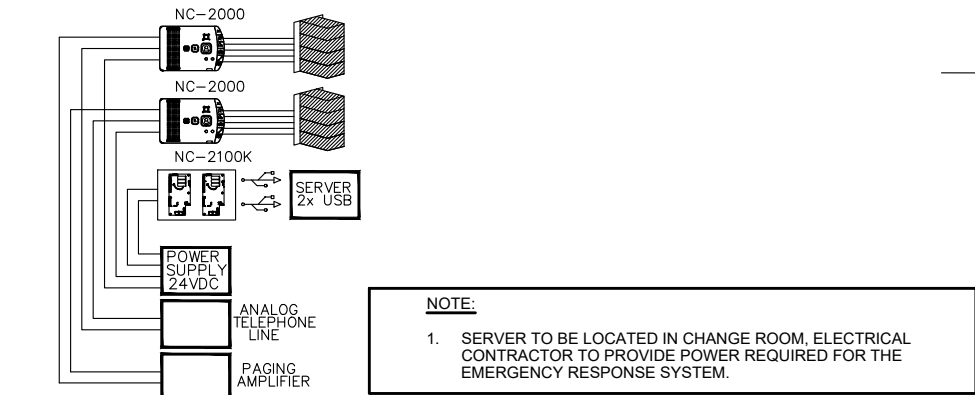


LEGEND	
	ELECTRICAL PANEL
	NON-FUSED DISCONNECT SWITCH
	MOTOR CONNECTION (SINGLE OR THREE PHASE)
	MAIN SWITCH BOARD
	15A, 120V DUPLEX T-SLOT GROUND FAULT INTERRUPTER RECEPTACLE
	DOOR OPERATOR
	OUTLET FOR PUSH TO LOCK
	OUTLET FOR PUSH TO UNLOCK
	STROBE LIGHT FOR EMERGENCY RESPONSE SYSTEM
	PATIENT UNIT FOR EMERGENCY RESPONSE SYSTEM
	OCCUPIED LIGHT FOR EMERGENCY RESPONSE SYSTEM
	EMERGENCY RESPONSE SYSTEM
	DOOR HOLD OPEN DEVICE
	FIRE ALARM CONTROL PANEL
	PHOTOELECTRIC TYPE SMOKE DETECTOR
	EMERGENCY LIGHTING FIXTURE
	EMERGENCY LIGHTING FIXTURE AND BATTERY
	AUDIBLE & VISUAL DEVICE
	DIRECT HARDWIRE CONNECTION
	PA SPEAKER

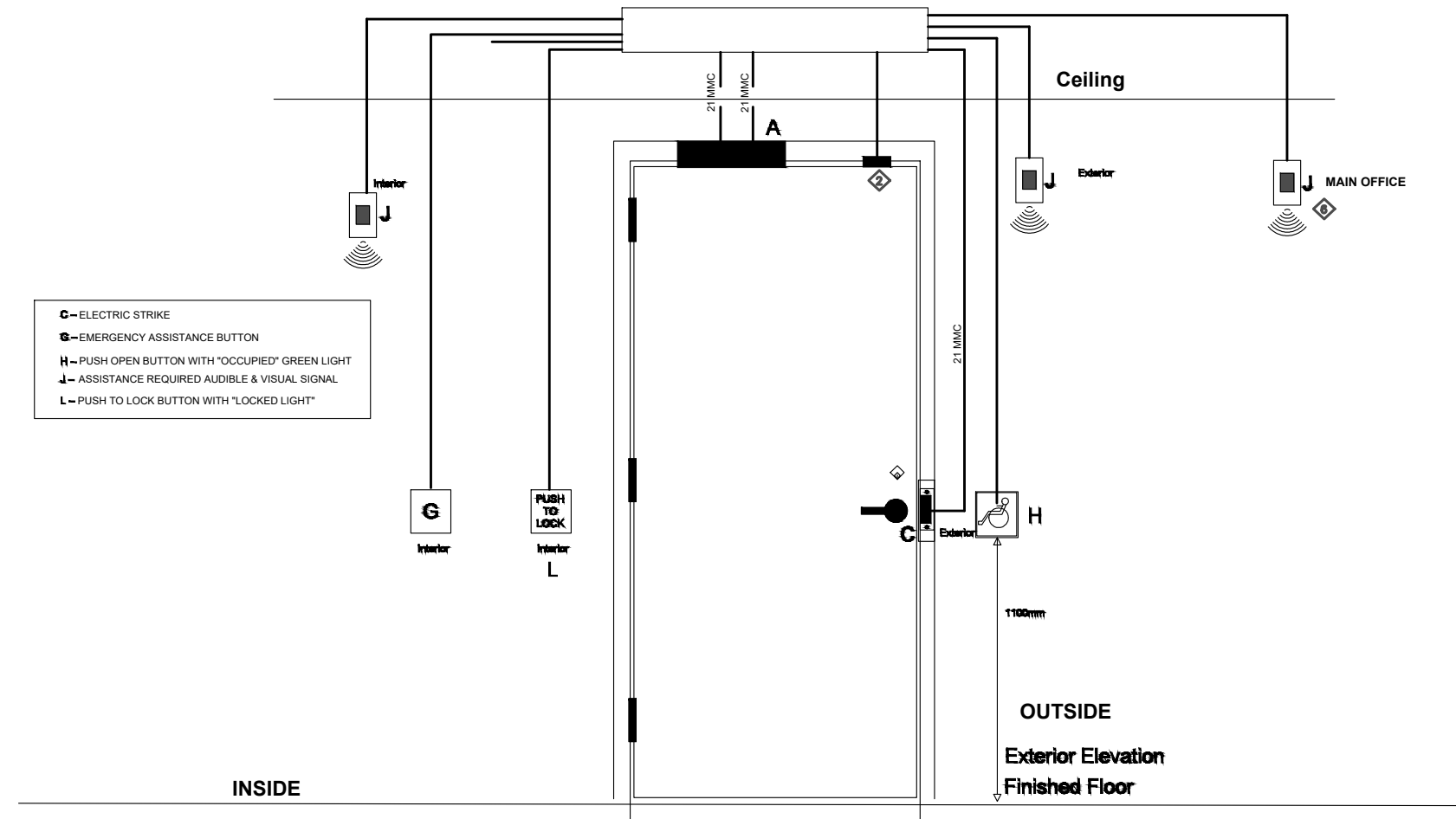
ELECTRICAL DRAWING LIST	
E1.0	ELECTRICAL LEAD SHEET, DETAILS, KEY PLAN
E2.0	DEMOLITION LIGHTING AND POWER FLOOR PLAN
E3.0	PROPOSED LIGHTING AND POWER FLOOR PLAN
E4.0	ELECTRICAL SPECIFICATIONS



BARRIER FREE WASHROOM DOOR OPERATOR SCHEMATICS (TYPICAL)

DOOR OPERATOR NOTES:	
1.	ALL CONDUITS ARE 16MM UNLESS OTHERWISE NOTED.
2.	LOCAL DOOR CONTACT FOR DOOR OPERATOR INTERLOCK OPERATION (THIS DOOR CONTACT IS NOT REQUIRED TO BE CONNECTED TO THE SECURITY SYSTEM).
3.	ALL LOW VOLTAGE WIRING FOR DOOR HARDWARE COMPONENTS TO BE 4/18 AWG, SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR CO-ORDINATE ALL WORK ON SITE.
4.	MOUNTING HEIGHT OF ACTUATION, LOCKING, ASSISTANCE REQUIRED/EMERGENCY DEVICES TO BE 900MM TO 1095MM ABOVE FINISHED FLOOR.

LIGHTING FIXTURE SCHEDULE									
TYPE	DESCRIPTION	MAKE/MODEL	VOLT	LUMEN	LAMP			MOUNT	REMARKS
					WATT	TYPE	COL.		
A	LITELINE 1"x4"CEILING RECESSED LIGHTING FIXTURE, WET LOCATIONS	LITELINE LEDP-14-WH-40-30-120-L EQUALS: PEERLESS-ELECTRIC AND COLUMBIA	120	3190	30	LED	4000	DRYWALL CEILING RECESSED	



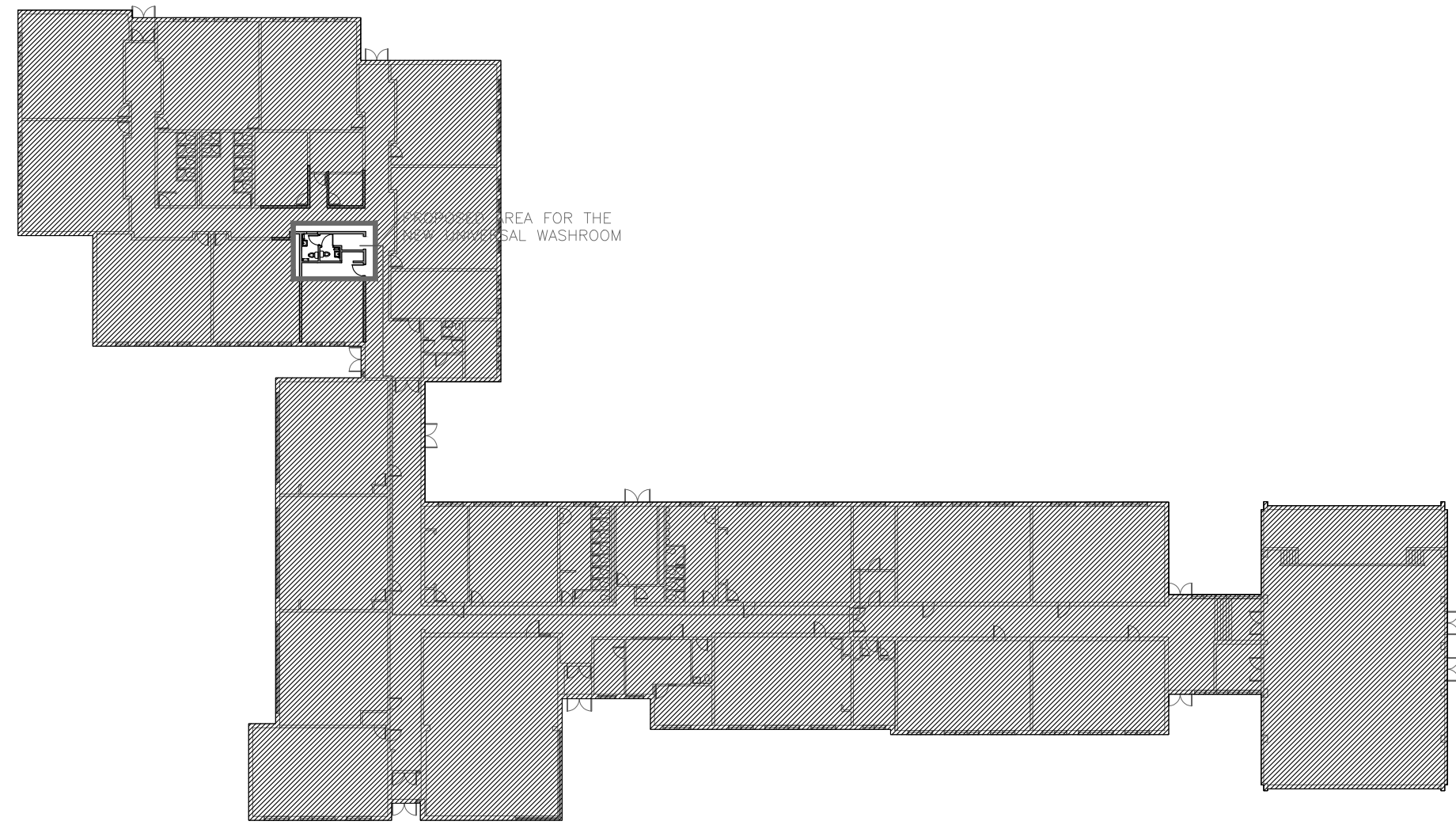
BARRIER FREE WASHROOM DOOR OPERATOR SCHEMATICS (TYPICAL)

EMERGENCY RESPONSE SYSTEM FOR WASHROOMS	
1.	CONTRACTOR TO PROVIDE AND INSTALL EMERGENCY RESPONSE SYSTEM FOR THE WASHROOMS.
2.	BASIS OF DESIGN IS MRCOM EQUIVALENT PRODUCT BY OTHER MANUFACTURERS ACCEPTABLE BASED ON SHOP DRAWING REVIEW.
MICARE SYSTEM CONSIST OF THE FOLLOWING:	
COORDINATOR BREAKER	NO-2000 1 EACH
SERVER	NO-3000 1 EACH
2-STEP M/T ROOM LIGHT	NO-CL-RT-2 EACH
CONTROL UNIT	NO-CL-RT-2 EACH
SERVER	1 EACH
ROUTER	1 EACH
STANDING ELECTRICAL BOX	2-500V-UP-2 EACH
ELECTRICAL BOX	NO-500V-1 EACH
RTV POWER SUPPLY	NO-500V-1 EACH
WIRE TIE	NO-500V-1 EACH
END OF LINE RESISTOR (10K)	NO-500V-1 EACH

TYPICAL FLOOR PLAN FOR EACH WASHROOM

NEW PANEL BOARD A SCHEDULE									
DESCRIPTION	BRKR SIZE (A)	WATTS PER PHASE			CR NO	BUS ABR	WATTS PER PHASE		
		A	B	C			A	B	C
					01				
					02				
					03				
					04				
					05				
					06				
					07				
					08				
					09				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
HAND DRYER	20				19				
	2P				20				
SPARE (FUTURE-N.L.C) BED	20				21				
	2P				22				
REC EMERGENCY BATTERY BACK-UP	15				23				
	2P				24				
EMERGENCY RESPONSE SYSTEM	20				25				
	2P				26				
DOOR OPERATOR	20				27				
	2P				28				
(*) GROUND FAULT INTERRUPTER CIRCUIT BREAKER					29				
(**) C/W LOCK-OFF DEVICES									

KEY PLAN



ISSUE OR REVISION		
No.	Description	Date
1	Issued for Tender	17th Mar. 2020
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ST. JOHN THE EVANGELIST CATHOLIC SCHOOL
1103 GIFFARD STREET, WHITBY ONTARIO
DPCDSB

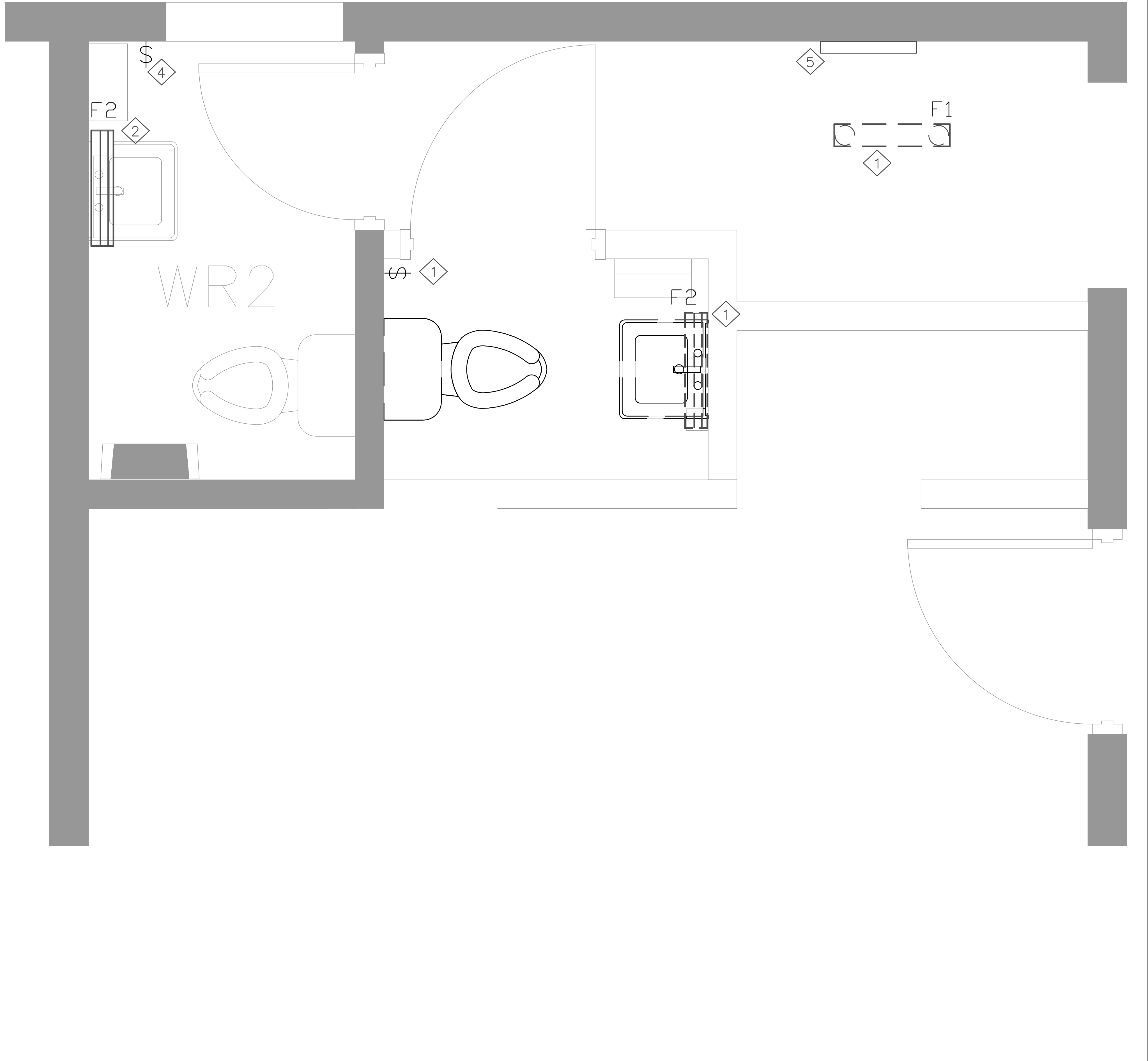
PROFESSIONAL SEAL :

DWG TITLE :

ELECTRICAL LEAD SHEET, DETAILS, KEY PLAN

RCEI
REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905) 844-3313
www.regal-eng.com

DATE :	MAR 2026
SCALE :	NTS
DRAWN BY :	SY
CHECKED BY :	MA
DWG STATUS :	
PROJECT No. :	2025-504-1
DRAWING No. :	E1.0
REVISION	



1 DEMOLITION PLAN –POWER AND LIGHTING LAYOUT
E2.0 SCALE 1:25

- DEMOLITION NOTES:**
- 1. ELECTRICAL CONTRACTOR TO REMOVE EXISTING LIGHTINGS FIXTURE, AS SHOWN.
 - 2. ELECTRICAL CONTRACTOR TO KEEP LIGHTING FIXTURE AS IS IN WASHROOM WR-2 .
 - 3. ELECTRICAL CONTRACTOR TO DISCONNECT ALL WIRING FOR EXISTING LIGHTING FIXTURE , MARK CIRCUIT AS SPARE.
 - 4. ELECTRICAL CONTRACTOR TO REMOVE AND RELOCATE THE LIGHTING SWITCH IN WASHROOM -02 AS SHOWN IN LAYOUT .
 - 5. ELECTRICAL CONTRACTOR TO KEEP EXISTING HYDRONIC HEATER TO REMAIN.
 - 6. THE ELECTRICAL CONTRACTOR SHALL CAREFULLY REMOVE THE EXISTING LIGHTING FIXTURE WITHOUT DISTURBING THE EXISTING LIFE SAFETY DEVICES IN THE EXISTING CEILING . IF BY MISTAKE EXISTING LIFE SAFETY DEVICES ARE DAMAGED THEN CONTRACTOR TO REPLACE WITH NO ADDITIONAL COST.
 - 7. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR FOR ALL RELATED ELECTRICAL WORK. ENSURE ALL CONNECTIONS TO MECHANICAL EQUIPMENT ARE INSTALLED PER MANUFACTURER REQUIREMENTS.
 - 8. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL EXISTING EQUIPMENT, DEVICES, AND CABLES DURING WORK. ANY DAMAGED COMPONENTS SHALL BE REPLACED AT NO ADDITIONAL COST.
 - 9. THE ELECTRICAL CONTRACTOR SHALL ENSURE ALL WORK COMPLIES WITH THE ONTARIO ELECTRICAL SAFETY CODE AND OBTAIN NECESSARY INSPECTIONS AND APPROVALS.

the Architect and must be returned upon completion of the work.

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PROJECT :

ST. JOHN THE EVANGELIST CATHOLIC SCHOOL
1103 GIFFARD STREET, WHITBY ONTARIO
DPCDSB

PROFESSIONAL SEAL :

M.K. AHMED
100089224
23/03/2026
PROVINCE OF ONTARIO

DWG TITLE :

DEMOLITION POWER AND LIGHTING

RCEI

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
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DATE :

MAR 2026

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AS SHOWN

DRAWN BY:

SY

CHECKED BY :

MA

DWG STATUS :

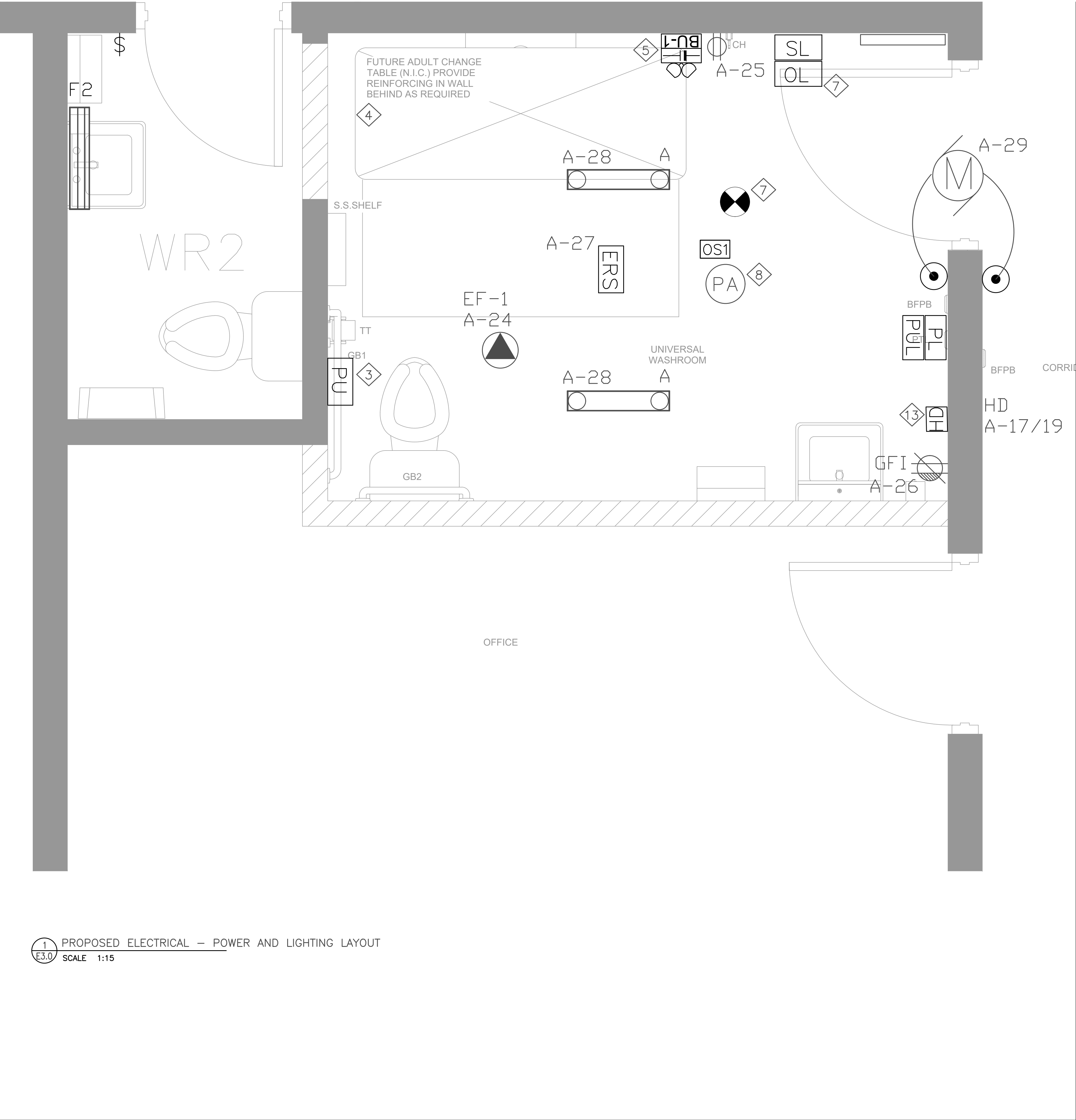
PROJECT No. :

2025-504-1

DRAWING No. :

E2.0

REVISION



1 PROPOSED ELECTRICAL – POWER AND LIGHTING LAYOUT
E3.0 SCALE 1:15

- PROPOSED POWER NOTES:**
- ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW LIGHTING FIXTURE WITH RE-UTILIZE THE EXISTING LIGHTING CIRCUIT.
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EMT CONDUIT WITH PULL STRING FOR NURSE SYSTEM IN THE CEILING SPACE OF B/F WASHROOM.
 - SPECIALIZED CONTRACTOR FOR NURSES CALL SYSTEM WILL INSTALL COMPLETE SYSTEM WITH CONTROLLER .
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EMT CONDUIT AND PULL STRING WITH 20A ,2P BREAKER AS SPARE IN THE PANEL FOR FUTURE ADULT CHANGE BED (N.I.C).
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EMERGENCY BATTERY BACK LIGHT AS SHOW IN LAYOUT.
 - CONTRACTOR TO INSTALL OCCUPANCY SENSORS FOR CONTROL OF LIGHTING IN B/F WASHROOM.
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EMT CONDUIT WITH PULL STRING FOR NEW SMOKE DETECTOR, FIRE ALARM HORN & STROBE AS SHOWN.
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EMT CONDUIT WITH PULL STRING FOR PA SPEAKER AS SHOWN.
 - CONTRACTOR TO PROVIDE AND INSTALL SMOKE DETECTOR AS SHOWN , CONNECT TO EXISTING SYSTEM, ALLOW FOR TESTING AND VERIFICATION OF THE FIRE ALARM DECEIVES.
 - CONTRACTOR TO PROVIDE AND INSTALL PA SPEAKER AS SHOWN AND CONNECT TO EXISTING SYSTEM.
 - CONTRACTOR TO PROVIDE AND INSTALL NEW FIRE ALARM HORN & STROBE AS SHOWN. CONTRACTOR TO MAKE SURE THE SOUND OF NEW FIRE ALARM HORN SYNCHRONIZED WITH EXISTING FIRE ALARM HORNS. ALLOW FOR TESTING AND VERIFICATION OF THE FIRE ALARM DEV ICES.
 - EXHAUST FAN SHALL INTERLOCK WITH THE LIGHTING FIXTURES, OCCUPANCY SENSOR SHALL CONTROL THE LIGHTING FIXTURES AND THE EXHAUST FAN.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL HAND DRYER AS SHOWN.
 - HAND DRYER BRAND XLERATOR HAND DRYER MODEL : XL-SB BRUSHED STAIN LESS, (COLOR TO BE SELECT BY ARCHITECTURE) ELECTRICAL SPECIFICATION 208-240V, 1500W.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE EMT CONDUIT AND WIRE FOR HAND DRYER AND INSTALL 20A, 2POLE BREAKER TO PANEL A TO CONNECT THE HAND DRYER.
 - ELECTRICAL CONTRACTOR SHALL GFI SOCKET AS SHOWN ON THE ELECTRICAL DRAWINGS, AS REQUIRED FOR THE WASHROOM RENOVATION. ALLOW FOR EXTENDING CABLES AND CONDUITS.

the Architect and must be returned upon completion of the work.

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PROJECT :

ST. JOHN THE EVANGELIST CATHOLIC SCHOOL
1103 GIFFARD STREET, WHITBY ONTARIO
DPCDSB

PROFESSIONAL SEAL :

DWG TITLE :

PROPOSED POWER AND LIGHTING PLAN

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wycroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905) 844-3913
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DATE :

MAR 2026

SCALE :

AS SHOWN

DRAWN BY :

SY

CHECKED BY :

MA

DWG STATUS :

PROJECT No. :

2025-504-1

DRAWING No. :

E3.0

REVISION

SCOPE OF WORK

1. SUPPLY LABOUR, TOOLS, SERVICES, EQUIPMENT AND PROVIDE MATERIALS REQUIRED TO COMPLETE WORK IN ACCORDANCE WITH THIS SPECIFICATION AND DRAWINGS, COMPLY WITH LAWS, REGULATIONS AND CODES OF AUTHORITIES HAVING JURISDICTION, CONFORM TO REQUIREMENTS OF BIDDING DOCUMENTS AND DIVISION 1.

EXAMINATION OF SITE AND DOCUMENTS

1. PROVIDE TO SUBMITTING BID, CAREFULLY EXAMINE CONDITIONS AT SITE WHICH WILL OR MAY AFFECT WORK, DRAWINGS AND SPECIFICATION AND BECOME FAMILIAR WITH BUILDING CONSTRUCTION, FINISHES AND OTHER WORK ASSOCIATED WITH WORK IN ORDER THAT BID INCLUDES FOR EVERYTHING NECESSARY FOR COMPLETION OF WORK.

PERMITS, CERTIFICATES AND FEES

1. PAY FOR AND OBTAIN PERMITS TO COMPLETE WORK. WHEN WORK IS COMPLETE, SUPPLY AND TURN OVER INSPECTION CERTIFICATES FROM GOVERNING AUTHORITIES TO CONSULTANT. PAY FEES AND CHARGES LEVIED BY MUNICIPALITY AND OTHER GOVERNING AUTHORITIES FOR PERMITS. INSPECTIONS AND CERTIFICATES, KEEP COPY OF SUCH PERMITS AND CERTIFICATES, ETC. ON JOB SITE.

CO-ORDINATION AND CO-OPERATION

1. ELECTRICAL CONTRACTOR TO CO-ORDINATE HIS WORK WITH WORK OF ALL TRADES TO ENSURE A PROPER AND COMPLETE INSTALLATION. NOTIFY ALL TRADES CONCERNED OF REQUIREMENT FOR OPENINGS, SLEEVES, INSERTS AND OTHER HARDWARE NECESSARY IN THEIR WORK FOR INSTALLATION OF HIS WORK AND WHERE HIS WORK IS TO BE INTEGRATED WITH WORK OF OTHER TRADES OR IS TO BE INSTALLED IN CLOSE PROXIMITY WITH WORK OF OTHER TRADES. CAREFULLY CO-ORDINATE WORK PRIOR TO AND DURING INSTALLATION.

2. EXACT LOCATIONS AND ROUTING OF SERVICES MUST BE PROPERLY PLANNED CO-ORDINATED AND ESTABLISHED WITH ALL AFFECTED TRADES PRIOR TO INSTALLATION SUCH THAT THEY WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS. GENERALLY, PIPING REQUIRING UNIFORM PITCH SHALL BE GIVEN RIGHT OF WAY WITH OTHER SERVICE LOCATED AND ARRANGED TO SUIT.

NOISE CONTROL

1. WORK WHICH MAY CAUSE NOISE DISTURBANCES MUST BE SCHEDULED AT TIMES APPROVED BY CONSULTANT. CO-ORDINATE WORK WITH TRADES TO MINIMIZE NOISE DISTURBANCES.

CLEAN UP

1. DURING CONSTRUCTION, KEEP SITE REASONABLY CLEAR OF RUBBISH AND WASTE MATERIAL RESULTING FROM WORK ON DAILY BASIS. AFTER COMPLETION OF WORK, REMOVE RUBBISH AND DEBRIS, ARRANGE AND PAY FOR REPAIR OF DAMAGES CAUSED AND LEAVE PREMISES AND WORK IN GOOD ORDER.

PROTECTION OF EQUIPMENT

1. PROPERLY PROTECT AND STORE ALL EQUIPMENT AND MATERIAL ON SITE FROM DAMAGE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFE STORAGE OF ALL EQUIPMENT AND GOODS TO BE RELOCATED AND SHALL REPAIR OR REPLACE DAMAGED EQUIPMENT AND GOODS AT DISCRETION OF OWNER..

INSPECTION OF WORK

1. CONSULTANT SHALL AT ALL TIMES HAVE ACCESS TO WORK AND SHALL BE NOTIFIED AT AGREED UPON TIMES OF STAGES OF WORK.

2. CONTRACTOR SHALL GIVE CONSULTANT TIMELY NOTICE OF DATE (WITHIN 48 HOURS AFTER PERFORMANCE) WHEN FOLLOW STAGES OF WORK HAVE BEEN PERFORMED:
WHEN 33% OF WORK HAS BEEN COMPLETED;
WHEN 66% OF WORK HAS BEEN COMPLETED;
WHEN 95% OF WORK HAS BEEN COMPLETED;
UPON SUBSTANTIAL PERFORMANCE OF WORK.

3. WHERE STANDARDS OF WORK ARE SPECIFIED OR IMPLIED AND WORK DOES NOT COMPLY WITH PERFORMANCE SPECIFIED OR IMPLIED , SUCH DEFICIENCY SHALL BE CORRECTED AS DIRECTED BY CONSULTANT. ANY SUBSEQUENT TESTING TO VERIFY PERFORMANCE SHALL BE DOWN AT CONTRACTORS/ EXPENSE, AND CHARGE FOR OWNER'S STAFF CONSULTANT OR OTHER PERSONNEL RELATED TO SUCH RE-TESTING SUCH ALSO BE AT EXPENSE OF CONTRACTOR.

PRODUCTS

1. PRODUCTS LISTED AND/OR SPECIFIED ON CONTRACT DOCUMENTS ARE SELECTED TO ESTABLISH DESIGN STANDARDS, IN MOST CASES, ACCEPTABLE MANUFACTURERS ARE LISTED. BASE YOUR BID PRICE ON BASE SPECIFIED PRODUCTS OR PRODUCTS SUPPLIED FROM ACCEPTABLE MANUFACTURERS. ENSURE PRODUCTS SUPPLIED FROM MANUFACTURERS OTHER THAN BASE SPECIFIED MANUFACTURERS ARE EQUIVALENT TO SPECIFIED PRODUCTS. PROPOSED SUBSTITUTIONS OF MANUFACTURERS OF PRODUCTS MAY BE PROPOSED TO CONSULTANT FOR ACCEPTANCE, LISTING IN EACH CASE CORRESPONDING CREDIT. CONSULTANT HAS SOLE DISCRETION IN ACCEPTING ANY PROPOSED SUBSTITUTION. INCLUDE IN BID PRICE ANY ADDITIONAL PRODUCTS SUPPLIED BY MANUFACTURER OTHER THAN BASE SPECIFIED MANUFACTURER.

WARRANTY

1. WARRANTY WORK TO BE IN STRICT ACCORDANCE WITH CONTRACT DOCUMENTS AND FREE FROM DEFECTS FOR 1 YEAR PERIOD FROM DATE OF WRITTEN ACCEPTANCE BY CONSULTANT. REFER AND/OR REPLACE ANY SUCH DEFECTS WHICH APPEAR IN WORK WITHIN WARRANTY PERIOD, ORDINARY WEAR AND EAR AND WILFUL DAMAGE BY, OR CARELESSNESS OF OWNER'S STAFF OR AGENTS EXCEPTED. WITHOUT ADDITIONAL COSTS INCURRED IN MAKING DEFECTIVE WORK GOOD, INCLUDES REPAIR OR REPLACEMENT OF BUILDING FINISHES, OTHER MATERIALS OR DAMAGE TO OTHER EQUIPMENT CAUSED BY SUCH DEFECTS, OR BY SUBSEQUENT REPLACEMENT OR REPAIRS.

INTERRUPTIONS TO AND SHUTDOWNS OF EXISTING SERVICES AND SYSTEMS

1. CO-ORDINATE AND PERFORM SHUTDOWNS AND INTERRUPTIONS TO EXISTING SYSTEMS AND SERVICES AT TIMES ACCEPTABLE TO OWNER. OBTAIN WRITTEN APPROVAL IN ADVANCE OF SHUTDOWN OR INTERRUPTION. INCLUDE FOR COSTS OF PREMIUM TIME TO PERFORM WORK DURING NIGHTS, WEEKENDS OR OTHER TIME OUTSIDE OF NORMAL WORKING HOURS, AS NECESSARY TO MAINTAIN SERVICES IN OPERATION OR WITH MINIMUM INTERRUPTIONS AND TO INTERRUPTION WILL BE CARRIED OUT AS CONTINUOUS OPERATION TO MINIMIZE SHUTDOWN TIME AND TO REINSTATE SYSTEMS AS SOON AS POSSIBLE AND PRIOR TO SHUTDOWN, ENSURE MATERIALS AND LABOUR REQUIRED TO COMPLETE WORK FOR WHICH SHUTDOWN IS REQUIRED ARE AVAILABLE AT SITE.

CUTTING, PATCHING AND CORE DRILLING

1. DO CUTTING, PATCHING AND CORE DRILLING OF EXISTING BUILDING REQUIRED FOR INSTALL OF WORK. PERFORM CUTTING TO NEAT AND TRUE FASHION, WITH PROPER TOOLS AND EQUIPMENT TO OWNER'S APPROVAL.

2. IN FIRE RATED CONSTRUCTION PACK AND SEAL VOID BETWEEN OPENING AND CONDUIT FOR LENGTH OF OPENING WITH ASBESTOS-FREE ELASTOMERIC ULC LISTED AND LABELED MATERIALS. INSTALL FIRE-STOP AND SMOKE SEAL MATERIALS IN ACCORDANCE TO ULC CERTIFICATION AND MANUFACTURER'S REQUIREMENTS TO PROVIDE FIRE-STOP RATINGS OF OPENINGS IN ACCORDANCE WITH GOVERNING BUILDING CODE REQUIREMENTS.

3. DO NOT CUT OR DRILL EXISTING WORK WITHOUT PRIOR OWNER'S APPROVAL. IN CONSULTATION WITH OWNER AND BY USE OF X-RAY WITH OWNER'S APPROVAL, DETERMINE PRESENCE OF EXISTING SERVICES AND PERFORMING ROD CONCEALED BEHIND SURFACE TO BE CUT. NOTE: ELECTRICAL CONTRACTOR WILL BE HELD RESPONSIBLE FOR DAMAGE DONE TO EXISTING BUILDING AND SERVICES CAUSED BY CUTTING OR DRILLING.

DISCONNECTION, REMOVAL AND RELOCATION

1. WHERE INDICATED ON DRAWINGS AND DETERMINED BY SITE VISIT, DISCONNECT AND REMOVE ITEMS OF EXISTING OBSOLETE ELECTRICAL WORK AND RELOCATE DEVICES, WHERE FIXTURES, SWITCHES, RECEPTACLES AND OTHER DEVICES AND/OR EQUIPMENT IS REMOVED. DISCONNECT AT POINT OF ELECTRICAL SUPPLY, REMOVE OBSOLETE WIRING AND MAKE SYSTEM SAFE. WHERE EXISTING OBSOLETE CONDUIT AND SIMILAR RACEWAY MATERIAL

HAZARDOUS MATERIALS

1. AT ANY TIME DURING COURSE OF WORK ASBESTOS MATERIALS ARE ENCOUNTERED OR SUSPECTED, CEASE WORK IN AREA IN QUESTION AND IMMEDIATELY REPORT IN ACCORDANCE WITH ONTARIO REGULATION 654/85 (SECTION 7) TO CONSULTANT. DO NOT RESUME WORK IN AFFECTED AREA WITOUT APPROVAL FROM CONSULTANT.

RECORD DRAWINGS (AS-BUILTS)

1. DRAWINGS FOR THIS PROJECT HAVE BEEN PREPARED ON A CAD SYSTEM. THE SOFTWARE USED IS AUTOCAD RELEASE 2014. COPIES OF DRAWINGS ON DISKS FOR USE IN PREPARING AS-BUILTS, MAY BE PURCHASED FROM CONSULTANT AT A COST OF \$40 CAD. PLUS GST PER DRAWING.

2. WHEN WORK BEGINS AT SITE, CLEARLY AND ACCURATELY MARK ON A BOUND SET OF WHITE PRINTS OF CONTRACT DRAWINGS ON A DAILY BASIS ALL CHANGES AND DEVIATION FROM ROUTING OF AND LOCATIONS OF EQUIPMENT SHOWN ON CONTRACT DRAWINGS CHANGE AND DEVIATION INCLUDING THOSE MADE BY ADDENDA, CHANGE ORDERS AND SITE INSTRUCTION, AND CHANGES AND DEVIATIONS INDICATED ON SUPPLEMENTAL DRAWINGS ISSUED WITH ADDENDA, CHANGE ORDERS AND SITE INSTRUCTIONS. MAINTAIN "AS-BUILT" WITH PRINTS AT SITE FOR PERIODIC INSPECTION BY CONSULTANT THROUGHOUT DURATION OF WORK. PAY PARTICULAR ATTENTION TO ACCURATELY DIMENSIONING LOCATION OF ALL CONCEALED SERVICES TERMINATED FOR FUTURE EXTENSION, ALL BURIED WORK AND SERVICES AND WORK CONCEALED WITHIN BUILDING IN INACCESSIBLE LOCATIONS.

3. WHEN WORK ENDS AT SITE, UPDATE A COPY OF CONTRACT DOCUMENT DRAWING DISC SET SO THAT IT REFLECTS ALL DEVIATIONS FROM ORIGINAL CONTRACT DOCUMENT DRAWINGS,THUS FORMING TRUE "AS-BUILT" DRAWING DISC SET. PROVIDE A SET OF REPRODUCIBLE MYLAR PRINTS OF CONTRACT DRAWINGS PRODUCED FROM TRUE "AS-BUILT" MYLAR PRINTS TO CONSULTANT. ALL SUBMITTED DRAWINGS SHALL BE OF THE SAME QUALITY AS ORIGINAL CONTRACT DOCUMENT DRAWINGS.

4. UPDATE OWNER'S DISTRIBUTION RISER DIAGRAMS POSTED IN ELECTRICAL ROOM.

SHOP DRAWINGS AND OPERATING & MAINTENANCE INSTRUCTION MANUALS

1. SUBMIT SHOP DRAWINGS AND OPERATION & MAINTENANCE INSTRUCTION MANUALS FOR THE FOLLOWING:
1.1 PANELBOARD;
1.2 BREAKERS;
2. PROPERLY IDENTIFY SHOP DRAWING FOR REVIEW AND SHOW IN DETAIL EQUIPMENT AND MATERIALS. ENDORSE EACH DRAWING, INCLUDE COMPANY NAME AND SUBMITTAL DATE. PROVIDE MANUALS AS INDEXED, IDENTIFIED HARD, COVER 3-RING BINDERS COMPLETE WITH:
2.1 A COPY OF EACH 'REVIEWED' SHOP DRAWING;
2.2 EXPLANATIONS OF OPERATING PRINCIPLES AND SEQUENCES;
2.3 PART LISTS WITH NUMBERS;
2.4 RECOMMENDED MAINTENANCE PRACTICES AND PRECAUTIONS;
2.5 COPIES OF INSPECTION CERTIFICATES ISSUED BY GOVERNING AUTHORITIES;
2.6 COPIES OF PANELBOARD DIRECTORIES.

3. PROVIDE 2 SETS OF MANUALS. CONFIRM EXACT QUANTITY AND METHOD OF SUBMISSION WITH CONSULTANT.

GENERAL CONDUIT AND CONDUCTOR INSTALLATION REQUIREMENTS

1. INSTALL CONDUIT AND CONDUCTORS CONCEALED TO DEGREE MADE POSSIBLE BY FINISHES AND PROVED INSTALLATIONS IN ACCORDANCE WITH ELECTRICAL SAFETY CODE AND LOCAL GOVERNING AUTHORITIES. PLAN AND CO-ORDINATE LOCATIONS AND ROUTING OF SERVICES WITH TRADES PRIOR TO INSTALLATION. IN AREAS WHERE A MULTIPLICITY OF SERVICES OCCURS, PREPARE DETAIL DRAWINGS AND SUBMIT TO CONSULTANT FOR REVIEW PRIOR TO START OF AFFECTED WORK.

2. WHERE CONDUIT AND CONDUIT AND/OR CONDUCTORS ARE EXPOSED, ARRANGE SAME TO AVOID INTERFERENCE WITH OTHER WORK AND PARALLEL TO BUILDING LINES. WHERE HORIZONTAL CONDUITS AND/OR CONDUCTORS ARE EXPOSED, INSTALL AS HIGH AS POSSIBLE. DO NOT INSTALL CONDUIT AND/OR CONDUCTORS WITHIN 4' (150MM) OF "HOT" PIPES OR EQUIPMENT UNLESS CONDUIT AND/OR CONDUCTORS ARE ASSOCIATED WITH EQUIPMENT. INDEPENDENTLY RUN CONDUIT AND CONDUCTORS MUST BE SUPPORTED FROM THE CEILING OR WALL STRUCTURE, NOT FROM CEILING HANGERS, DUCTWORK, PIPING, CABLE TRAYS ETC.

3. IDENTIFY CONDUIT RUNS (IE. TAG BOTH ENDS OF CONDUIT RUNS)

CONDUITS

1. PROVIDE CONDUIT FOR CONDUCTORS. CONDUIT TO BE EMT (THIN WALL) GALVANIZED,ELECTRICAL METALIC TUBING TO CSA C222 NO. 83, COMPLETE WITH FACTORY MADE BENDS WHERE SITE BENDING IS NOT POSSIBLE AND JOINTS AND TERMINATIONS MADE WITH SET SCREW TYPE CONNECTORS, FOR SHORT BRANCH CIRCUIT CONNECTORS TO MOTORIZED EQUIPMENT AND TRANSFORMERS (MINIMUM LENGTH 18" (450MM), MAXIMUM LENGTH 24" (600MM) WITH 180 DEGREE LOOP WERE POSSIBLE)-GALVANIZED STEEL FLEXIBLE FLUID – TIGHT METALLIC CONDUIT TO CSA C222 NOT. 56, COMPLETE WITH IDEAL "STEEL TOUGH" LIQUID TIGHT FLEXIBLE CONDUIT CONNECTORS AND TERMINATIONS. FOR CONDUIT GREATER THAN 2" (1200MM), PROVIDE RIGID GALVANIZED STEEL TO CSA C222 NO. 45 COMPLETE WITH FITTINGS, CONNECTORS AND RIGID COUPLINGS.)

2. IDENTIFY AND SECURE CONDUIT AT SPACING IN ACCORDANCE WITH CODE REQUIREMENTS BY MEANS OF GALVANIZED PIPE STRAPS, CONDUIT CLIPS, RING BOLT TYPE HANGERS OR BY OTHER PROPER MANUFACTURER DEVICES. PROVIDE CONDUIT FITTINGS CONSTRUCTED OF SAME MATERIALS AS CONDUIT AND SUITABLE FOR APPLICATION. SQUARE AND PROPERLY REAM ENDS OF SITE CUT CONDUIT. GENERALLY CONDUIT IS SIZED ON DRAWINGS. SIZE CONDUIT NOT SIZED ON DRAWING IN ACCORDANCE WITH CODE. BEND CONDUIT AT FULL CONDUIT DIAMETER WITH NO KINKS AND N OOLAKING R CRACKING OF FINISHES.

CONDUCTORS

1. ALL CONDUCTORS SHALL BE COPPER UNLESS INDICATED OTHERWISE.

2. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #8 AND LARGER SHALL BE STRANDED.

3. CONDUCTORS SHALL BE SIZED #12 AWG MINIMUM, EXCEPT FOR CONTROL CIRCUITS WHERE #14 AWG MINIMUM SIZE IS PERMITTED. FEEDER SIZES AS INDICATED.

4. SIZE CONDUCTORS FOR A 2% MAXIMUM VOLTAGE DROP FROM OVERCURRENT DEVICE TO FARTHEST OUTLET.

5. CONDUCTOR INSULATION RATED FOR 600V MINIMUM UNLESS STATED OTHERWISE.

6. CONDUCTOR TYPES:
6.1 TW75, TWU TO C.S.A. #C22.2 NO. 75
6.2 RW90, RWU90 (XLPE) TO C.S.A. #C22.2 NO. 38
6.3 TW75, RW90 (XLPE) – INSIDE BUILDING.
6.4 TWU, RWU90 (XLPE) – CONDUCTORS DIRECT BURIED OR IN CONDUIT OUTSIDE BUILDING.
6.5 BX (ARMOURED CABLE) IS ONLY PERMITTED FOR LIGHT FIXTURE DROPS IN ACOUSTIC CEILINGS (MAX LENGTH 5'-0")

OUTLET BOXES, PULL BOXES AND JUNCTION BOXES

DRAWINGS FOR LOCATIONS OF OUTLETS. CONFIRM EXACT LOCATIONS PRIOR TO ROUGH-IN.

2. PROVIDE PULL BOXES AND JUNCTION BOXES WHEREVER NECESSARY TO FACILITATE CONDUCTOR & CONDUIT INSTALLATIONS. GENERALLY, PROVIDE CONDUIT RUNS EXCEEDING 100' (30M) IN LENGTH OR WITH MORE THAN 3, 90 DEGREE BENDS TO OWNER. SAID BOX INSTALLED AT CONVENIENT AND SUITABLE INTERMEDIATE ACCESSIBLE LOCATION. PROVIDE JUNCTION BOXES AND PULL BOXES SIZED IN ACCORDANCE WITH CODE TO SUIT NUMBER AND SIZE OF CONDUITS AND CONDUCTORS. BOXES TO BE GALVANIZED OR PRIME COATED PLATED STEEL COMPLETE WITH SCREW-ONN OR HINGED COVERS AND KNOCKOUTS. BOXES MUST BE ACCESSIBLE AFTER WORK IS COMPLETE.

3. SIZE, ARRANGEMENT AND TYPE OF BOXES MUST BE SUITABLE FOR APPLICATION. PROVIDE BLANK COVER PLATES ON EXISTING OBSOLETE BOXES WHICH ARE TO REMAIN. CLEARLY IDENTIFY MAIN PULL OR JUNCTION BOXES BY SPRAY PAINTING COVERS IN ACCORDANCE WITH FOLLOWING COLOUR SCHEDULE:
3.1 LIGHTING – YELLOW
3.2 NORMAL POWER – BLUE
3.3 ESSENTIAL POWER – ORANGE
3.4 FIRE ALARM – RED

4. WHERE REQUIRED, SUPPLY ACCESS DOORS OF MINIMUM NO. 23 GAUGE, PRIME COATED STEEL COMPLETE WITH HINGES AND FRAMES TO GIVE ACCESS TO BOXES AND CONDUCTOR JOINTS AND OTHER SIMILAR ELECTRICAL WORK WHICH MAY NEED MAINTENANCE OR REPAIR, BUT WHICH IS CONCEALED IN IN ACCESSIBLE CONSTRUCTION. CONFIRM FINISHES WITH OWNER.

FASTENING AND SECURING HARDWARE

1. PROVIDE PROPER FASTENERS AND SIMILAR HARDWARE REQUIRED FOR CONDUIT CONDUCTORS AND FOR EQUIPMENT HANGER AND/OR SUPPORT MATERIAL UNLESS OTHERWISE NOTED. EXPLOSIVE POWER ACTUATED FASTENERS WILL NOT BE PERMITTED UNLESS SPECIFIC WRITTEN APPROVAL FOR US AND TYPE HAS BEEN OBTAINED FROM CONSULTANT. UNDER NO CIRCUMSTANCES US CEILING SUSPENSION HANGERS OR GRIDS FOR SUSPENSION OF CONDUIT AND CONDUCTORS.

IDENTIFICATION NAMEPLATES

1. FOR EACH PIECE OF ELECTRICAL DISTRIBUTION EQUIPMENT FROM ELECTRICAL SOURCE OF SUPPLY UP TO AND INCLUDING PANELLOADS, PROVIDE ENGRAVED LAMACOD IDENTIFICATION NAMEPLATES SECURED TO APPARATUS WITH.

ELECTRICAL CONNECTIONS FOR MECHANICALS, OWNER'S ETC., EQUIPMENT

1. PROVIDE REQUIRED ELECTRICAL CONNECTIONS TO APPARATUS SUPPLIED BY DIVISION 15, OWNER AND AS PART OF OTHER DIVISIONS. DO REQUIRED ELECTRICAL WORK FOR EQUIPMENT SCHEDULED ON DRAWINGS. DIVISION 15 WILL SUPPLY STARTERS FOR MOTORIZED APPARATUS SUPPLIED BY THEM AND WILL PROVIDE LAMACOD IDENTIFICATION THROUGHOUT.

2. BE RESPONSIBLE FOR:
2.1 COMPLETE INSTALLATION AND CONNECTION OF STARTERS AND PROVIDE 'LINE' AND 'LOAD' POWER CONNECTIONS AND INTERLOCKING AS REQUIRED
2.2 PROVIDE MOTOR STARTER PANELS CONSISTING OF NO. 14 GAUGE STEEL BOLTED PANELS SIZED TO ACCOMMODATE STARTERS AS REQUIRED AND SUITABLE SPLITTER.
2.3 UNLESS OTHERWISE NOTED OR SHOWN ON DRAWINGS, MOUNT 1-PHASE STARTERS ADJACENT TO EQUIPMENT THEY SERVE AND CONNECT COMPLETE.
2.4 CO-ORDINATE FEEDER ENTRIES TO STARTERS AND STARTER ASSEMBLIES WITH DIVISION 15.
2.5 PROVIDE ADDITIONAL DISCONNECT SWITCHES (COMPLETE WITH IDENTIFICATION DETAILED ON DRAWINGS, REQUIRED BY CODE, OR FOR APPARATUS WHICH CANNOT BE SEEN FROM ITS STARTER OR IS IN EXCESS OF 30' (9M) FROM IT STARTER).
2.6 DO INTERLOCK WIRING INDICATED ON DRAWINGS AND /OR SCHEDULES.
2.7 CONNECT REQUIRED CIRCUITS TO MOTOR STARTER PANEL SO AS TO BALANCE ACTUAL LOADS (WATTAGE).

GENERAL ELECTRICAL WORK TESTING

1. IN ADDITION TO TESTS REQUIRED BY GOVERNING AUTHORITIES AND REGULATIONS, TEST WORK TO ENSURE THERE ARE NO LEAKS, GROUNDS OR CROSSES. ENSURE DEVICES ARE COMMISSED AND OPERABLE. CONNECT CIRCUITS TO PANEL BOARDS SO AS TO BALANCE ACTUAL LOADS (WATTAGE) WITHIN 5% IF REQUIRED TRANSPOSE CIRCUITS WHEN WORK IS COMPLETE TO MEET THIS REQUIREMENT.

EXISTING FIRE ALARM SYSTEM WORK

1. WHERE SHOWN ON DRAWINGS, DISCONNECT, RELOCATE AND RECONNECT REQUIRED DEVICES. NEW WORK TO BE AN EXTENSION OF EXISTING SYSTEM. PROVIDE ADDITIONAL DEVICES WHERE SHOWN. CONDUCTORS IN CONDUIT AND END-OF-LINE RESISTORS. PROVIDE ULC LISTED DEVICES TO MATCH EXISTING DEVICES AND BE COMPLETELY COMPATIBLE WITH EXISTING SYSTEM. PERFORM WORK IN ACCORDANCE WITH LATEST ADDITION OF CAN/ULC-524. SEQUENCE OF OPERATION OF NEW WORK TO FUNCTION WITH EXISTING SYSTEM. UNLESS OTHERWISE NOTED, CONNECT ADDITIONAL DEVICES TO EXISTING ZONES SERVING AREA AND PROVIDE WIRING OF MINIMUM NO. 16 AWG IN CONDUIT AND AS PER ELECTRICAL SAFETY AUTHORITY CODE REQUIREMENTS. ALARM RECEIVING CIRCUITS SHALL BE RUN IN SEPARATE CONDUITS FORM ALARM SIGNALING CIRCUITS.

2. DURING WORK TO THE EXISTING FIRE ALARM SYSTEM THE TIME AND DURATION OF INTERRUPTION SHALL BE APPROVED BY THE OWNER AND ONLY 1 ZONE SHALL BE INTERRUPTED AT ANY 1 TIME. IN ALL AREAS WHERE THE RENOVATION WORK REQUIRES SHUTDOWN OF ANY PART OF THE FIRE ALARM PROTECTION SYSTEM, PROVIDE MANUAL FIRE ALARM PROTECTION (FIRE WARDEN BY MEANS OF SUPERVISING THE AREA AS APPROVED BY GOVERNING AUTHORITIES. AT NO TIME SHALL THE FIRE ALARM SYSTEM OR ANY 1 ZONE BE LEFT INOPERATIVE. OVERNIGHT PROVIDE ALL REQUIRED BYPASS WIRING AND TEMPORARY WIRING AS MAY BE REQUIRED TO MAINTAIN ALL PARTS OF THE FIRE ALARM SYSTEM OPERATIVE DURING CONSTRUCTION AND ALTERATIONS.

3. COVER EXISTING DETECTORS TO PROTECT FROM DEMOLITION & CONSTRUCTION DUST REMOVE COVERS WHEN ALTERNATIVE FIRE ALARM PROTECTION IN AREA IS NOT AVAILABLE OVERNIGHT.

4. WHEN FIRE ALARM SYSTEM WORK IS COMPLETE AND READY FOR ACCEPTANCE PROVIDE AND ARRANGE OFR INDEPENDENT TESTING COMPANY SUCH AS BROZS AND ASSOCIATES, LEDER/RUES RANDALL BROWN AND ASSOCIATES OR DETRON SAFETY CONSULTANTS OF IF APPROVED BY OWNER- EXISTING FIRE ALARM MAINTENANCE CONTRACTOR TO INSPECT, TEST AND CERTIFY EQUIPMENT INCLUDING INITIATING DEVICES, SIGNALING DEVICES, CONTROL DEVICES AND WIRING. PROVIDE CERTIFICATE OF LIABILITY INSURANCE REGISTERED FOR THIS PROJECT TO SHOW SATISFACTORY PROOF OF MANUFACTURER'S AND TESTING COMPANY'S LIABILITY COVERAGE FOR BOTH HIS PRODUCT AND PERSONNEL. CONDUCT WORK IN ACCORDANCE WITH LATEST EDITION OF CAN/ULC-5536 AND 5537. TESTS TO BE CONDUCTED IN PRESENCE OF OWNER AND/OR CONSULTANT.

CODES AND STANDARDS:

1. DO COMPLETE INSTALLATION IN ACCORDANCE WITH C.S.A C22.1 EXCEPT WHERE SPECIFIED OTHERWISE.
1.2 COMPLY WITH C.S.A. ELECTRICAL BULLETINS IN FORCE AT TIME OF TENDER SUBMISSION, WHILE NOT IDENTIFIED AND SPECIFIED BY NUMBER IN THIS DIVISION, ARE TO BE CONSIDERED AS FORMING PART OF RELATED C.S.A. PART II STANDARD.

1.3 OVERHEAD AND UNDERGROUND SYSTEMS IN ACCORDANCE WITH C.S.A. C22.3 NO. 1 EXCEPT WHERE SPECIFIED OTHERWISE.

1.4 ABBREVIATIONS FOR ELECTRICAL TERMS: TO C.S.A. Z85.

1.5 COMPLY ALSO WITH THE FOLLOWING CODES:
1.1 ONTARIO ELECTRICAL SAFETY CODE
1.2 NATIONAL BUILDING CODE
1.4 ONTARIO BUILDING CODE

2. ELECTRICAL CONTRACTOR TO PAY FEES FOR ESA INSPECTIONS AND SUBMIT ESA CERTIFICATE AT THE COMPLETION OF WORK.

PROJECT :

PROFESSIONAL SEAL :

DWG TITLE :

ST. JOHN THE EVANGELIST CATHOLIC SCHOOL

1103 GIFFARD STREET, WHITBY ONTARIO

DPCDSB

ELECTRICAL SPECIFICATIONS

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REVISION