WATER CONSUMPTION - 8.35 Lpm, 2.2 gpm
							OR APPROVED EQUAL	
LA-2	LAVATORY	1-1/2"	1-1/2"	1-1/4"	1/2"	1/2"	FRANKE MIRANIT #SANW200	OVERALL DIM - W x FTB x D - 1470 x 450 x 240mm
	DOUBLE TROUGH	38	38	32	13	13	AMERICAN STANDARD	MAX. WATER CONSUMPTION - 8.35 Lpm, 2.2 gpm
							#7055 AUTO FAUCET, BATTERY POWERED	2 FAUCETS
							OR APPROVED EQUAL	
S-1	BAR SINK	1-1/2"	1-1/2"	1-1/4"	1/2"	1/2"	FRANKE KINDRED #LBS1306 SINK	COMPARTMENT - 11"x13"x6" DP
	SINGLE BOWL WITH LEDGE	38	38	32	13	13	MOEN #5965	OVERALL - 15.5"x15.1"
							OR APPROVED EQUAL	
S-2	KITCHEN SINK	1-1/2"	1-1/2"	1-1/4"	1/2"	1/2"	FRANKE KINDRED #LBS6407 SINK	STAINLESS STEEL, LEVER HANDLES
	SINGLE BOWL WITH LEDGE	38	38	32	13	13	MOEN #7175	OVERALL DIM - W x FTB x D - 410 x 520 x 178mm, 16.125 x 20.5 x 7 in
								BOWL DIM - W x FTB x D - 355 x 406 x 178mm, 14 x 16 x 7 in
							OR APPROVED EQUAL	MAX. WATER CONSUMPTION - 8.35 Lpm, 2.2 gpm
S-3	KITCHEN SINK	1-1/2"	1-1/2"	1-1/4"	1/2"	1/2"	FRANKE KINDRED #LBD6407 SINK	STAINLESS STEEL, LEVER HANDLES
	DOUBLE BOWL WITH LEDGE	38	38	32	13	13	MOEN #7175	OVERALL DIM - W x FTB x D - 794 x 520 x 178mm, 31.25 x 20.5 x 7 in
								BOWL DIM - W x FTB x D - 355 x 406 x 178mm, 14 x 16 x 7 in
							OR APPROVED EQUAL	MAX. WATER CONSUMPTION - 8.35 Lpm, 2.2 gpm
SS-1	SERVICE SINK	2"	2"	1-1/2"	1/2"	1/2"	FIAT	23"x21"x13"
	LAUNDRY TYPE	50	50	38	13	13	#FL1 SINK, #A-1 TRIM	MOULDED STONE, WHITE
	SINGLE COMPARTMENT						OR APPROVED EQUAL	
EW-1	EYE/FACE WASH	1-1/4"	1-1/4"	1-1/4"	1/2"	1/2"	BRADLEY	STAINLESS STEEL BOWL
	BARRIER FREE	32	32	32	13	13	#S19-210BF	GALV. STEEL PIPING
	PEDESTAL MOUNTED							SAFETY YELLOW PAINT
								ALL STAINLESS STEEL
DW	DISHWASHER	1-1/2"	1-1/2"	1-1/4"	-	3/4"	SUPPLIED BY OWNER	
		38	38	32		19	INSTALLED BY CONTRACTOR	
CW	CLOTHESWASHER	2"	2"	1-1/2"	1/2"	1/2"	SUPPLIED BY OWNER	PROVIDE RECESSED WALL BOX
		50	50	38	13	13	INSTALLED BY CONTRACTOR	FOR SAN., DCW, DHW
FD-1	FLOOR DRAIN	3"	3"	1-1/2"	1/2"	-	WATTS FD-100	SUIT FLOOR FINISH
	ROUND	75	75	38	13		ZURN	CAST IRON BODY
	HEAVY DUTY							NICKEL BRONZE STRAINER
							OR APPROVED EQUAL	AUTOMATIC TRAP SEAL PRIMER/FLAP
FCO	FLOOR CLEANOUT	-	SIZE	-	-	-	WATTS CO-200	SUIT FLOOR FINISH
	ROUND		PER				ZURN	CAST IRON BODY
			PIPE					NICKEL BRONZE TOP, GASKET
							OR APPROVED EQUAL	BRASS CLEANOUT PLUG, GASKET
WCO	WALL CLEANOUT	-	SIZE	-	-	-	WATTS CO-380	SUIT WALL FINISH
	ROUND		PER				ZURN	CAST IRON FERRULE
			PIPE					BRASS PLUG
							OR APPROVED EQUAL	STAINLESS STEEL COVER

RANGE HOOD SCHEDULE

UNIT	DESCRIPTION	FAN CFM	ESP	DUCT CONN (in)	ELECTRICAL VOLT	PHASE	MOCP	ACCEPTABLE PRODUCT	NOTES
RH-1	RANGE HOOD	150	0.1	3.25x10	120	1	15A	BROAN #BKDN	3 SPEED PUSHBUTTON
	30"	to		DUCTED					WITH LCD
	STAINLESS STEEL	350							3 LEVEL LED LIGHT
								OR APPROVED EQUAL	CAP - GALV. STEEL WALL, COLOUR TO MATCH WALL

EXHAUST FAN (CABINET) SCHEDULE

UNIT	DESCRIPTION	FAN FLOW	ESP	DRIVE	SONES	DUCT CONN	ELECTRICAL VOLT (V)	PHASE	POWER (W)	ACCEPTABLE PRODUCT	NOTES
EF-1	EXHAUST FAN	39 L/s	3 mm	DIRECT	2.3	254 x 83 mm	120	1	39	PENN BARRY	DIM - L x W x D - 318 x 232 x 232 mm, 12.5 x 9.125 x 9.125 in
		83 CFM	0.125 in			10 x 3.25 in				#Z3	GRILLE - 280 x 337 mm, 11 x 13.25 in
										GREENHECK	CONTROL - WALL SWITCH
										OR APPROVED EQUAL	GRILLE - WHITE STEEL
											CAP - WALL
											LINED HOUSING, BACKDRAFT DAMPER
Ef-2	EXHAUST FAN	77 L/s	3 mm	DIRECT	3.3	254 x 83 mm	120	1	79	PENN BARRY	DIM - L x W x D - 318 x 232 x 232 mm, 12.5 x 9.125 x 9.125 in
		163 CFM	0.125 in			10 x 3.25 in				#Z5	GRILLE - 280 x 337 mm, 11 x 13.25 in
										GREENHECK	CONTROL - HUMIDISTAT
										OR APPROVED EQUAL	GRILLE - WHITE STEEL
											CAP - WALL
											LINED HOUSING, BACKDRAFT DAMPER

AIR HANDLING UNIT SCHEDULE

UNIT	DESCRIPTION	FAN DRIVE	CFM	ESP (in)	COOLING TC (Mbtu/hr)	EER	HEATING INPUT (Mbtu/hr)	OUTPUT (Mbtu/hr)	ELECTRICAL VOLT	PHASE	MCA	MOCP	ACCEPTABLE PRODUCT	NOTES
AHU-1	HVAC UNIT	BELT	2000	0.8	60.0	13	130.0	106.0	240	1	45.0	60	CARRIER #48FC	CURB (SEISMIC)
	ELECTRIC COOLING												LENNOX	ECONOMIZER WITH ENTHALPY CONTROLS
	PROPANE													STAINLESS STEEL HEAT EXCHANGER
														LOW AMBIENT CONTROL/OPERATION
													OR APPROVED EQUAL	LOW LEAKAGE DAMPERS
														2" THROWAWAY FILTERS
														CO2 SENSOR & DEMAND CONTROL VENTILATION
														FACTORY DISCONNECT
														7-DAY DIGITAL PROGRAMMABLE
														THERMOSTAT TO MEET ASHRAE 90.1:
														- 7 DAY SCHEDULE
														- 10 HR POWER LOSS
														- 2 HR MANUAL OVERRIDE
														- SETBACK TO 55F (13C)
														- SETUP TO 90F (32C)
														FIRST YEAR WARRANTY SERVICE
														5-YEAR COMPRESSOR WARRANTY
														10-YEAR HEAT EXCHANGER WARRANTY

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	SAN	SANITARY DRAIN ABOVE FLOOR/GRADE
	SAN	SANITARY DRAIN BELOW FLOOR/GRADE
SV	VENT	SANITARY VENT
	STM	STORM DRAIN ABOVE FLOOR/GRADE
	STM	STORM DRAIN BELOW FLOOR/GRADE
	WCO	WALL CLEANOUT
	FCO	FLOOR CLEANOUT
	LCO	LINE CLEANOUT
	GCO	GRADE CLEANOUT
	DCW	DOMESTIC COLD WATER
	DHW	DOMESTIC HOT WATER
	DHWR	DOMESTIC HOT WATER RETURN
GAS GAS	GAS	NATURAL GAS

HVAC LEGEND

SYMBOL	DESCRIPTION
SA	SUPPLY AIR
RA	RETURN AIR
EA	EXHAUST AIR
OA	OUTDOOR AIR
12x8	DUCT SIZE, RECTANGULAR, FIRST FIGURE IS SIDE SHOWN
8"Ø	DUCT SIZE, ROUND
	DUCT SECTION, SUPPLY
	DUCT SECTION, RETURN OR EXHAUST
12x8	ACOUSTICAL INSULATION LINING
	ACOUSTICAL INSULATION LINING
	FLEXIBLE CONNECTION
	ELBOW, RECTANGULAR(r=1.5W)
	ELBOW, WITH VANES, RECTANGULAR(r=1.5W)
	ELBOW, WITH VANES, RECTANGULAR
	TRANSITIONS FOT - FLAT ON TOP, FOB - FLAT ON BOTTOM
	TEE, RECTANGULAR MAIN AND TAP
	TEE, RECTANGULAR MAIN AND TAP WITH DAMPER
	TEE, RECTANGULAR
	WYE, RECTANGULAR
VD	VOLUME DAMPER
FD	FIRE DAMPER
	WALL SUPPLY GRILLE OR REGISTER
	WALL EXHAUST/RETURN GRILLE OF REGISTER
	CEILING SUPPLY DIFFUSER
	CEILING RETURN GRILLE
600x600 'S1' 100	CEILING OR REGISTER DESIGNATION – SIZE (mm) – L/S – TYPE
T	THERMOSTAT

NOTES:

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1	GB	FOR FINAL REVIEW	2020-01-10
0	MP	FOR REVIEW	2019-10-29

COLBOURNE & KEMBEL, ARCHITECTS INC.
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PROJECT
YARKER DAYCARE RENOVATION
4513 COUNTY RD #1, YARKER, ON

DRAWING
MECHANICAL NOTES & SCHEDULES

SCALE
NTS

PROFESSIONAL SEAL
LICENSED PROFESSIONAL ENGINEER
2020-02-05
M. A. MORRIS
PROVINCE OF ONTARIO
NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

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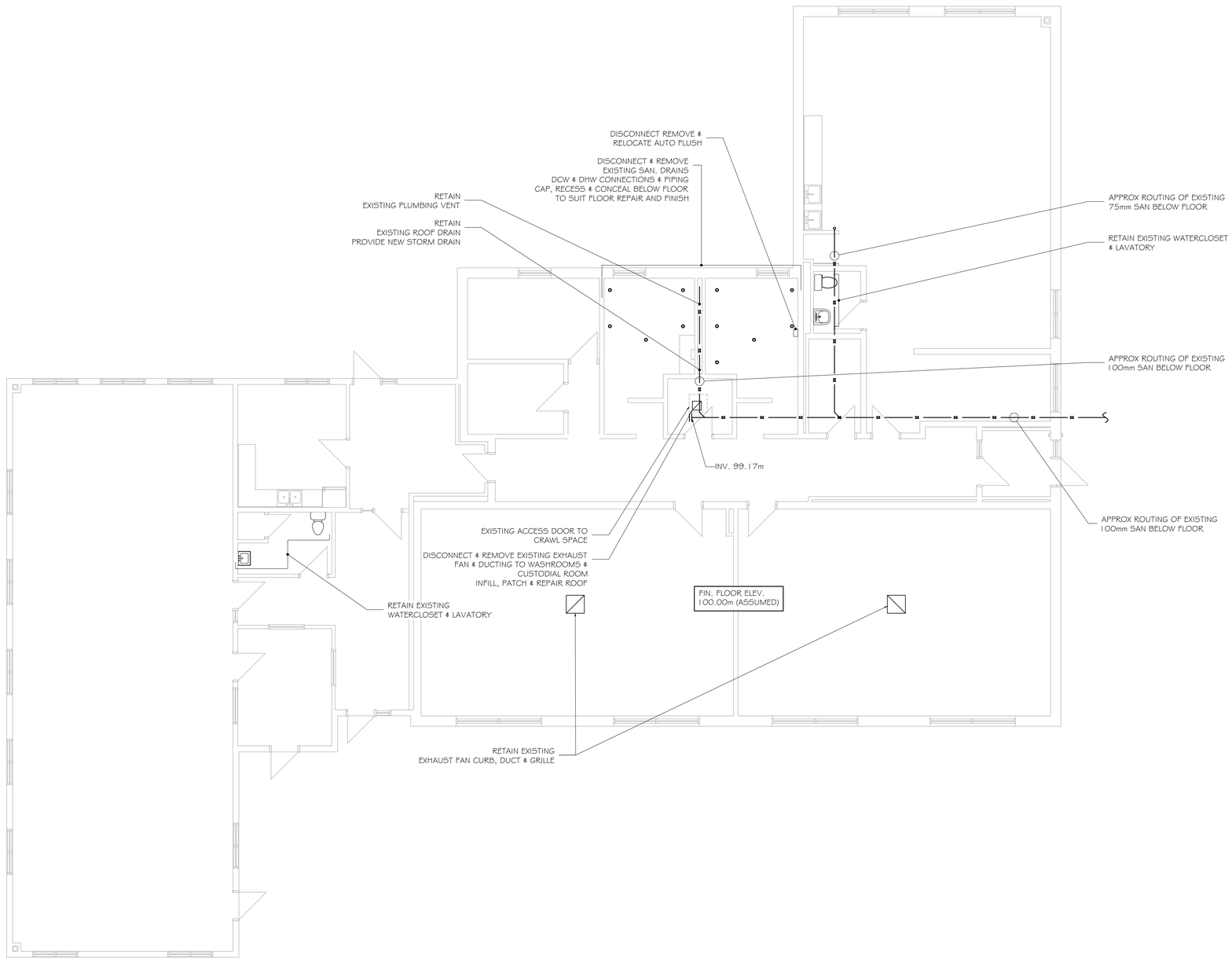

1	FLOOR PLAN–DEMOLITION	N
	SCALE: 1 : 75	0m 1.5m 3m 4.5m 6m 7.5m

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PROJECT
YARKER DAYCARE RENOVATION

4513 COUNTY RD #1, YARKER, ON

DRAWING
MECHANICAL
DEMOLITION

SCALE
1:75

PROFESSIONAL SEAL
LICENSED PROFESSIONAL ENGINEER
2020-02-05
M. A. MORRIS
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MM	M100
PROJECT No.	
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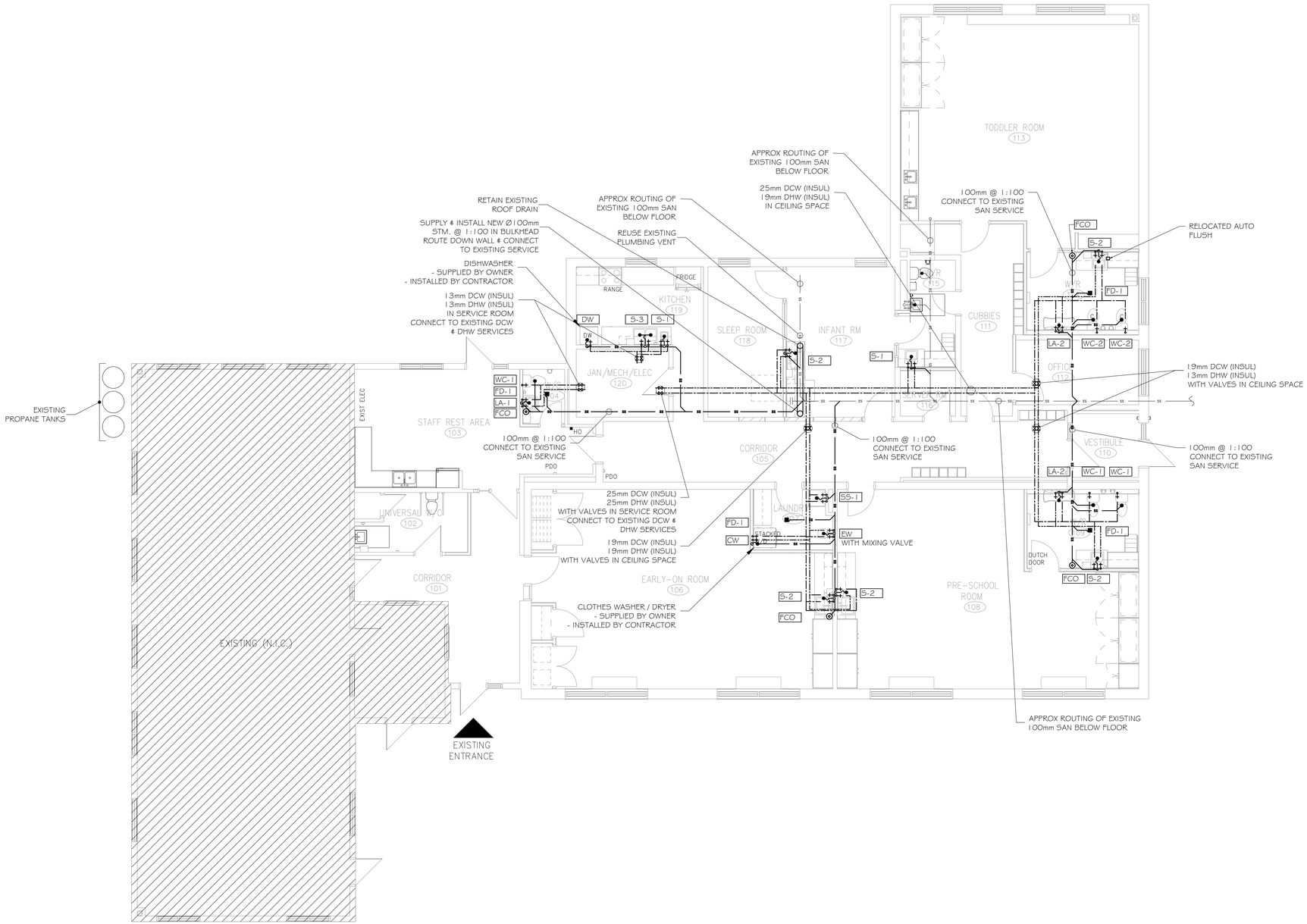

1	FLOOR PLAN–NEW CONSTRUCTION	
	SCALE: 1 : 75 — 0m 1.5m 3m 4.5m 6m 7.5m	N

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PROJECT
YARKER DAYCARE RENOVATION

4513 COUNTY RD #1, YARKER, ON

DRAWING
MECHANICAL
PLUMBING – NEW CONSTRUCTION

SCALE
1:75

PROFESSIONAL SEAL
LICENSED PROFESSIONAL ENGINEER
2020-02-05
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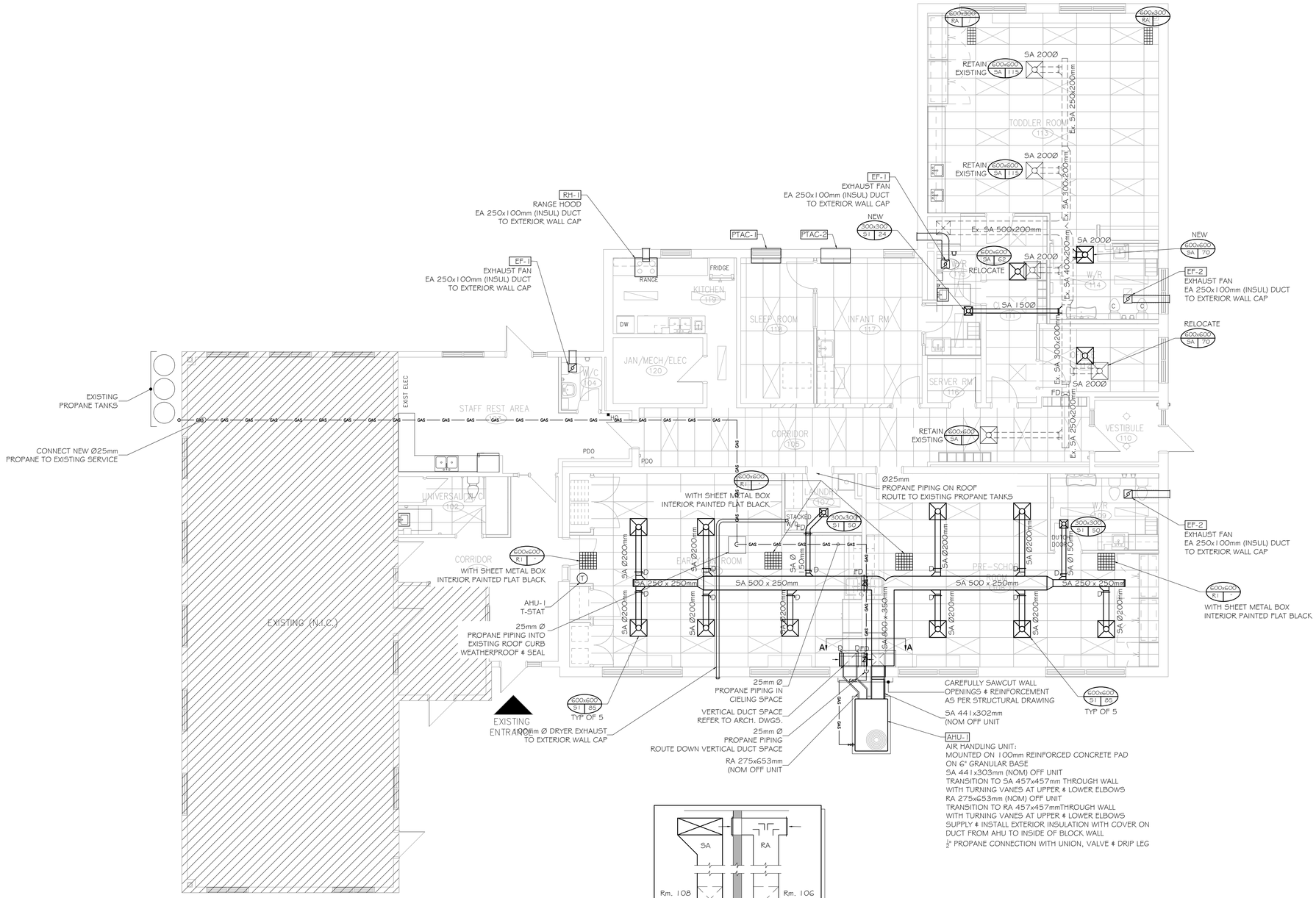

1	FLOOR PLAN–NEW CONSTRUCTION
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PROJECT
YARKER DAYCARE RENOVATION

4513 COUNTY RD #1, YARKER, ON

DRAWING
MECHANICAL
HVAC – NEW CONSTRUCTION

SCALE
1:75

PROFESSIONAL SEAL
LICENSED PROFESSIONAL ENGINEER
2020-02-05
M. A. MORRIS
PROVINCE OF ONTARIO
NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

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MM	M102
PROJECT No.	
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ELECTRICAL NOTES

ELECTRICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS FOR THIS PROJECT.

1 GENERAL:
.1 CONFORM WITH APPLICABLE REQUIREMENTS OF THE MINISTRY OF LABOUR, AND THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
.2 DO COMPLETE INSTALLATION IN ACCORDANCE WITH THE FOLLOWING:
.1 ONTARIO ELECTRICAL SAFETY CODE;
.2 ELECTRICAL SAFETY AUTHORITY.
.3 SUBMIT TO ELECTRICAL SAFETY AUTHORITY NECESSARY NUMBER OF DRAWINGS AND SPECIFICATIONS FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.
.4 COORDINATE AND OBTAIN ELECTRICAL SERVICE LAYOUT FROM THE SUPPLY AUTHORITY.
.5 PAY ALL ELECTRICAL PERMIT AND INSPECTION FEES.
.6 GROUND COMPLETE SYSTEM IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE AND ELECTRICAL SAFETY AUTHORITY.
.7 IDENTIFICATION AND LABELLING:
.1 IDENTIFY ELECTRICAL EQUIPMENT WITH LAMICOID NAMEPLATES, INCLUDING AMPERAGE, VOLTAGE, PHASE AND POWER SOURCE.
.2 PROVIDE TYPEWRITTEN PANEL DIRECTORIES.
.3 PROVIDE ADHESIVE LABEL ON ALL SWITCH, RECEPTACLE AND DEVICE COVER PLATES INDICATING SUPPLY CIRCUIT DESIGNATION.
.8 PROVIDE THREE COPIES OF COMPLETE OPERATING AND MAINTENANCE INSTRUCTIONS FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT. BIND INSTRUCTIONS IN 3-RING BINDERS. INCLUDE THE FOLLOWING:
.1 SCHEMATIC DIAGRAM OF ELECTRICAL SYSTEMS.
.2 CONTROL SHOP DRAWINGS AND OPERATING SEQUENCE INCLUDING WIRING OF COMPONENTS.
.3 WIRING DIAGRAM OF CONTROL PANELS.
.4 OPERATING INSTRUCTIONS, INCLUDING START-UP AND SHUT-DOWN PROCEDURE.
.5 MAINTENANCE INSTRUCTIONS INCLUDING PREVENTIVE MAINTENANCE INSTRUCTIONS FOR COMPONENTS OF THE EQUIPMENT.
.6 COMPLETE PARTS LIST OF ASSEMBLIES AND THEIR COMPONENT PARTS, SHOWING MANUFACTURER'S NAME, CATALOGUE NUMBER, AND NEAREST REPLACEMENT SOURCE.
.7 LIST OF RECOMMENDED SPARE PARTS AND QUANTITY OF EACH ITEM TO BE STOCKED.
.8 MANUFACTURERS' WARRANTIES AND GUARANTEES.
.9 CLEAN ALL ELECTRICAL SYSTEMS AT PROJECT COMPLETION.
.10 COMPLETE AS-BUILT DRAWINGS SHOWING ALL CHANGES AS WORK PROGRESSES.

2 CONTRACTOR QUALIFICATIONS:
.1 ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE "TRADES QUALIFICATION AND APPRENTICESHIP ACT" AND REGULATIONS, BY PERSONS WHO HOLD THE FOLLOWING CERTIFICATES OF QUALIFICATION (AS APPLICABLE):
.1 ELECTRICIAN: CONSTRUCTION & MAINTENANCE.
.2 ALL FIRE ALARM SYSTEM WORK SHALL BE PERFORMED BY PERSONS WHO HOLD ELECTRICIAN QUALIFICATIONS (ABOVE), AND IN ADDITION, WHO HOLD THE FOLLOWING CURRENT REGISTRATION WITH THE CANADIAN FIRE ALARM ASSOCIATION (CFAA):
.1 FIRE ALARM TECHNICIAN.

3 EXISTING FACILITIES AND DEMOLITION:
.1 LOCATE AND PROTECT ALL EXISTING EXTERIOR SITE SERVICES.
.2 RETAIN AND PROTECT ALL EXISTING INTERIOR SERVICES AND BUILDING FABRIC. MAKE GOOD ANY AND ALL DAMAGE RESULTING FROM THIS WORK.
.3 CONNECTIONS TO EXISTING SERVICES SHALL BE COORDINATED WITH THE OWNER.

4 FIXTURES AND EQUIPMENT:
.1 PROVIDE SHOP DRAWINGS AND PRODUCT DATA FOR ALL ELECTRICAL FIXTURES AND EQUIPMENT FOR APPROVAL, PRIOR TO PROCUREMENT.
.2 INSTALL ALL ELECTRICAL FIXTURES AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
.3 EQUIPMENT AND MATERIAL TO BE CSA CERTIFIED. WHERE THERE IS NO ALTERNATIVE TO SUPPLYING EQUIPMENT WHICH IS NOT CSA CERTIFIED, OBTAIN SPECIAL APPROVAL FROM ELECTRICAL SAFETY AUTHORITY.

5 EQUIPMENT SUPPLIED BY OTHERS:
.1 MAKE ALL ELECTRICAL SERVICE CONNECTIONS TO EQUIPMENT SUPPLIED BY OTHERS.
.2 CONFIRM ALL SERVICE CONNECTIONS WITH MANUFACTURER AND SUPPLIER, PRIOR TO INSTALLATION. THIS SHALL INCLUDE ALL CONNECTION SIZES, LOCATIONS AND DETAILS, AND SHALL TAKE INTO ACCOUNT EQUIPMENT CLEARANCES AND INSTALLATION REQUIREMENTS.

6 CONDUITS:
.1 RIGID GALVANIZED STEEL, WITH THREADED FITTINGS, WHERE SUBJECT TO MECHANICAL INJURY, IN SERVICE AREAS ONLY.
.2 ELECTRICAL METALLIC TUBING (EMT), HOT DIPPED GALVANIZED STEEL, WITH THREADED CONNECTORS AND COUPLINGS, WHERE NOT SUBJECT TO MECHANICAL INJURY, IN SERVICE AREAS ONLY.
.3 RIGID PVC CONDUIT BELOW FLOOR AND IN CORROSIVE AREAS.

7 WIRES AND CABLE:
.1 VOLTAGE DROP:
.1 FEEDER CONDUCTORS SHALL BE SIZED FOR A MAXIMUM VOLTAGE DROP OF 2% AT DESIGN LOAD.
.2 BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED FOR A MAXIMUM VOLTAGE DROP OF 3% AT DESIGN LOAD.
.2 BUILDING WIRES: MINIMUM SIZE 12 AWG.
.3 BUILDING WIRES IN CONCEALED LOCATIONS TO BE COPPER, MINIMUM SIZE 12 AWG, TYPE AS FOLLOWS:
.1 WOOD FRAMED STRUCTURES - TYPE NMD90;
.2 STEEL STUD OR STEEL FRAMED STRUCTURES - TYPE AC90;
.3 CEILING RETURN AIR PLENUMS - TYPE AC90;
.4 IN CONDUIT SYSTEMS - STRANDED COPPER CONDUCTORS FOR 10 AWG AND LARGER, TYPE RW90.
.4 ALL WIRING SHALL BE CONCEALED IN WALLS AND CEILINGS, UNLESS OTHERWISE NOTED OR APPROVED. SURFACE-MOUNTED WIRING IS NOT PERMITTED.
.5 WIRING SHALL BE ROUTED IN CONDUIT IN BLOCK WALLS. WHERE PERMITTED BY OWNER, SURFACE-MOUNTED CONDUIT IS ALLOWED.

8 DATA AND TELEPHONE:
.1 SUPPLY & INSTALL 2" CONDUIT FROM DATA/TELE DEMARCATION POINT TO DATA/TELE. SERVICE SPACE IN SERVER ROOM RM. 11b.
.2 DATA/TELEPHONE:
.1 DATA AND TELEPHONE WIRES CAT 6.
.2 SUPPLY, INSTALL AND TERMINATE DATA AND TELEPHONE OUTLETS, AS FOLLOWS:
.1 1 PORT WALL PLATE - PANDUIT #CFG1WH;
.2 2 PORT WALL PLATE - PANDUIT #CFG2WH;
.3 4 PORT WALL PLATE - PANDUIT #CFG4WH;
.4 FACE PLATE JACK - PANDUIT #CJSE88TG, 2 COLOURS, COLOURS SELECTED BY OWNER'S IT REPRESENTATIVE;
.5 COVER PLATE - LEVITON #80401-W, 2 COLOURS, COLOURS SELECTED BY OWNER'S IT REPRESENTATIVE.
.3 SUPPLY, INSTALL AND TERMINATE DATA AND TELEPHONE CABLES IN IT ROOM.

9 SERVICE EQUIPMENT:
.1 ELECTRICAL SERVICE EQUIPMENT, PANELBOARDS AND DISCONNECT SWITCHES SHALL BE PRODUCT OF ONE MANUFACTURER THROUGHOUT PROJECT - CUTLER-HAMMER, SIEMENS OR SQUARE D.
.2 CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE.
.3 WORKING SPACE ABOUT ELECTRICAL EQUIPMENT SHALL BE PROVIDED IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE, INCLUDING THE FOLLOWING:
.1 WORKING SPACE OF 3'4" (1m) WITH SECURE FOOTING;
.2 MINIMUM HEADROOM OF 7'3" (2.2m).

10 WIRING DEVICES:
.1 WIRING DEVICES OF ONE MANUFACTURER THROUGHOUT PROJECT - HUBBELL OR LEVITON.
.2 COMMERCIAL PROJECTS:
.1 OUTLET BOXES:
.1 GANG BOXES WHERE WIRING DEVICES ARE GROUPED.
.2 BLANK COVER PLATES FOR BOXES WITHOUT WIRING DEVICES.
.2 SWITCHES:
.1 HEAVY DUTY, 20A/120V;
.2 SINGLE POLE, AND THREE-WAY, AS APPLICABLE;
.3 COLOUR: SELECTED BY OWNER/ARCHITECT.
.3 DUPLEX RECEPTACLES:
.1 EXTRA HARD USE, CSA TYPE 5-15 R, 15A/125V;
.2 GFI (GROUND FAULT CIRCUIT INTERRUPTER) WITH DETECT AND TRIP ON GROUND FAULT, STATUS INDICATOR LIGHT AND TEST SWITCH;
.3 COLOUR: SELECTED BY OWNER/ARCHITECT.
.4 COVER PLATES:
.1 WHITE PLASTIC.

11 LIGHTING:
.1 GENERAL LIGHTING:
.1 SUPPORT ALL LIGHTING IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE AND BULLETINS.
.2 LIGHT FIXTURES SUPPORTED BY SUSPENDED CEILING SYSTEMS SHALL HAVE ADDITIONAL SUPPORT TO BUILDING STRUCTURE IN ACCORDANCE WITH ONTARIO ELECTRICAL SAFETY CODE BULLETIN #30-4-11.
.2 FUNCTIONAL TESTING OF LIGHTING CONTROL, IN ACCORDANCE WITH ASHRAE 90.1 (9.4.3):
.1 LIGHTING CONTROL DEVICES AND CONTROL SYSTEMS SHALL BE TESTED TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED, AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
.3 EXIT AND EMERGENCY LIGHTING:
.1 CONNECT DC CIRCUIT FROM EMERGENCY LIGHT BATTERY PACK TO ALL EXIT AND EMERGENCY LIGHTS.
.2 SIZE EMERGENCY LIGHTING POWER PACK TO PROVIDE FULL LOAD POWER FOR 1 HOUR PERIOD.
.3 EMERGENCY LIGHT BATTERY PACKS (UNIT EQUIPMENT) SHALL BE INSTALLED IN SUCH A MANNER THAT IT WILL BE AUTOMATICALLY ACTUATED UPON FAILURE OF THE POWER SUPPLY TO THE NORMAL LIGHTING IN THE AREA COVERED BY THAT UNIT EQUIPMENT PER OESC 46-304(4).

12 FIRE ALARM SYSTEM:
.1 **FIRE ALARM SYSTEM VERIFICATION CONTRACTOR SHALL REVIEW THE EXISTING SYSTEM AND DRAWINGS AND SHALL NOTE ALL AREAS OF DEVICE DEFICIENCY, PRIOR TO COMPLETION OF EQUIPMENT AND WIRING ROUGH-IN.**
.2 FIRE ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH CAN/ULC-S524, "INSTALLATION OF FIRE ALARM SYSTEMS".
.3 FIRE ALARM SYSTEM SHALL BE VERIFIED IN ACCORDANCE WITH CAN/ULC-S537, "VERIFICATION OF FIRE ALARM SYSTEMS".

13 FIRE PROTECTION:
.1 REFER TO ARCHITECTURAL DRAWINGS, TO VERIFY LOCATION OF ALL FIRE SEPARATIONS AND FIRE-RATED MEMBRANES.
.2 ALL CABLING AND CONDUIT SHALL BE TIGHTLY FITTED AND SEALED WITH FIRESTOPPING MATERIAL AT ALL FIRE SEPARATIONS AND FIRE-RATED MEMBRANES.
.3 THE FOLLOWING CONDUCTORS SHALL BE PROTECTED IN ACCORDANCE WITH OBC 3.2.7.10(2), AND SHALL CONFORM TO ULC-S139 "FIRE TEST EVALUATION OF INTEGRITY OF ELECTRICAL CABLES", TO PROVIDE A CIRCUIT INTEGRITY RATING OF NOT LESS THAN 1 HOUR:
.1 ELECTRICAL FEEDER CONDUCTORS WHICH SERVE THE ELECTRICAL PANELS;
.2 BRANCH CIRCUIT CONDUCTORS WHICH SERVE THE FIRE ALARM SYSTEM;
.3 BRANCH CIRCUIT CONDUCTORS WHICH SERVE EXIT AND EMERGENCY LIGHTING.
.4 PLENUMS (OBC 3.6.4.3):
.1 ALL MATERIALS WITHIN THE PLENUM SHALL A FLAME-SPREAD RATING NOT MORE THAN 25 AND A SMOKE DEVELOPED CLASSIFICATION NOT MORE THAN 50.
.5 MOCK-UPS:
.1 PREPARE MOCK-UPS OF TYPICAL FIRESTOP INSTALLATION OF THE FOLLOWING, FOR REVIEW AND APPROVAL BY THE OWNER, ENGINEER AND MUNICIPAL BUILDING INSPECTOR:
.1 CONDUIT AND CABLING - WALL AND CEILING/FLOOR FIRE SEPARATION.
.2 ALL FIRESTOP INSTALLATIONS SHALL BE COMPLETED IN ACCORDANCE WITH THE APPROPRIATE PRODUCT INSTALLATION INSTRUCTIONS, AND THE REFERENCED UL/ULC LISTING AND/OR TEST STANDARD.
.3 SUPPLY A COPY OF THE PRODUCT INSTALLATION INSTRUCTIONS WITH ULC LISTING AND/OR TEST STANDARD REFERENCE, FOR EACH INSTALLATION.
.4 MOCK-UP MAY REMAIN AS PART OF WORK.

14 EARTHQUAKE LOAD:
.1 ALL ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE EARTHQUAKE LOAD AND EFFECTS REQUIRED BY THE ONTARIO BUILDING CODE.
.2 ELECTRICAL ELEMENTS AND COMPONENTS (FIXTURES, EQUIPMENT, CONDUIT, ETC.), AND THEIR CONNECTIONS TO THE BUILDING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SMACNA/ANSI SEISMIC RESTRAINT MANUAL OR OTHER GUIDELINE REFERENCED IN THE ONTARIO BUILDING CODE.
.3 PROVIDE SHOP DRAWINGS FOR SUPPORT, CONNECTIONS AND SEISMIC RESTRAINT OF ALL ELECTRICAL FIXTURES, EQUIPMENT, AND CONDUIT, INCLUDING, BUT NOT LIMITED TO:
.1 SERVICE AND DISTRIBUTION EQUIPMENT;
.2 LIGHT FIXTURES;
.3 ELECTRIC HEATING UNITS;
.4 TYPICAL CONDUIT AND CABLE SUPPORTING SYSTEM. THESE SHOP DRAWINGS SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE PROVINCE OF ONTARIO, WITH EXPERIENCE IN SEISMIC ENGINEERING.
.4 FOLLOWING PROJECT COMPLETION, SEISMIC ENGINEER SHALL PROVIDE A LETTER OF FINAL SITE REVIEW.
.5 CONTRACTOR SHALL CARRY THE COST OF THE SEISMIC ENGINEERING, INCLUDING SITE REVIEWS, DESIGN AND SHOP DRAWING PREPARATION.

15 EQUIPMENT SUPPORT:
.1 ALL ELECTRICAL EQUIPMENT, CONDUIT, WIRING, LIGHTING, DEVICES, AND RELATED ITEMS SHALL BE SECURELY SUPPORTED, ATTACHED AND FASTENED TO BUILDING STRUCTURE.
.2 HANGERS AND SUPPORTS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH MSS STANDARD SP-58, PIPE HANGERS AND SUPPORTS - MATERIALS, DESIGN, MANUFACTURE, SELECTION, APPLICATION, AND INSTALLATION.
.3 PLATFORMS SHALL BE FABRICATED FROM STRUCTURAL GRADE STEEL MEETING THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, INCLUDING CSA STANDARD W59 WELDED STEEL CONSTRUCTION, AND THE REQUIREMENTS OF THE CANADIAN WELDING BUREAU.

16 COORDINATION:
.1 INFORMATION INVOLVING ACCURATE DIMENSIONING OF THE BUILDING SHALL BE TAKEN FROM SITE BY CONTRACTOR.
.2 DRAWINGS ARE IN DIAGRAMMATIC FORM, INTENDED TO CONVEY THE SCOPE OF WORK AND GENERAL ARRANGEMENT FOR EQUIPMENT. COORDINATE PHYSICAL LOCATION OF ALL EQUIPMENT WITH OTHER TRADES AND ALLOW FOR ANY ADDITIONAL CONDUIT, WIRING, FITTINGS, SUPPORTS, ETC., IN ORDER TO AVOID INTERFERENCE AND FACILITATE THE WORK.
.3 CONTRACTOR TO MAKE ANY NECESSARY MODIFICATIONS OR ADDITIONS, WITHOUT CHARGE, TO ACCOMMODATE SITE CONDITIONS AND COORDINATION.
.4 COORDINATE AND VERIFY ALL ELECTRICAL BRANCH CIRCUIT REQUIREMENTS FOR EQUIPMENT SUPPLIED BY OTHERS, PRIOR TO MATERIAL PROCUREMENT OR INSTALLATION.
.5 PROVIDE ALL WIRING TO ALL MECHANICAL EQUIPMENT, INCLUDING WIRING BELOW 50V. COORDINATE ALL MECHANICAL EQUIPMENT WIRING WITH MECHANICAL TRADES.
.6 ALL DEVICE AND OUTLET LOCATIONS SHALL BE CAREFULLY COORDINATED WITH THE GENERAL CONTRACTOR OR OWNER, TO ACCOMMODATE ALL FEATURES, INCLUDING PLUMBING FIXTURES, EQUIPMENT AND MILLWORK.

17 START-UP, COMMISSIONING AND TRAINING:
.1 START-UP AND COMMISSION THE FOLLOWING SYSTEMS:
.1 MAIN ELECTRICAL SERVICE EQUIPMENT;
.2 GENERAL LIGHTING;
.3 EXIT AND EMERGENCY LIGHTING;
.4 ELECTRIC HEATING UNITS;
.5 FIRE ALARM.
.2 PERFORM SYSTEMATIC TESTS, PROCEDURES AND CHECKS ON SYSTEMS, AS FOLLOWS:
.1 TO VERIFY OPERATION IN ACCORDANCE WITH CONTRACT DOCUMENTS, DESIGN CRITERIA AND INTENT, AND MANUFACTURER'S REQUIREMENTS;
.2 TO ENSURE APPROPRIATE DOCUMENTATION IS PROVIDED;
.3 TO EFFECTIVELY TRAIN BUILDING OPERATIONAL STAFF.
.3 SYSTEMS ARE TO BE OPERATED AT FULL CAPACITY, WITH CORRECTION OF ALL DEFICIENCIES AND ADJUSTMENTS TO MEET OPTIMUM PERFORMANCE.
.4 PROVIDE WRITTEN REPORT AT END OF COMMISSIONING OUTLINING EQUIPMENT OPERATIONAL CONDITIONS AND PARAMETERS.

ELECTRICAL PANEL 'P1'

Location:	LAUNDRY ROOM	Mounting:	SURFACE
Rated Amp:	200	Mains Amp:	150
Voltage:	120/240	Phase:	1

Load Watts	Load Description	Description	Breaker Amp	Breaker Pole	Breaker No.	Breaker No.	Breaker Pole	Breaker Amp	Description	Load Description	Load Watts
250	REC	RECEP - LAUNDRY 107	15	1	1	2	1	15	RECEP - EXTERIOR	REC	250
250	REC	RECEP - LAUNDRY 107	15	1	3	4	1	15	SPARE		
		SPARE	15	1	5	6	1	15	SPARE		
					7	8					
					9	10					
					11	12					
					13	14					
					15	16					
					17	18					
					19	20					
1000	CW	CLOTHESWASHER	15	1	21	22					
4500	CD	CLOTHESDRYER	30	2	23	24	2	20	PTAC UNIT	PTAC-1	3300
					25	26				(VERIFY)	
10800	AHU-1	AIR-HANDLING UNIT	60	2	27	28	2	20	PTAC UNIT	PTAC-2	3300
(VERIFY)					29	30				(VERIFY)	
16.8	kW	CONNECTED LOAD							CONNECTED LOAD	kW	6.85
									TOTAL CONNECTED LOAD	kW	23.65

NOTES:
1. DEVICE QUANTITIES ARE APPROXIMATE
DEVICES SHOWN ON FLOOR PLANS SHALL SUPERSEDE.
2. PROVIDE NEW PANEL LABEL AND TYPEWRITTEN CIRCUITING LEGEND.
3. EQUIPMENT SHALL BE SIEMENS, SQUARE D OR CUTLER-HAMMER.
4. PANEL SHALL BE COMPLETE WITH BOLT-ON BREAKERS, LOCKABLE DOOR, TRIM
5. ELECTRICAL REQUIREMENTS FOR EQUIPMENT SUPPLIED BY OTHERS ARE APPROXIMATE.
COORDINATE ALL EQUIPMENT WIRING WITH OTHER TRADES.

ELECTRIC HEATER SCHEDULE

UNIT	DESCRIPTION	FAN CFM	DIM'N	ELECTRICAL WATTS	ELECTRICAL VOLT	ELECTRICAL PHASE	ACCEPTABLE PRODUCT	NOTES
BBH-1	BASEBOARD HEATER	-	27.6"	500	120	1	STELPRO #B	WHITE BUILT-IN THERMOSTAT
BBH-2	BASEBOARD HEATER	-	92.9"	2250	240	1	STELPRO #B	WHITE BUILT-IN THERMOSTAT
EUH-1	ELECTRIC UNIT HEATER COMMERCIAL GRADE	160	28"W 10"DP 26"H	1500	240	1	OUELETTE #OCA	WHITE RECESSED WALL BOX BUILT-IN THERMOSTAT

LIGHTING CONTROL SCHEDULE

UNIT	DESCRIPTION	ELECTRICAL	ACCEPTABLE PRODUCT	NOTES
$M	WALL SWITCH MOTION SENSOR	120V	LEVITON #OSSMT-MAW	PASSIVE INFRARED (PIR) AND ULTRASONIC (U/S)
$D	WALL SWITCH DIMMER	120V	LEVITON #AW	

LIGHT FIXTURE SCHEDULE

UNIT	DESCRIPTION	NOM. DIMN (in)	LAMP	LENS	COLOUR TEMP (K)	WATTS	MEAN LUMENS	VOLTAGE	ACCEPTABLE PRODUCT	NOTES
F1	LED LINEAR STRIP FIXTURE	W - 3.2 L - 45.6 (NOM 4FT)		FROSTED	4000	28	3.5	120	BJ TAKE #BLSP OR APPROVED EQUAL	DIMMABLE
F2	LED RECESSED	W - 24 L - 24	LED	ACRYLIC HINGED	4000	27	3000	120	BJ TAKE #BLR OR APPROVED EQUAL	DIMMABLE
F3	LED RECESSED	W - 24 L - 48	LED	ACRYLIC HINGED	4000	39	4000	120	BJ TAKE #BLR OR APPROVED EQUAL	DIMMABLE
F4	RECESSED POT LIGHT LED	DIA - 6	LED			10.5		120	JUNO #IC22LEDG3 OR APPROVED EQUAL	CONICAL WHITE BAFFLE

ELECTRICAL LEGEND

NOTE: HEIGHT IS FROM FINISHED FLOOR TO CENTRE LINE OF EQUIPMENT, UNLESS OTHERWISE NOTED — HEIGHT

DESIGNATIONS

GFCI	GROUND FAULT CIRCUIT INTERRUPTER
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AC	ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
CD	CLOTHES DRYER
CW	CLOTHES WASHER
WP	WEATHERPROOF
EX	EXISTING
RE	RELOCATED

DISTRIBUTION

	DISTRIBUTION PANEL	72"/1825mm (TOP)
$	SINGLE POLE TOGGLE SWITCH - 20A/120V	900-1100mm
$3	3-WAY TOGGLE SWITCH - 20A/120V	900-1100mm
	DUPLEX RECEPTACLE (WALL) - 15A/120V	12"/300mm
	DUPLEX RECEPTACLE (SPLIT) - 15A/120V	12"/300mm
	NON-STANDARD RECEPTACLE	AS NOTED
	DIRECT EQUIPMENT CONNECTION	AS NOTED
	NON-FUSED DISCONNECT SWITCH	54"/1370mm
	FUSED DISCONNECT SWITCH	54"/1370mm
	BRANCH CIRCUIT	
	BRANCH CIRCUIT, SWITCHED	
P-1	BRANCH CIRCUIT, HOMERUNS TO PANEL	

LIGHTING

F	FLUORESCENT LIGHT FIXTURE - RECESSED	
F	FLUORESCENT LIGHT FIXTURE - SURFACE	
	LIGHT FIXTURE F - FLUORESCENT H - HIGH INTENSITY DISCHARGE L - INCANDESCENT	

DATA COMMUNICATIONS

	TELEPHONE OUTLET (WALL)	PROVIDE 3/4" CONDUIT FROM BACK BOX TO SUSPENDED CEILING SPACE. SUPPLY & INSTALL DATA JACK, FACE PLATE & CABLING TO DATA SERVICE SPACE. NUMBER SHOWN INDICATES NUMBER OF JACKS IN THAT LOCATION	12"/300mm
	DATA OUTLET (WALL) (WITH NUMBER OF OUTLETS INDICATED)		12"/300mm
	DATA OUTLET (FLOOR)		
	DATA & TELEPHONE OUTLET (WALL)		12"/300mm
	TELEVISION OUTLET (WALL)		12"/300mm

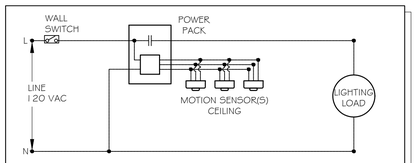
EXIT & EMERGENCY LIGHTING

E_1	EXIT LIGHT, END OR CEILING MOUNTED, SINGLE FACE	90"/2300mm
E_2	EXIT LIGHT, END OR CEILING MOUNTED, DOUBLE FACE	90"/2300mm
EL1	EMERGENCY LIGHT, BATTERY PACK	90"/2300mm
EL2	EMERGENCY LIGHT, DOUBLE REMOTE	90"/2300mm
EL3	EMERGENCY LIGHT, SINGLE REMOTE	90"/2300mm

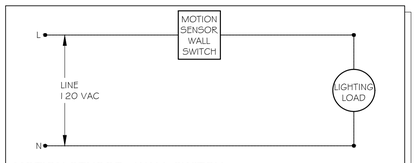
TYPICAL ELECTRICAL LOADS

VERIFY AND CONFIRM ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S DATA, SUPPLIER OR OTHER TRADES

UNIT	DESCRIPTION	ELECTRICAL LOAD	CONNECTION TYPE
CD	CLOTHES DRYER	30A, 240V/1PH	RECEPTACLE
CW	CLOTHES WASHER	15A, 120V/1PH	RECEPTACLE
DW	DISHWASHER	30A, 240V/1PH	DIRECT WIRE
RA	RANGE	40A, 240V/1PH	RECEPTACLE
REF	REFRIGERATOR	15A, 120V/1PH	RECEPTACLE
RH	RANGE HOOD	<12A, 120V/1PH	DIRECT WIRE



MOTION SENSOR - CEILING
TYPICAL WIRING DIAGRAM



MOTION SENSOR - WALL SWITCH
TYPICAL WIRING DIAGRAM

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PROJECT
YARKER DAYCARE RENOVATION

4513 COUNTY RD #1, YARKER, ON

DRAWING
ELECTRICAL
NOTES & SCHEDULES

SCALE
NTS

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LICENSED PROFESSIONAL ENGINEER
2020-02-05
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PROVINCE OF ONTARIO
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ELECTRICAL - DEMOLITION NOTES:

CAREFULLY INSPECT AND TRACE ALL EXISTING ELECTRICAL, DATA, FIRE ALARM AND CONTROLS WIRING PRIOR TO RELOCATING OR DEMOLISHING.

ALL OUTLETS THAT WERE VISIBLE DURING SITE REVIEW HAVE BEEN INDICATED. ALL OUTLETS IN WALLS THAT ARE TO BE REMOVED SHALL BE DISCONNECTED & REMOVED, INCLUDING BOX CONDUIT & WIRING, BACK TO SOURCE.

COMMUNICATIONS SYSTEM:

- C1 — RETAIN EXISTING PA SPEAKER
- C2 — DISCONNECT, REMOVE AND RELOCATE EXISTING PA SPEAKER
- C3 — DISCONNECT AND REMOVE EXISTING PA SPEAKER INCLUDING BOX, CONDUIT AND WIRING BACK TO SOURCE INFILL AND REPAIR WALL

DATA AND TELEPHONE:

- D1 — RETAIN EXISTING DATA OR TELEPHONE OUTLET
- D2 — DISCONNECT, REMOVE AND RELOCATE EXISTING DATA OR TELEPHONE OUTLET
- D3 — DISCONNECT AND REMOVE EXISTING DATA OR TELEPHONE OUTLET INCLUDING BOX, CONDUIT AND WIRING BACK TO SOURCE INFILL AND REPAIR WALL

FIRE ALARM DEVICES:

- F1 — RETAIN EXISTING FIRE ALARM DEVICE
- F2 — DISCONNECT, REMOVE AND RELOCATE EXISTING FIRE ALARM DEVICE TO NEW WALL/CEILING
- F3 — DISCONNECT AND REMOVE EXISTING FIRE ALARM DEVICE INCLUDING BOX, CONDUIT AND WIRING BACK TO SOURCE INFILL AND REPAIR WALL WHERE APPLICABLE

LIGHT FIXTURES & SWITCHES:

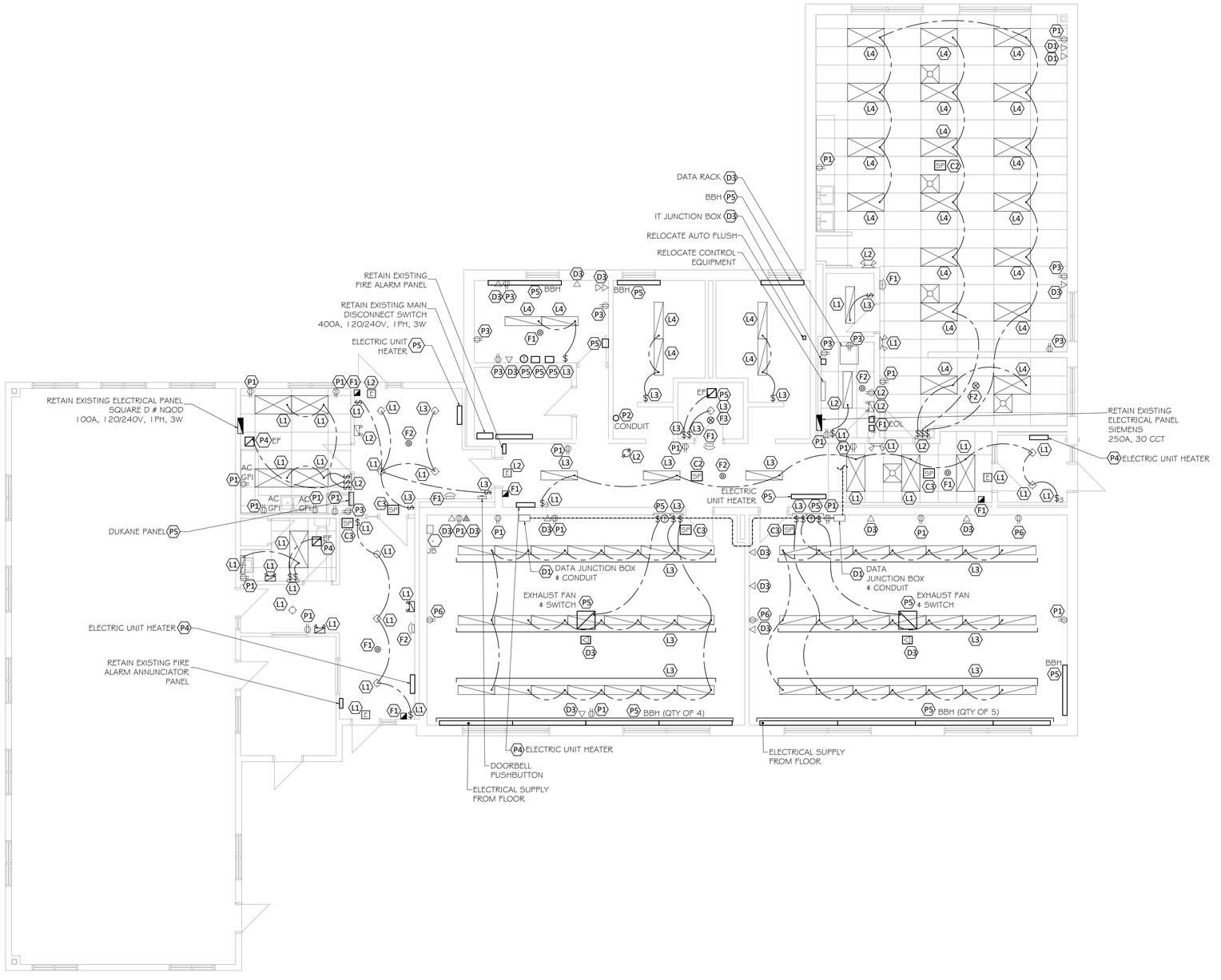
- L1 — RETAIN EXISTING LIGHT FIXTURE/SWITCH ALTER BRANCH CIRCUIT WIRING AND SWITCHING TO SUIT OR AS SHOWN
- L2 — DISCONNECT, REMOVE AND RELOCATE EXISTING LIGHT FIXTURE/SWITCH ALTER BRANCH CIRCUIT WIRING AND SWITCHING TO SUIT OR AS SHOWN
- L3 — DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE/SWITCH INCLUDING BOX, CONDUIT AND WIRING BACK TO SOURCE
- L4 — DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE RE-USE EXISTING ELECTRICAL CIRCUIT FOR NEW LIGHTING SUPPLY & INSTALL SWITCHING AS INDICATED

POWER:

- P1 — RETAIN EXISTING ELECTRICAL RECEPTACLE ALTER BRANCH CIRCUIT WIRING TO RETAIN SERVICE TO EXISTING RECEPTACLES
- P2 — DISCONNECT, REMOVE AND RELOCATE EXISTING ELECTRICAL RECEPTACLE / DEVICE ALTER BRANCH CIRCUIT WIRING TO RETAIN SERVICE TO RELOCATED RECEPTACLE / DEVICE
- P3 — DISCONNECT AND REMOVE EXISTING ELECTRICAL RECEPTACLE INCLUDING BOX, CONDUIT AND WIRING BACK TO SOURCE INFILL AND REPAIR WALL
- P4 — RETAIN EXISTING UNIT/DEVICE
- P5 — DISCONNECT AND REMOVE EXISTING UNIT/DEVICE INCLUDING BOX, CONDUIT AND WIRING BACK TO SOURCE INFILL AND REPAIR WALL
- P6 — DISCONNECT AND REMOVE EXISTING ELECTRICAL RECEPTACLES INCLUDING BOX, CONDUIT RE-USE EXISTING ELECTRICAL CIRCUIT FOR NEW RECEPTACLES

SECURITY SYSTEM:

- S1 — RETAIN EXISTING SECURITY DEVICE
- S2 — DISCONNECT, REMOVE AND RELOCATE EXISTING SECURITY DEVICE
- S3 — DISCONNECT AND REMOVE EXISTING SECURITY DEVICE INCLUDING BOX, CONDUIT AND WIRING BACK TO SOURCE INFILL AND REPAIR WALL



1 FLOOR PLAN–DEMOLITION

SCALE: 1 : 75 (0m 1.5m 3m 4.5m 6m 7.5m)

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PROJECT
YARKER DAYCARE RENOVATION

4513 COUNTY RD #1, YARKER, ON

DRAWING
ELECTRICAL DEMOLITION

SCALE
1:75

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LICENSED PROFESSIONAL ENGINEER
2020-02-05
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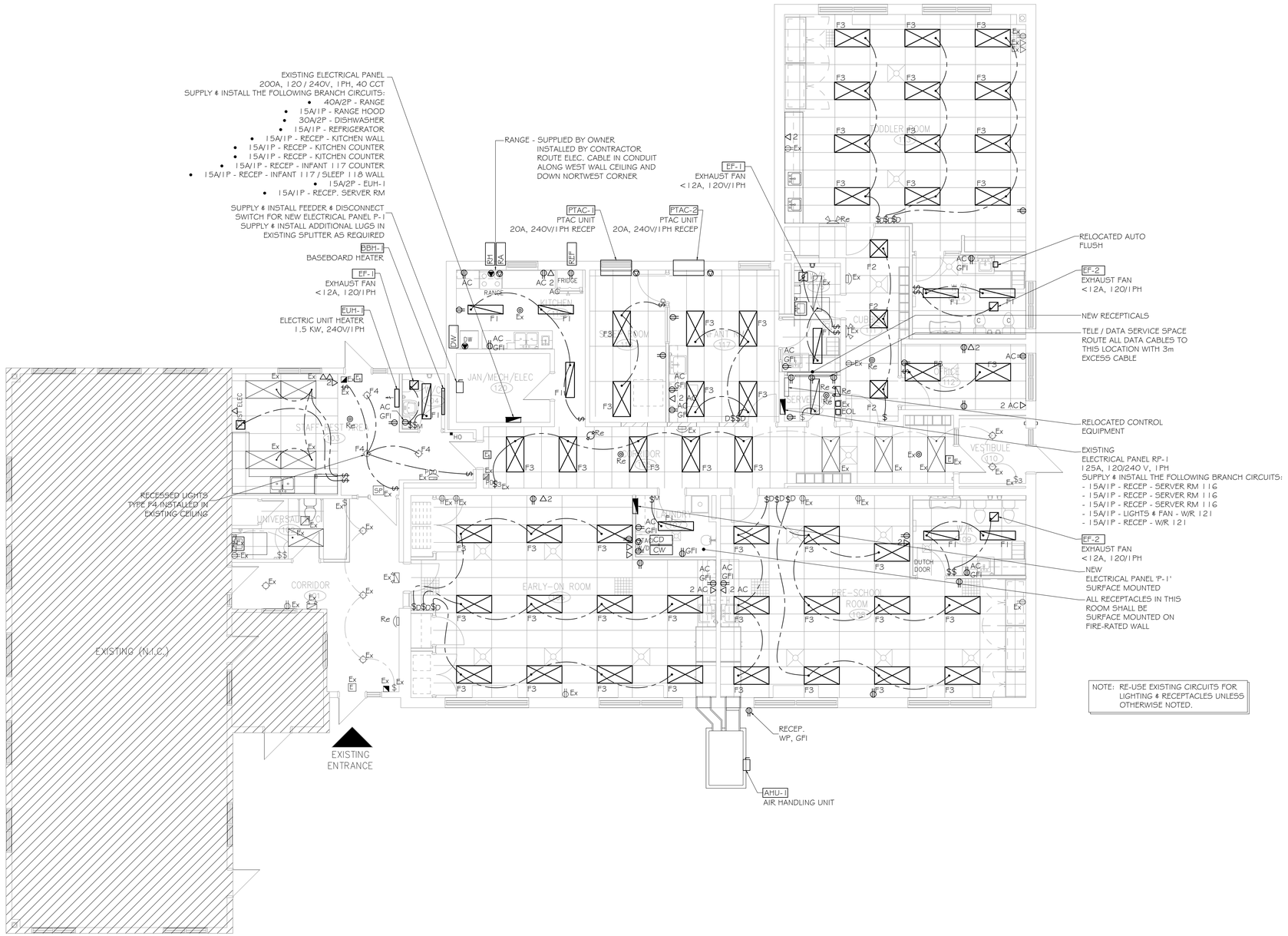

1 FLOOR PLAN-NEW CONSTRUCTION

SCALE: 1 : 75 (0m 1.5m 3m 4.5m 6m 7.5m)

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YARKER DAYCARE RENOVATION

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