

ELECTRICAL SPECIFICATIONS

A. GENERAL CONDITIONS

1. CONFORM WITH LATEST EDITION OF THE ONTARIO BUILDING CODE (OBC), ONTARIO ELECTRICAL SAFETY CODE (OESC), CANADIAN STANDARDS ASSOCIATION (CSA), UNDERWRITERS LABORATORIES OF CANADA (ULC) AND LOCAL BY-LAWS AND AUTHORITIES HAVING JURISDICTION.
2. MATERIALS & EQUIPMENT SHALL CARRY APPROVAL AND CONFORM WITH CSA OR ULC STANDARDS. INSTALLATION SHALL COMPLY WITH ALL RULES AND REGULATIONS REGARDING MATERIALS AND WORKMANSHIP CONFORMING TO CSA, OESC, OBC AND LOCAL AUTHORITIES HAVING JURISDICTION.
3. VISIT JOB SITE PRIOR TO SUBMITTING TENDER AND EXAMINE ALL EXISTING CONDITIONS WHICH AFFECT THE WORK. NO EXTRAS WILL BE ALLOWED FOR FAILURE TO DO SO.
4. SUPPLY AND INSTALL COMPLETE ELECTRICAL SYSTEMS AS SHOWN AND/OR SPECIFIED HEREIN. DRAWINGS SHALL BE USED FOR ROUTING PURPOSES ONLY, DO NOT SCALE DRAWINGS. PROVIDE ALL NECESSARY MATERIAL AND LABOUR ETC. TO PROVIDE COMPLETE SYSTEMS.
5. FURNISH ALL REQUIRED LABOUR AND MATERIALS, MACHINERY, AND TOOLS, WITH ALL PROPER AND REQUIRED FACILITIES FOR MOVING AND TRANSPORTING SAME, SO THAT THE CONTRACT AND ALL WORK TO BE DONE UNDER IT, CAN AND WILL BE CARRIED OUT IN A PROFESSIONAL MANNER, PROPERLY, SATISFACTORILY, CONTINUOUSLY, AND EXPEDITIOUSLY, TO COMPLETION, IN ALL RESPECTS, TO THE SATISFACTION OF THE OWNER.
6. MOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO CENTER LINE OF EQUIPMENT, UNLESS SPECIFIED OR INDICATED OTHERWISE. IF MOUNTING HEIGHT OF EQUIPMENT IS NOT INDICATED, VERIFY BEFORE PROCEEDING WITH INSTALLATION. THE FOLLOWING IS GENERAL MOUNTING HEIGHTS:
 - 6.1. GENERAL SWITCHES, DIMMERS, CARD READERS: 1100mm (43")
 - 6.2. WALL RECEPTACLES (GENERAL): 450mm (18")
 - 6.3. DATA, VOIP, TELEPHONE OUTLETS: 450mm (18")
 - 6.4. OUTLET ABOVE COUNTER: 150mm (6")
7. CO-ORDINATE ON SITE THE LOCATION OF EQUIPMENT, CONTROL DEVICES, SERVICE DISTRIBUTION SYSTEMS, ETC. COORDINATE WORK AND SCHEDULE WITH OTHER TRADES.
8. AT ALL TIMES KEEP THE OWNER'S PROPERTY CLEAN AND IN TIDY CONDITION. CLEAN AFFECTED WORK AREA AND REMOVE ALL DEBRIS FROM EQUIPMENT. FOLLOW MANUFACTURERS' INSTALLATION AND STARTUP INSTRUCTIONS.
9. PROVIDE WARNING SIGNS AND BARRIERS AS REQUIRED TO MEET INSPECTION DEPARTMENT'S REQUIREMENTS.
10. DRAWINGS SHOW GENERAL INTENT OF WORK AND NOT THE DETAILS OF THE INSTALLATION.
11. GUARANTEE IN WRITING ALL MATERIAL AND WORKMANSHIP INCLUDING THE MANUFACTURER'S GUARANTEE FOR THE MINIMUM PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE UNLESS NOTED OTHERWISE IN MAIN FRONT END CONTRACT DOCUMENTS.
12. NO EXTRA CHARGES SHALL BE HONOURED EXCEPT WHERE THE CONTRACTOR RECEIVES A WRITTEN ORDER COUNTER-SIGNED OR OTHERWISE APPROVED BY THE OWNER.
13. AFTER THE APPROVAL OF DRAWINGS, THE RIGHT IS RESERVED TO MAKE REASONABLE CHANGES IN THE DESIGN OF THE WORK OR TO OMIT ANY SUCH PARTS AS THE OWNER MAY REQUIRE. IN THE CASE WHERE WORK OR MATERIAL IS ADDED TO OR DEDUCTED FOR THE WORK HEREIN SPECIFIED, A FAIR AND REASONABLE VALUATION OF THE SAME SHALL BE ADDED TO OR DEDUCTED FROM THE AMOUNT OF THIS CONTRACT.
14. THE CONSULTANT RESERVES THE RIGHT TO SELECT THE FINAL PRODUCT AND OR OPTIONS/ACCESSORIES DURING SHOP DRAWING REVIEW AT NO ADDITIONAL COST TO THE OWNER IN THE CASE OF ANY DISCREPANCIES LISTED BETWEEN CATALOGUE NUMBERS, WRITTEN PRODUCT DESCRIPTIONS AND/OR DETAILS SHOWN ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE CONSULTANT IN WRITING BEFORE TENDER CLOSES OF ANY DISCREPANCIES THAT MAY BE SHOWN ON THE DRAWINGS REGARDING LISTED PRODUCT SPECIFICATIONS AND CATALOGUE NUMBERS THAT MAY AFFECT PRICING AND GET CLARIFICATION ON THESE ITEMS BEFORE SUBMITTING FINAL TENDER PRICE. FAILURE OF THE ELECTRICAL CONTRACTOR TO REQUEST CLARIFICATIONS ON SUCH ITEMS DURING TENDER MAKES NULL AND VOID ANY FUTURE CLAIMS RELATING TO FINAL PRODUCT SELECTION BY THE CONSULTANT.

B. SUBMITTALS

1. BEFORE FABRICATION OF ANY MATERIALS OR EQUIPMENT, SUBMIT ONE (1) COPY OF DETAILED MANUFACTURER'S SHOP DRAWINGS OF EQUIPMENT AND APPARATUS FOR REVIEW. DO NOT ORDER MATERIALS UNTIL CONSULTANT HAS REVIEWED THE SHOP DRAWINGS. IF CORRECTIONS ARE REQUIRED, COPIES WILL BE RETURNED WITH CORRECTIONS NOTED. CORRECTED COPIES SHALL BE RESUBMITTED FOR REVIEW AND DISTRIBUTION. SUBMISSIONS SHALL BE MADE IN AMPLE TIME TO AVOID DELAYS IN THE WORK. THE REVIEW OF THE SHOP DRAWINGS SHALL BE, AND IS MUTUALLY UNDERSTOOD TO BE, IN REFERENCE TO GENERAL DESIGN ONLY. IF ERRORS IN THE DETAILED DIMENSIONS OR INTERFERENCE WITH THE WORKS ARE NOTICED, THE ATTENTION OF THE CONTRACTOR WILL BE CALLED TO SUCH ERRORS OR INTERFERENCE, BUT REVIEW OF THE DRAWINGS SHALL NOT IN ANY WAY RELIEVE THIS CONTRACTOR OF RESPONSIBILITY FOR ERRORS OR INTERFERENCE, OR FROM THE NECESSITY OF FURNISHING SUCH WORKS AND MATERIALS AS MAY BE REQUIRED FOR THE COMPLETION OF THE WORK AT ANY TIME UNTIL FORMAL ACCEPTANCE.
2. THE ELECTRICAL CONTRACTOR IS TO REVIEW, DATE AND SIGN ALL ELECTRICAL SHOP DRAWINGS PRIOR TO SUBMITTING TO THE CONSULTANT FOR REVIEW.
3. THE ELECTRICAL CONTRACTOR TO PREPARE RECORD DRAWINGS (IN AUTOCAD AND PDF FORMATS) INCLUDING ALL CHANGES AND DEVIATIONS IN COLOUR RED FROM CONSTRUCTION SET AND SUBMIT THEM TO THE CONSULTANT AND THE OWNER UPON THE COMPLETION OF THE PROJECT. AUTOCAD FILES CAN BE SUPPLIED BY THE CONSULTANT UPON REQUEST. THE CONSULTANT CAN PREPARE AS BUILT AUTOCAD DRAWINGS FOR THE ELECTRICAL CONTRACTOR FOR A NOMINAL FEE.
4. THE FOLLOWING ITEMS ARE TO BE SUBMITTED TO THE CONSULTANT AND THE OWNER AT THE END OF THE PROJECT IN A HARD COVER, THREE-RING BINDER WITH TABS INDICATING EACH SECTION:
 - 4.1. FINAL INSPECTION/VERIFICATION REPORTS FROM THE INSPECTION AUTHORITIES AND TESTING AGENCIES
 - 4.2. MANUFACTURER'S SPECIFICATION SHEETS AND PHOTOMETRIC DATA FOR LIGHT FIXTURES
 - 4.3. A COPY OF ALL FINAL REVIEWED SHOP DRAWINGS
 - 4.4. AUTOCAD AND PDF RECORD DRAWINGS
 - 4.5. OPERATING INSTRUCTIONS FOR EACH SYSTEM INCLUDING CONTROL AND WIRING DIAGRAMS
 - 4.6. MANUFACTURER RECOMMENDED MAINTENANCE PROCEDURES AND SCHEDULES
 - 4.7. LIGHTING VERIFICATION AND COMMISSIONING DOCUMENT FROM THIRD PARTY
 - 4.8. WARRANTY LETTER FOR ALL MATERIAL AND WORKMANSHIP
 - 4.9. USB DRIVE WITH ELECTRONIC COPY OF ITEMS 4.1 TO 4.8

C. PERMITS, TEST, REGULATIONS, ETC.

1. CARRY OUT ALL CHANGES AND ALTERATIONS REQUIRED BY THE AUTHORIZED INSPECTOR OF ANY AUTHORITY HAVING JURISDICTION WITHOUT DELAY TO THE PROGRESS OF THE WORK AND WITHOUT EXTRA COST.
2. PROVIDE WARNING SIGNS AND ARC FLASH LABELS AS SPECIFIED OR TO MEET REQUIREMENTS OF O.E.S.C, INSPECTION DEPARTMENT AND THE CONSULTANT.
3. UPON COMPLETION OF THE CONTRACT, ISSUE TO THE OWNER A FORMAL CERTIFICATION OF COMPLETION OF WORK BEFORE FINAL PAYMENT FOR WORK MAY BE CONSIDERED DUE.
4. PAYMENTS FOR ALL PERMITS, DEPOSITS, INSPECTION, SERVICES, AND OTHER FEES NECESSARY FOR THE WORK SHALL BE INCLUDED IN THE TENDER.

D. MATERIALS

1. ALL MATERIALS AND EQUIPMENT (PRODUCTS) TO BE NEW AND FREE OF DEFECTS, CSA, ULC OR CANADIAN RECOGNIZED CERTIFICATION.
2. THIS IS A BASE BID SPECIFICATION. ITEMS ON THE DRAWINGS AND SUBSEQUENT DIVISIONS OF THESE SPECIFICATIONS ARE LISTED WITH THE NAMES OF A SPECIFIC MANUFACTURER, THE FIRST OF WHICH IS BASE BID AND HAS BEEN USED IN THE DESIGN AND IS THE EQUIPMENT SHOWN ON THE DRAWINGS. THE PRICE SUBMITTED FOR THIS CONTRACT SHALL BE BASED ON THE USE OF MATERIALS AND EQUIPMENT SPECIFIED AS THE BASE BID.
3. WHERE MORE THAN ONE MANUFACTURER IS LISTED FOR A PARTICULAR ITEM OR GROUPS OF ITEMS, THE CONTRACTOR SHALL STATE IN HIS TENDER FORM COST SAVINGS (IF ANY) FOR THE USE OF ALTERNATE PRODUCTS, AND SHALL NAME THE ALTERNATE MANUFACTURERS. HOWEVER, THESE PROPOSED MATERIALS MUST NOT BE USED IN CALCULATING THE BASE TENDER PRICE. THE CONSULTANT AND/OR OWNER SHALL HAVE THE FINAL OPTION OF ACCEPTING OR REJECTING ALTERNATE EQUIPMENT.
4. WHERE OTHER THAN A FIRST-NAMED PRODUCT IS PROPOSED, THE BIDDER WILL BE DEEMED TO REPRESENT THAT NAMED PRODUCT CONFORMS TO THE PERFORMANCE, QUALITY, SPACE AND WEIGHT CHARACTERISTICS OF THE BASE BID PRODUCT. THIS CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL DESIGN OR CONSTRUCTION COSTS GENERATED BY THE USE OF THE NON-FIRST NAMED BID MATERIAL. ACCEPTANCE OF NON-BASE MANUFACTURERS WITH RESPECT TO THEIR EQUIVALENCY SHALL BE SUBJECT TO THE CONSULTANT'S REVIEW OF SHOP DRAWINGS.
5. THE CATALOG NUMBER OF THE SPECIFIED DEVICE MAY NOT DESIGNATE ALL THE ACCESSORY PARTS AND APPURTENANCES REQUIRED FOR THE PARTICULAR USE OR FUNCTION. THE ELECTRICAL CONTRACTOR SHALL ARRANGE WITH THE MANUFACTURER FOR THE PURCHASE OF ALL PARTS REQUIRED FOR THE COMPLETE INSTALLATION AND OPERATION WITHOUT EXTRA COST TO THE OWNER.

E. WIRES AND CABLES

1. ALL WIRING SHALL BE MINIMUM COPPER NO. 12 AWG WITH 600V INSULATION FOR 120/208V WIRING AND 1000V FOR 600V WIRING OF CHEMICALLY CROSS-LINKED THERMOSETTING POLYETHYLENE (XLPE) MATERIAL SUITABLE FOR 90° OPERATION. CONDUCTORS NO. 10 AWG AND LARGER SHALL BE STRANDED. CONDUCTOR SIZES SHALL BE IN ACCORDANCE WITH THE OESC AND AS INDICATED ON THE DRAWINGS.
2. ALUMINUM WIRING IS NOT ACCEPTABLE UNLESS NOTED OTHERWISE.
3. NMD90 (PVC JACKETED) WIRING SHALL NOT BE USED AND IS NOT ACCEPTABLE.
4. ALL LOW VOLTAGE 6-24VDC EMERGENCY LIGHTING WIRING SHALL BE MINIMUM COPPER NO.10 AWG.
5. AC90 CABLE MAY ONLY BE USED FOR SHORT RUNS WITH MAXIMUM DISTANCE OF 3660mm (12ft) TO LIGHT FIXTURES AND RECEPTACLES IN CONCEALED AREAS ONLY UNLESS NOTED OTHERWISE ON DRAWINGS. AC90 CABLE (INCLUDING FIRE ALARM) IS NOT TO BE USED IN OPEN CEILING AREAS, ELEVATOR SHAFT AND STAIRWELL.
6. WHERE CONDUCTOR SIZES ARE NOT INDICATED THEY SHALL BE SIZED TO ENSURE THE VOLTAGE DROP DOES NOT EXCEED 2% FOR BRANCH CIRCUIT AND 3% FOR MAIN FEEDER AND THE REQUIREMENTS OF THE OESC.
7. ALL WIRING TO BE INSTALLED IN CONDUIT OR RACEWAY AND SHALL BE EQUIPPED WITH A GREEN INSULATED BOND CONDUCTOR SIZED TO MEET THE REQUIREMENTS OF THE OESC.

F. CONDUIT

1. EMT AND RIGID GALVANIZED STEEL (RGS) CONDUIT TO BE CONCEALED IN FINISHED AREAS OF THE BUILDING.
2. FLEXIBLE METALLIC CONDUIT MAY BE USED FOR SHORT CONNECTIONS TO VIBRATING MECHANICAL EQUIPMENT.
3. MINIMUM CONDUIT SIZE SHALL BE 21mm (3/4") UNLESS NOTED OTHERWISE ON THE DRAWINGS.
4. WHERE SLEEVES OR OPENINGS ARE INSTALLED IN WALLS, FLOORS, ROOF OR PARTITIONS TO ACCOMMODATE RACEWAYS OR CABLES, PROVIDE ALL NECESSARY SEALS, FITTINGS, BARRIERS AND FIRE-RESISTANT MATERIALS TO RESTORE THE INSTALLATION TO ITS ORIGINAL FIRE RATING TO THE SATISFACTION OF THE GOVERNING AUTHORITIES.
5. WHERE CONDUIT MUST BE SURFACE MOUNTED TO EXPOSED CEILING/WALL SURFACES, PROVIDE METALLIC WIREMOLD PAINTED TO MATCH CEILING/WALL SURFACES UNLESS NOTED OTHERWISE.
6. ALL LOW VOLTAGE WIRING IS TO BE INSTALLED IN CONDUIT UNLESS NOTED OTHERWISE ON DRAWINGS

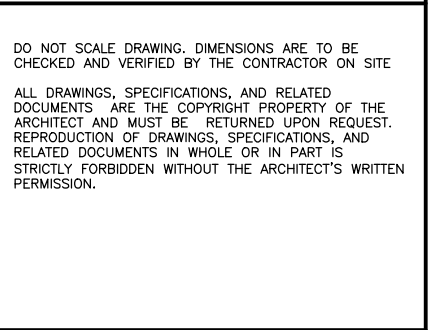
G. OUTLETS AND JUNCTION BOXES

1. PROVIDE STICK ON LABELS (BLACK LETTERING ON WHITE BACKGROUND) INDICATING THE PANEL AND CIRCUIT NUMBER FOR ALL RECEPTACLES AND CONTROL DEVICES. LABELS SHALL BE NEATLY PLUMB AND LEVEL ON THE COVER PLATE. POORLY POSITIONED LABELS WILL NOT BE ACCEPTED.
2. THE OWNER/CONSULTANT RESERVES THE RIGHT TO CHANGE LOCATIONS OF OUTLETS TO WITHIN 3660mm (12ft) OF LOCATION INDICATED ON THE DRAWINGS WITHOUT EXTRA CHARGE, PROVIDING CONTRACTOR IS ADVISED PRIOR TO INSTALLATION.
3. ALL JUNCTION BOXES AND CONDUIT SUPPORT SYSTEM SHALL BE SECURED TIGHT TO THE UNDERSIDE OF THE BUILDING STRUCTURE. SUSPENDED JUNCTION BOXES AND CONDUITS WILL NOT BE ACCEPTED.
4. ALL DEVICE BOXES TO BE RECESSED WHEREVER POSSIBLE. ALL JUNCTION BOXES SHALL BE SIZED TO ACCOMMODATE THE NUMBER OF RACEWAYS AND CONDUCTORS AND BE ACCESSIBLE AFTER INSTALLATION.
5. WHERE BOXES MUST BE SURFACE MOUNTED TO EXPOSED CEILING/WALL SURFACES, PROVIDE SURFACE MOUNTED WIREMOLD PAINTED TO MATCH CEILING/WALL SURFACES UNLESS NOTED OTHERWISE.

H. WIRING DEVICES

1. SWITCHES, RECEPTACLES AND OUTLETS TO BE DECORA STYLE, WHITE COLOR WITH STAINLESS STEEL COVER PLATES.
2. RECEPTACLES TO BE TAMPER RESISTANT AND MARKED "TR".
3. TOGGLE SWITCHES TO BE 15 OR 20 AMP, 120 OR 347 VOLT AS REQUIRED COMPLETE WITH BACK BOX.
4. LOW VOLTAGE SWITCHES, SENSORS OR DEVICES TO BE INSTALLED COMPLETE WITH DEVICE BACK BOX. ALL BOXES FOR CEILING MOUNTED DEVICES TO BE OCTAGON TYPE.
5. MAINTAIN A MINIMUM OF 150mm HORIZONTAL CLEARANCE BETWEEN BOXES INSTALLED BACK-TO-BACK IN WALL.

I. <u>LIGHTING</u>	
1.	ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL ALL LIGHT FIXTURES AS SPECIFIED ON PLANS. ALTERNATE LIGHT FIXTURES SHALL NOT BE USED IN CALCULATING BASE TENDER PRICE. THE ELECTRICAL CONTRACTOR MAY SUBMIT AN ALTERNATE LIGHTING PACKAGE WITH TENDER PRICE IF THERE IS A COST SAVING OVER THE BASE SPECIFIED LIGHT FIXTURES. THE CONTRACTOR SHALL STATE THE COST SAVING FOR THE ALTERNATE FIXTURES WITH TENDER AND THE OWNER RESERVES THE RIGHT TO ACCEPT OR REJECT THE ALTERNATE FIXTURES PACKAGE COST SAVING.
2.	SUPPLY AND INSTALL ALL MOUNTING HARDWARE AND ACCESSORIES TO SUIT THE CEILING AND INSTALLATION. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND PROVIDE REQUIRED MOUNTING ACCESSORIES AS REQUIRED. ALL FIXTURES TO BE CSA OR ULC LISTED.
3.	ALL LIGHT FIXTURES THAT ARE NOT SUPPORTED DIRECTLY BY AN OUTLET BOX AS PER OESC 30-302, ARE TO BE SECURED TO BUILDING STRUCTURE INDEPENDENTLY BY JACK CHAINS OR AIRCRAFT CABLES.
4.	EMERGENCY LIGHTING SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 3.2.7.3 OF THE LATEST EDITION OF ONTARIO BUILDING CODE. EMERGENCY LIGHTING SHALL BE PROVIDED TO AN AVERAGE LEVEL OF ILLUMINATION NOT LESS THAN 10 LUX AT FLOOR OR TREAD LEVEL AS REQUIRED BY OBC.
5.	ALL LOW VOLTAGE LIGHTING CONTROL DEVICES TO BE CSA OR ULC LISTED.
J. <u>LIGHTING CONTROLS</u>	
1.	ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL ALL LIGHTING CONTROL DEVICES AS SPECIFIED ON PLANS. ALTERNATE LIGHTING CONTROL DEVICES SHALL NOT BE USED IN CALCULATING BASE TENDER PRICE. THE ELECTRICAL CONTRACTOR MAY SUBMIT AN ALTERNATE LIGHTING CONTROL PACKAGE WITH TENDER PRICE IF THERE IS A COST SAVING OVER THE BASE SPECIFIED LIGHTING CONTROL PACKAGE. THE CONTRACTOR SHALL STATE THE COST SAVING FOR THE ALTERNATE LIGHTING CONTROL DEVICES WITH TENDER AND THE OWNER RESERVE THE RIGHTS TO ACCEPT OR REJECT THE ALTERNATE LIGHTING CONTROL PACKAGE COST SAVING.
2.	ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL ALL LOW VOLTAGE LIGHTING CONTROL DEVICES INCLUDING WIRING, ACCESSORIES, COVER PLATES, ETC. ALL LOW VOLTAGE WIRING DETAILS TO BE CONFIRMED BY LIGHTING CONTROL MANUFACTURER AND ALL LIGHTING CONTROL WIRING TO BE INSTALL IN CONDUIT/BOXES.
3.	ALL LOW VOLTAGE LIGHTING CONTROL WIRING TO BE INSTALLED IN CONDUIT WHERE INSTALLED IN EXPOSED AREAS. LOW VOLTAGE WIRING INSTALLED ABOVE ACCESSIBLE CEILING SPACES TO BE PROPERLY SUPPORTED SECURED TO STRUCTURE.
4.	ELECTRICAL CONTRACTOR TO SUBMIT DETAILED OCCUPANCY SENSOR, LOW VOLTAGE SWITCHING AND POWER PACK WIRING DIAGRAMS SPECIFIC TO THIS PROJECT DURING SHOP DRAWING SUBMISSION STAGE FOR REVIEW BY THE CONSULTANT.
5.	ELECTRICAL CONTRACTOR TO FIELD ADJUST AIMING, SENSITIVITY AND TIME DELAY AS REQUIRED.
6.	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 DRAWINGS AND MANUFACTURES INSTALLATION INSTRUCTIONS. WHERE OCCUPANT SENSORS, TIME SWITCHES, PROGRAMMABLE SCHEDULE CONTROLS, OR PHOTOSENSORS ARE INSTALLED, AT A MINIMUM, THE FOLLOWING PROCEDURES SHALL BE PERFORMED:
6.1.	CERTIFY THAT OCCUPANT SENSORS HAVE BEEN LOCATED AND AIMED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
6.2.	OCCUPANCY SENSORS AND EACH UNIQUE COMBINATION OF SENSOR TYPE AND SPACE GEOMETRY.
6.2.1.	STATUS INDICATOR OPERATES PROPERLY
6.2.2.	CONTROLLED LIGHTS TURN OFF OR DOWN TO THE PERMITTED LEVEL WITHIN REQUIRED TIME
6.2.3.	FOR AUTO-ON OCCUPANT SENSORS, THE LIGHTS TURN ON TO THE PERMITTED LEVEL WITH THE TIME REQUIRED
6.2.4.	FOR MANUAL-ON SENSORS, THE LIGHTS TURN ON ONLY WHEN MANUALLY ACTIVATED
6.2.5.	THE LIGHTS ARE NOT INCORRECTLY TURNED ON BY MOVEMENT IN NEARBY AREAS OR BY HVAC OPERATION
6.3.	THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO HIRE THE LIGHTING CONTROL MANUFACTURER'S INDIVIDUAL TO CARRY OUT AN INSPECTION AND PROVIDE DOCUMENTATION CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET OR EXCEED ALL DOCUMENTED PERFORMANCE CRITERIA. THE INDIVIDUALS RESPONSIBLE FOR THE TESTING SHALL NOT BE DIRECTLY INVOLVED IN EITHER THE DESIGN OR CONSTRUCTION OF THE PROJECT.
K. <u>GROUNDING</u>	
1.	GROUND THE SERVICE AND ALL NON-CURRENT CARRYING METAL PARTS IN ACCORDANCE WITH OESC.
2.	PROVIDE COMPLETE GROUNDING AND BONDING SYSTEM AS REQUIRED BY OESC.
3.	PROVIDE GROUND CONNECTION TO TELEPHONE PANEL, WATER MAIN AND ALL METALLIC PIPING.
ELECTRICAL DRAWING LIST	
E1.01	ELECTRICAL SPECIFICATIONS SHEET 1 OF 2 AND DRAWING LIST
E1.02	ELECTRICAL SPECIFICATIONS SHEET 2 OF 2 AND SYMBOLS AND DETAILS
E1.03	SYMBOLS, MECHANICAL SCHEDULES, DEMO AND NEW PANEL SCHEDULES
E1.04	DEMO AND NEW PANEL SCHEDULES
E2.01	ELECTRICAL KEYPLAN
E3.01	LIGHTING AND FIRE ALARM DEMOLITION
E3.02	LIGHTING AND FIRE ALARM NEW
E4.01	POWER AND SYSTEMS DEMOLITION
E5.01	POWER AND SYSTEMS NEW



B	ISSUED FOR PERMIT/ TENDER	2025.03.06	
A	ISSUED FOR CLIENT REVIEW	2025.03.03	
	DESCRIPTION	ISSUE DATE	

PROJECT NAME:

BISHOP RYAN CATHOLIC
SECONDARY SCHOOL

PROJECT ADDRESS:
1824 RYMAL RD E,
HANNON, ON L0R 1P0

PROJECT NO: 25007

DRAWING TITLE: ELECTRICAL SPECIFICATIONS SHEET 1 OF 2 AND DRAWING LIST	
SCALE:	N.T.S

DRAWN BY:
A.O.

CHECKED BY: J.S.

PLOT DATE:
2025.03.03

DRAWING NO:
E1.01

ELECTRICAL SPECIFICATIONS

L. FIELD QUALITY CONTROL


1. TEST ALL WORK. REMEDY AND MAKE GOOD ANY DEFECTS DISCLOSED BY SUCH TESTS AND TEST THE WORK AGAIN. TEST IN ACCORDANCE WITH APPROVED PROCEDURE.
2. TEST EACH POWER AND CONTROL CONDUCTOR FOR CONTINUITY AND GROUNDS. IMMEDIATELY FOLLOWING THIS TEST, CONNECT CONDUCTOR TO ITS PERMANENT TERMINAL.
3. INSPECT ALL CONNECTIONS, PROTECTIVE AND SAFETY DEVICES PRIOR TO ENERGIZING ANY EQUIPMENT AND MAKE NECESSARY ADJUSTMENTS, WHERE REQUIRED, TO ASSURE A PROPER AND SAFE OPERATION.
4. ALL EQUIPMENT SHALL BE WIPED CLEAN AND VACUUMED.



M. EXECUTION

WIRES AND CABLES:

1. DO NOT PULL THE WIRES BEFORE THE ENTIRE CONDUIT SYSTEM IS COMPLETED AND CLEANED.
2. ENSURE THAT WIRES INSTALLED IN THE INTERIOR OF EQUIPMENT ARE NEATLY LACED WITH PLASTIC TIES AND GRASPED AND SECURED IN PLACE.
3. RUN POWER CONDUCTORS FULL LENGTH WITHOUT SPLICES OR TAPS FROM ORIGIN TO DESTINATION, UNLESS SPECIFICALLY CALLED FOR ON THE DRAWINGS.
4. IDENTIFY EACH CABLE AND WIRE AT BOTH ENDS WITH PROPER CABLE AND WIRE NUMBER AS SHOWN ON THE DRAWINGS AND CABLE SCHEDULES IN ALL CONTROL PANELS, CONTROL DEVICES, DISTRIBUTION PANELS, PULL AND JUNCTION BOXES, ETC., USING APPROVED CABLE AND WIRE MARKERS.
5. FOLLOW NORMAL RECOMMENDED PRACTICES WHEN INSTALLING CABLES IN CABLE TRAYS TO AVOID DAMAGE TO CABLE SHEATHS, CONDUCTORS OR INSULATION. ENSURE THAT CABLES ARE NOT DAMAGED BY EXCESSIVE TENSION WHEN PULLING. REPLACE ANY DAMAGED AND REJECTED CABLE WITHOUT COST TO THE OWNER.
6. USE SUITABLE NON-HARDENING CABLE LUBRICANTS, WHERE REQUIRED, WHICH DO NOT CONTAIN ANY MATERIALS SUCH AS OIL, GREASE OR OTHER COMPOUNDS HARMFUL TO RUBBER, PVC OR POLYETHYLENE.
7. MAKE SPLICES AND TAPS FOR CONTROL CONDUCTORS AT APPROVED TERMINAL BLOCKS IN JUNCTION BOXES.

LINE TYPES	
LINE TYPE	DESCRIPTION
-----	DENOTES LINE VOLTAGE WIRE
-----	DENOTES 0-10V DIMMING WIRE
-----	DENOTES LOW VOLTAGE WIRE
-----	DENOTES LINE VOLTAGE AND 0-10V DIMMING WIRE
-----	DENOTES DEVICE TO BE DEMOLISHED OR RELOCATED
-----	DENOTES NEW OR RELOCATED DEVICE
-----	DENOTES EXISTING DEVICE TO REMAIN







SECURITY SYSTEMS	
SYMBOL	DESCRIPTION
	WALL MOUNTED SECURITY MOTION SENSOR
GENERAL NOTE: 1. REFER TO SECURITY SYSTEMS SCHEDULE FOR DETAILED SPECIFICATION.	

FIRE ALARM AND CARBON MONOXIDE SYSTEMS	
SYMBOL	DESCRIPTION
	WALL MOUNTED FIRE ALARM HORN. '*' DENOTES c/w WEATHERPROOF COVER.
	SURFACE MOUNTED FIRE ALARM CONTROL PANEL
GENERAL NOTE: 1. REFER TO "FIRE ALARM SYSTEM RENOVATIONS" IN ELECTRICAL SPECIFICATION FOR MORE DETAILS.	

ABBREVIATIONS



AFC	DENOTES ABOVE FINISHED ACCESSIBLE CEILING
AFF	DENOTES ABOVE FINISHED FLOOR
AFG	DENOTES ABOVE FINISHED GRADE
CH	DENOTES COUNTER HEIGHT
c/w	DENOTES COMPLETE WITH
ED	DENOTES EXISTING DEVICE TO BE DEMOLISHED INCLUDING WIRING/CONDUIT(S) STRIPPED BACK TO SOURCE
ER	DENOTES EXISTING DEVICE TO BE RELOCATED
EX	DENOTES EXISTING DEVICE TO REMAIN
GFCI	DENOTES GROUND FAULT CIRCUIT INTERRUPTER
HL	DENOTES DEVICE MOUNTED AT HIGH LEVEL NEAR CEILING
MF	DENOTES DEVICE MOUNTED AT THE FACE OF MILLWORK
NL	DENOTES NIGHT LIGHT
NTS	DENOTES NOT TO SCALE
REL	DENOTES EXISTING DEVICE AT RELOCATED LOCATION
TR	DENOTES TAMPER RESISTANT
TYP	DENOTES TYPICAL

CONTROL DEVICE

SYMBOL	DESCRIPTION
	120V OR 347V SINGLE GANG, SINGLE POLE SWITCH, UNLESS NOTED WITH CONTROL DEVICE TYPE DESIGNATION LETTER. 'X' DENOTES CONTROL DEVICE TYPE
	120V OR 347V DOUBLE GANG, TWO SINGLE SWITCHES, UNLESS NOTED WITH CONTROL DEVICE TYPE DESIGNATION LETTER. 'X' DENOTES CONTROL DEVICE TYPE
	120V OR 347V THREE GANG, THREE SINGLE POLE SWITCHES, UNLESS NOTED WITH CONTROL DEVICE TYPE DESIGNATION LETTER. 'X' DENOTES CONTROL DEVICE TYPE
	CEILING MOUNTED VACANCY/OCCUPANCY SENSOR. 'X' DENOTES CONTROL DEVICE TYPE
	LINE VOLTAGE THERMOSTAT
	START-STOP PUSH BUTTON CONTROLLER





























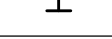
GENERAL NOTE: 1. REFER TO CONTROL DEVICE SCHEDULE FOR DETAILED SPECIFICATION.

GENERAL LIGHTING

SYMBOL	DESCRIPTION
	2'X4' (610mmX1220mm) LIGHT FIXTURE. 'X' DENOTES TYPE
	2'X2' (610mmX610mm) LIGHT FIXTURE. 'X' DENOTES TYPE



GENERAL NOTE: 1. REFER TO GENERAL LIGHTING SCHEDULE FOR DETAILED SPECIFICATIONS.

POWER AND SYSTEMS

SYMBOL	DESCRIPTION
	120VAC, 15 AMP DUPLEX RECEPTACLE
	120VAC, 15 AMP DUPLEX GROUND FAULT CIRCUIT INTERRUPT RECEPTACLE
	120VAC, 20 AMP T-SLOT DUPLEX RECEPTACLE
	120VAC, 20 AMP T-SLOT DUPLEX GROUND FAULT CIRCUIT INTERRUPT RECEPTACLE
	120VAC, 20 AMP T-SLOT DUPLEX RECEPTACLE LOCATED ABOVE DROP CEILING
	120VAC, 20 AMP T-SLOT DUPLEX GROUND FAULT CIRCUIT INTERRUPT RECEPTACLE LOCATED ON CEILING
	240VAC, 30 AMP 14-30R DRYER RECEPTACLE
	240VAC, 50 AMP 14-50R STOVE RECEPTACLE
 L6-20R	CSA NON-LOCKING OR LOCKING RECEPTACLE. 'L6-20R' DENOTES AMPERAGE, VOLTAGE AND RECEPTACLE CONFIGURATION. REFER TO DRAWINGS FOR EXACT QUANTITIES AND CONFIGURATIONS
	HARD WIRED POWER CONNECTION RATED PER EQUIPMENT SPECIFICATION
	SURFACE MOUNTED ELECTRICAL PANEL BOARD
	RECESSED ELECTRICAL PANEL BOARD
	FAN OR MOTOR
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MAGNETIC MOTOR STARTER. 'X' DENOTES TYPE
 UH-X	UNIT HEATER. 'X' DENOTES TYPE
 HX	ELECTRIC WALL MOUNTED HEATER. 'X' DENOTES TYPE
	WALL MOUNTED DIGITAL CLOCK. 'XX' DENOTES TYPE
	CEILING MOUNTED RETRACTABLE CORD REEL WITH OUTLET
	HAND DRYER. 'X' DENOTES TYPE
 XD	DATA OUTLET. 'X' DENOTES NUMBER OF DATA OUTLET(S)
 XV	TELEPHONE OUTLET. 'X' DENOTES NUMBER OF TELEPHONE CABLE(S)
 XC	CABLE TV OUTLET. 'X' DENOTES NUMBER OF COAX CABLE(S)
 XD	CEILING RECESSED DATA OUTLET. 'X' DENOTES NUMBER OF DATA CABLE(S)
	WALL MOUNTED PUBLIC ADDRESS SPEAKER
	WALL MOUNTED PUBLIC ADDRESS TELEPHONE
	WALL MOUNTED TELEVISION
 WMX	WIREMOLD. EXACT LENGTH TO BE VERIFIED AND FIELD CUT ON SITE AS REQUIRED. 'X' DENOTES TYPE

GENERAL NOTE: 1. REFER TO POWER AND SYSTEMS SCHEDULE FOR DETAILED SPECIFICATION.

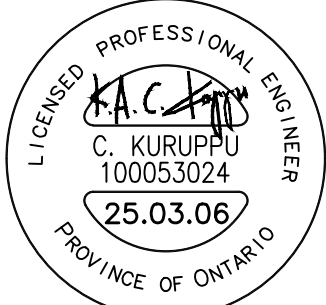
EMERGENCY LIGHTING

SYMBOL	DESCRIPTION
 BUX	EMERGENCY BATTERY UNIT WITH ONE DC HEAD. 'X' DENOTES TYPE
 RX YUX.C	CEILING MOUNTED EMERGENCY LIGHTING SINGLE REMOTE DC HEAD. 'X' DENOTES TYPE
YUX.C	'Y' INDICATES BATTERY OR COMBO UNIT. 'X' INDICATES TYPE OF BATTERY OR COMBO UNIT. 'C' INDICATES DEDICATED BRANCH WIRING CIRCUIT FROM BATTERY OR COMBO UNIT. WIRE TO BE SIZED TO ENSURE NO MORE THAN 5% VOLTAGE DROP PER BRANCH

GENERAL NOTE: 1. REFER TO EMERGENCY LIGHTING SCHEDULE FOR DETAILED SPECIFICATION.

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B	ISSUED FOR PERMIT/ TENDER	2025.03.06	
A	ISSUED FOR CLIENT REVIEW	2025.03.03	
	DESCRIPTION	ISSUE DATE	

PROJECT NAME:

BISHOP RYAN CATHOLIC
SECONDARY SCHOOL

PROJECT ADDRESS:

1824 RYMAL RD E,
HANNON, ON L0R 1P0

PROJECT NO.

25007

DRAWING TITLE:

ELECTRICAL
SPECIFICATION SHEET 2
OF 2 AND SYMBOLS AND
DETAILS

SCALE:

N.T.S

DRAWN BY:

A.O.

CHECKED BY:

J.S.

PLOT DATE:

2025.03.03

DRAWING NO:

E1.02

POWER AND SYSTEMS SCHEDULE									
TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	VOLTAGE (V)	AMPS (A)	WATTS (W)	PHASE	COMMENTS	
CR1	HUBBLE	HBLI45123GF20	CEILING MOUNTED RETRACTABLE CORD REEL WITH OUTLET c/w DUPLEX OUTLET BOX/GFCI MODULE	120			1		

GENERAL LIGHTING SCHEDULE														
TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	VOLTAGE (V)	WATTS (W)	LUMENS	EFFICACY (LUMENS/W)	0-10V DIMMING	LISTING REQUIRED	DISTR. TYPE	COLOUR TEMP(K)	CRI	MOUNTING	COMMENTS
L1	COOPER LIGHTING	22CGTS-L3C3-MID-3500K	2' X 2' FLAT PANEL	120	30.2	3681	122	YES			3500K	80	RECESSED	
L2	COOPER LIGHTING	24CGTS-L3C3-MID-3500K	2' X 4' FLAT PANEL	120	39.7	5016	126	YES			3500K	80	RECESSED	

CONTROL DEVICE SCHEDULE									
TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	VOLTAGE AC (V)	VOLTAGE DC (VDC)	NO. OF RELAYS	DIMMING	MOUNTING	COMMENTS
O1	LUTRON	MS-Z101-WH	0-10V DIMMER OCCUPANCY/VACANCY SENSOR	120		1	YES	WALL	

OCCUPANCY SENSOR TIME SETTING	
ROOM DESCRIPTION	TIME SETTING (MINUTES)
BEAUTY/CARE AREA	10

DEMO PANEL SCHEDULE

PANEL ID: LP-2A				MOUNTING: SURFACE				PANEL MAINS: 225 A				
VOLTAGE: 120/208V				LOCATION: ELECTRICAL ROOM				MAIN BREAKER: X A				
PHASE/WIRE: 3PH/4W				FED FROM: PP-A				KAIC RATING: 10 KAIC				
DESCRIPTION	BRK SIZE	BRK TYPE	WIRE SIZE	LOAD	CCT	BUS	CCT	LOAD	WIRE SIZE	BRK TYPE	BRK SIZE	DESCRIPTION
W CORRIDOR EXITS	15A-1P			200	1	A	2	300			15A-1P	SW STAIR & W CORRIDOR NL
W CORRIDOR LTG	15A-1P			500	3	B	4	500			15A-1P	SW STAIR & W CORRIDOR LTG
1135 COMPUTER LAB LTG	15A-1P			1200	5	C	6	900			15A-1P	1134 CLASSROOM LTG
1133B EXERCISE ROOM LTG	15A-1P			900	7	A	8	900			15A-1P	1135A EXERCISE ROOM LTG
1206 FEMALE W/R LTG	15A-1P			200	9	B	10	200			15A-1P	1205 M W/R LTG /SLOAN SINK
1203 CUST & 1204 DATA LTG	15A-1P			200	11	C	12	200			15A-1P	1201 CHANGE, 1202 W/R LTG
1198 GYM STAFF WORKRM LTG	15A-1P			400	13	A	14	200			15A-1P	1199 CHANGE, 1200 W/R LTG
W CORRIDOR	15A-1P			400	15	B	16	400			15A-1P	SW STAIR & W CORRIDOR
1134 CLASSROOM	15A-1P			400	17	C	18	400			15A-1P	1134 CLASSRM COMP
1134 CLASSROOM COMP	15A-1P			400	19	A	20	1000			15A-1P	1134 CLASSRM SMRTBD, TV
1133B EXERCISE ROOM	15A-1P			800	21	B	22	800			15A-1P	1133B EXERCISE ROOM
1133B EXERCISE ROOM	15A-1P			1000	23	C	24	800			15A-1P	1133A EXERCISE ROOM
1133A EXERCISE ROOM	15A-1P			800	25	A	26	1000			15A-1P	1133A EXERCISE ROOM
1206 FEMALE W/R	15A-1P			400	27	B	28	1200			20A-1P	1206 F W/R HAND DRYER
1206 F W/R HAND DRYER	20A-1P			1200	29	C	30	400			15A-1P	1205 MALE WASHROOM
1205 M W/R HAND DRYER	20A-1P			1200	31	A	32	1200			20A-1P	1205 M W/R HAND DRYER
1203 CUSTODIAN	15A-1P			200	33	B	34	500			15A-1P	1204 DATA
1204 DATA	15A-1P			500	35	C	36	500			15A-1P	1204 DATA
1202 WASHROOM	15A-1P			200	37	A	38	1200			20A-1P	1202 W/R HAND DRYER
1198 GYM STAFF WORKRM	15A-1P			400	39	B	40	400			15A-1P	1198 GYM STAFF COMP
1198 GYM STAFF COMP	15A-1P			400	41	C	42	600			15A-1P	1198 GYM STAFF COMP
1200 W/R HAND DRYER	20A-1P			1200	43	A	44	200			15A-1P	1200 WASHROOM
EF-18	15A-1P			600	45	B	46	600			15A-1P	EF-19
EF-34	15A-1P			600	47	C	48	600			15A-1P	FF-8
FF-9	15A-1P			600	49	A	50	600			15A-1P	FF-10
1132 H/C DOOR OPERATIONS	15A-1P			500	51	B	52	300			15A-1P	W CORRIDOR MECH LTG
SPARE	15A-1P				53	C	54				15A-1P	SPARE
SPARE	15A-1P				55	A	56				15A-1P	SPARE
SPARE	15A-1P				57	B	58				15A-1P	SPARE
SPARE	15A-1P				59	C	60				15A-1P	SPARE
SPARE	15A-1P				61	A	62				15A-1P	SPARE
SPARE	15A-1P				63	B	64				15A-1P	SPARE
					65	C	66					
					67	A	68					
					69	B	70					
					71	C	72					
BRK TYPE: * GFCI BREAKER				LOAD PHASE A (W): 12500								
** COMBINATION AFCI				LOAD PHASE B (W): 8900								
*** LOCK ON BREAKER				LOAD PHASE C (W): 9900								
				TOTAL LOAD (W): 31300								
				TOTAL AMPS (A): 86.8827								

NEW PANEL SCHEDULE

PANEL ID: LP-2A				MOUNTING: SURFACE								PANEL MAINS: 225 A			
VOLTAGE: 120/208V				LOCATION: ELECTRICAL ROOM								MAIN BREAKER: X A			
PHASE/WIRE: 3PH/4W				FED FROM: PP-A								KAIC RATING: 10 KAIC			
DESCRIPTION	BRK SIZE	BRK TYPE	WIRE SIZE	LOAD	CCT	BUS	CCT	LOAD	WIRE SIZE	BRK TYPE	BRK SIZE	DESCRIPTION			
W CORRIDOR EXITS	15A-1P			200	1	A	2	300			15A-1P	SW STAIR & W CORRIDOR NL			
W CORRIDOR LTG	15A-1P			500	3	B	4	500			15A-1P	SW STAIR & W CORRIDOR LTG			
1135 COMPUTER LAB LTG	15A-1P			1200	5	C	6	900			15A-1P	1134 CLASSROOM LTG			
1133B EXERCISE ROOM LTG	15A-1P			900	7	A	8	900			15A-1P	1135A EXERCISE ROOM LTG			
1206 FEMALE W/R LTG	15A-1P			200	9	B	10	200			15A-1P	1205 M W/R LTG /SLOAN SINK			
1203 CUST & 1204 DATA LTG	15A-1P			200	11	C	12	200			15A-1P	1201 CHANGE, 1202 W/R LTG			
1198 GYM STAFF WORKRM LTG	15A-1P			400	13	A	14	200			15A-1P	1199 CHANGE, 1200 W/R LTG			
W CORRIDOR	15A-1P			400	15	B	16	400			15A-1P	SW STAIR & W CORRIDOR			
1134 CLASSROOM	15A-1P			400	17	C	18	400			15A-1P	1134 CLASSRM COMP			
1134 CLASSROOM COMP	15A-1P			400	19	A	20	1000			15A-1P	1134 CLASSRM SMRTBD, TV			
1133B EXERCISE ROOM	15A-1P			800	21	B	22	800			15A-1P	1133B EXERCISE ROOM			
1133B EXERCISE ROOM	15A-1P			1000	23	C	24	800			15A-1P	1133A EXERCISE ROOM			
1133A EXERCISE ROOM	15A-1P			800	25	A	26	1000			15A-1P	1133A EXERCISE ROOM			
1206 FEMALE W/R	15A-1P			400	27	B	28	1200			20A-1P	1206 F W/R HAND DRYER			
1206 F W/R HAND DRYER	20A-1P			1200	29	C	30	400			15A-1P	1205 MALE WASHROOM			
1205 M W/R HAND DRYER	20A-1P			1200	31	A	32	1200			20A-1P	1205 M W/R HAND DRYER			
1203 CUSTODIAN	15A-1P			200	33	B	34	500			15A-1P	1204 DATA			
1204 DATA	15A-1P			500	35	C	36	500			15A-1P	1204 DATA			
1202 WASHROOM	15A-1P			200	37	A	38	1200			20A-1P	1202 W/R HAND DRYER			
1198 GYM STAFF WORKRM	15A-1P			400	39	B	40	400			15A-1P	1198 GYM STAFF COMP			
1198 GYM STAFF COMP	15A-1P			400	41	C	42	600			15A-1P	1198 GYM STAFF COMP			
1200 W/R HAND DRYER	20A-1P			1200	43	A	44	200			15A-1P	1200 WASHROOM			
EF-18	15A-1P			600	45	B	46	600			15A-1P	EF-19			
EF-34	15A-1P			600	47	C	48	600			15A-1P	FF-8			
FF-9	15A-1P			600	49	A	50	600			15A-1P	FF-10			
1132 H/C DOOR OPERATIONS	15A-1P			500	51	B	52	300			15A-1P	W CORRIDOR MECH LTG			
1142 FRIDGE RECEPTACLES	15A-1P		2#12	400	53	C	54				15A-1P	SPARE			
1142 DISHWASHER RECEPTACLES	15A-1P		2#12	400	55	A	56				15A-1P	SPARE			
1142 KITCHEN GFI RECEPTACLE	20A-1P		2#12	800	57	B	58				15A-1P	SPARE			
1142 KITCHEN GFI RECEPTACLE	20A-1P		2#12	800	59	C	60				15A-1P	SPARE			
1142 KITCHEN GFI RECEPTACLE	20A-1P		2#12	800	61	A	62				15A-1P	SPARE			
1142 MICROWAVE RECEPTACLE	20A-1P		2#12	800	63	B	64				15A-1P	SPARE			
BEAUTY CARE RECEPTACLE	20A-1P		2#12	800	65	C	66	3000	3#8	40A-2P	1142 LIFESKILLS STOVE				
BEAUTY CARE RECEPTACLE	20A-1P		2#12	800	67	A	68	3000							
BEAUTY CARE RECEPTACLE	20A-1P		2#12	800	69	B	70	800							
1142 ISLAND RECEPTACLE	20A-1P		2#12	800	71	C	72					1142 ISLAND RECEPTACLE			
BRK TYPE: * GFCI BREAKER				LOAD PHASE A (W): 17500											
** COMBINATION AFCI				LOAD PHASE B (W): 12100											
*** LOCK ON BREAKER				LOAD PHASE C (W): 15700											
				TOTAL LOAD (W): 45300											
				TOTAL AMPS (A): 125.7439											

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B	ISSUED FOR PERMIT/ TENDER	2025.03.06
A	ISSUED FOR CLIENT REVIEW	2025.03.03
	DESCRIPTION	ISSUE DATE

PROJECT NAME:

BISHOP RYAN CATHOLIC SECONDARY SCHOOL

PROJECT ADDRESS:

1824 RYMAL RD E, HANNON, ON L0R 1P0

PROJECT NO:

25007

DRAWING TITLE:

SYMBOLS, MECHANICAL SCHEDULES, DEMO AND NEW PANEL SCHEDULES

SCALE:

N.T.S.

DRAWN BY:

A.O.

CHECKED BY:

J.S.

PLOT DATE:

2025.03.03

DRAWING NO:

E1.03

DEMO PANEL SCHEDULE

PANEL ID: LP-1A				MOUNTING: SURFACE								PANEL MAINS: 225 A			
VOLTAGE: 120/208V				LOCATION: ELECTRICAL ROOM								MAIN BREAKER: X A			
PHASE/WIRE: 3PH/4W				FED FROM: PP-A								KAIC RATING: 10 KAIC			
DESCRIPTION	BRK SIZE	BRK TYPE	WIRE SIZE	LOAD	CCT	BUS	CCT	LOAD	WIRE SIZE	BRK TYPE	BRK SIZE	DESCRIPTION			
NW CORRIDOR EXIT & EM-1A	15A-1P			900	1	A	2	300			15A-1P	NW STAIR & CORRIDOR NL			
NW STAIR & CORRIDOR LTG	15A-1P			600	3	B	4	700			15A-1P	NW CORRIDOR LTG			
1136 ELECT RM LTG	15A-1P			300	5	C	6	600			15A-1P	NW MECH CLOSET & DISP LTG			
1137 CLASSROOM LTG	15A-1P			1000	7	A	8	900			15A-1P	1138 CLASSROOM LTG			
1139 CLASSROOM LTG	15A-1P			900	9	B	10	900			15A-1P	1140 CLASSROOM LTG			
1141 CLASSROOM LTG	15A-1P			900	11	C	12	900			15A-1P	1142 CLASSROOM LTG			
1146 W/R, 1145 QUIET, 1144 W/R LTG	15A-1P			300	13	A	14	600			15A-1P	1143 SPECIAL ED LTG			
11467 SPECIAL ED LTG	15A-1P			600	15	B	16	600			15A-1P	1148 SPECIAL ED LTG			
1149, 1150, 1152 OFF, 1151 STOR LTG	15A-1P			700	17	C	18				15A-1P	BAS CONTROL			
NEW STAIR & CORRIDOR	15A-1P			600	19	A	20	600			15A-1P	NW CORRIDOR			
1136 ELECT RM	15A-1P			400	21	B	22	400			15A-1P	1136 ELECT RM BACKBD			
1136 ELECT RM FIRE ALARM	15A-1P			500	23	C	24	500			15A-1P	1136 ELECT RM SERVC BRD			
1137 CLASSROOM	15A-1P			800	25	A	26	400			15A-1P	1137 CLASSROOM COMP			
1137 CLASSROOM COMP	15A-1P			400	27	B	28	1000			15A-1P	1137 CLASSROOM SMTBRD,TV			
1138 CLASSROOM	15A-1P			400	29	C	30	400			15A-1P	1138 CLASSROOM COMP			
1138 CLASSROOM COMP	15A-1P			400	31	A	32	1000			15A-1P	1138 CLASSROOM SMRTBD, TV			
1139 CLASSROOM	15A-1P			400	33	B	34	400			15A-1P	1139 CLASSROOM COMP			
1139 CLASSROOM COMP	15A-1P			400	35	C	36	1000			15A-1P	1139 CLASSROOM SMRTBD, TV			
1140 CLASSROOM	15A-1P			400	37	A	38	400			15A-1P	1140 CLASSROOM COMP			
1140 CLASSROOM COMP	15A-1P			400	39	B	40	1000			15A-1P	1140 CLASSROOM SMRTBD, TV			
1141 CLASSROOM	15A-1P			400	41	C	42	400			15A-1P	1141 CLASSROOM COMP			
1141 CLASSROOM COMP	15A-1P			400	43	A	44	1000			15A-1P	1141 CLASSROOM SMRTBD, TV			
1142 CLASSROOM	15A-1P			400	45	B	46	400			15A-1P	1142 CLASSROOM COMP			
1142 CLASSROOM COMP	15A-1P			400	47	C	48	1000			15A-1P	1142 CLASSROOM SMRTBD, TV			
1146, 1144 WASHRM	15A-1P			400	49	A	50	400			15A-1P	1145 QUIET ROOM			
1146 W/R HAND DRYER	20A-1P			1200	51	B	52	1200			20A-1P	1144 W/R HAND DRYER			
1144 W/R WASHER	15A-1P			1500	53	C	54	5000							
1143 SPECIAL ED	15A-1P			600	55	A	56				30A-2P	1144 W/R DRYER			
1143 SPECIAL ED COMP	15A-1P			400	57	B	58	600			15A-1P	1143 SPECIAL ED COMP			
1147 SPECIAL ED	15A-1P			400	59	C	60	400			15A-1P	1147 SPECIAL ED			
1148 SPECIAL ED	15A-1P			600	61	A	62	500			15A-1P	1148 SPECIAL ED TV			
1149 OFFICE	15A-1P			400	63	B	64	400			15A-1P	1150 OFFICE			
1152 OFFICE, 1151 STOR	15A-1P			600	65	C	66				15A-1P	SPARE			
FF-11	15A-1P			600	67	A	68	600			15A-1P	EF-20			
UH-7	15A-1P			100	69	B	70	600			15A-1P	EF-21			
EF-22	15A-1P			600	71	C	72	600			15A-1P	EF-23			
EF-24	15A-1P			600	73	A	74	600			15A-1P	EF-25			
BPB-6	15A-1P			600	75	B	76	100			15A-1P	NW CORRIDOR HS-1			
GYM PROJECTOR	15A-1P				77	C	78				15A-1P	WIREMOLD 1142			
METER	15A-1P				79	A	80				15A-1P	WIREMOLD 1142			
SECURITY PNL	15A-1P				81	B	82				15A-1P	SPARE			
SCHOOL SIGN OUTSIDE	30A-1P				83	C	84				15A-1P	SPARE			
BRK TYPE: * GFCI BREAKER				LOAD PHASE A (W): 14900											
** COMBINATION AFCI				LOAD PHASE B (W): 15100				TOTAL LOAD (W): 47900							
*** LOCK ON BREAKER				LOAD PHASE C (W): 17900				TOTAL AMPS (A): 132.9610							

NEW PANEL SCHEDULE

PANEL ID: LP-1A				MOUNTING: SURFACE								PANEL MAINS: 225 A			
VOLTAGE: 120/208V				LOCATION: ELECTRICAL ROOM								MAIN BREAKER: X A			
PHASE/WIRE: 3PH/4W				FED FROM: PP-A								KAIC RATING: 10 KAIC			
DESCRIPTION	BRK SIZE	BRK TYPE	WIRE SIZE	LOAD	CCT	BUS	CCT	LOAD	WIRE SIZE	BRK TYPE	BRK SIZE	DESCRIPTION			
NW CORRIDOR EXIT & EM-1A	15A-1P			900	1	A	2	300			15A-1P	NW STAIR & CORRIDOR NL			
NW STAIR & CORRIDOR LTG	15A-1P			600	3	B	4	700			15A-1P	NW CORRIDOR LTG			
1136 ELECT RM LTG	15A-1P			300	5	C	6	600			15A-1P	NW MECH CLOSET & DISP LTG			
1137 CLASSROOM LTG	15A-1P			1000	7	A	8	900			15A-1P	1138 CLASSROOM LTG			
1139 CLASSROOM LTG	15A-1P			900	9	B	10	900			15A-1P	1140 CLASSROOM LTG			
1141 CLASSROOM LTG	15A-1P			900	11	C	12	900			15A-1P	1142 CLASSROOM LTG			
1146 W/R, 1145 QUIET, 1144 W/R LTG	15A-1P			300	13	A	14	600			15A-1P	1143 SPECIAL ED LTG			
11467 SPECIAL ED LTG	15A-1P			600	15	B	16	600			15A-1P	1148 SPECIAL ED LTG			
1149, 1150, 1152 OFF, 1151 STOR LTG	15A-1P			700	17	C	18				15A-1P	BAS CONTROL			
NEW STAIR & CORRIDOR	15A-1P			600	19	A	20	600			15A-1P	NW CORRIDOR			
1136 ELECT RM	15A-1P			400	21	B	22	400			15A-1P	1136 ELECT RM BACKBD			
1136 ELECT RM FIRE ALARM	15A-1P			500	23	C	24	500			15A-1P	1136 ELECT RM SERVC BRD			
1137 CLASSROOM	15A-1P			800	25	A	26	400			15A-1P	1137 CLASSROOM COMP			
1137 CLASSROOM COMP	15A-1P			400	27	B	28	1000			15A-1P	1137 CLASSROOM SMTBRD,TV			
1138 CLASSROOM	15A-1P			400	29	C	30	400			15A-1P	1138 CLASSROOM COMP			
1138 CLASSROOM COMP	15A-1P			400	31	A	32	1000			15A-1P	1138 CLASSROOM SMRTBD, TV			
1139 CLASSROOM	15A-1P			400	33	B	34	400			15A-1P	1139 CLASSROOM COMP			
1139 CLASSROOM COMP	15A-1P			400	35	C	36	1000			15A-1P	1139 CLASSROOM SMRTBD, TV			
1140 CLASSROOM	15A-1P			400	37	A	38	400			15A-1P	1140 CLASSROOM COMP			
1140 CLASSROOM COMP	15A-1P			400	39	B	40	1000			15A-1P	1140 CLASSROOM SMRTBD, TV			
1141 CLASSROOM	15A-1P			400	41	C	42	400			15A-1P	1141 CLASSROOM COMP			
1141 CLASSROOM COMP	15A-1P			400	43	A	44	1000			15A-1P	1141 CLASSROOM SMRTBD, TV			
1142 CLASSROOM	15A-1P			400	45	B	46				15A-1P	SPARE			
1142 CLASSROOM COMP	15A-1P			400	47	C	48	1000			15A-1P	1142 CLASSROOM SMRTBD, TV			
1146, 1144 WASHRM	15A-1P			400	49	A	50	20			15A-1P	EF-1			
1146 W/R HAND DRYER	20A-1P			1200	51	B	52	1200			20A-1P	1144 W/R HAND DRYER			
1144 W/R WASHER	15A-1P			1500	53	C	54	5000							
1143 SPECIAL ED	15A-1P			600	55	A	56				30A-2P	1144 W/R DRYER			
1143 SPECIAL ED COMP	15A-1P			400	57	B	58	600			15A-1P	1143 SPECIAL ED COMP			
1147 SPECIAL ED	15A-1P			400	59	C	60	400			15A-1P	1147 SPECIAL ED			
1148 SPECIAL ED	15A-1P			600	61	A	62	500			15A-1P	1148 SPECIAL ED TV			
1149 OFFICE	15A-1P			400	63	B	64	400			15A-1P	1150 OFFICE			
1152 OFFICE, 1151 STOR	15A-1P			600	65	C	66				15A-1P	SPARE			
FF-11	15A-1P			600	67	A	68	600			15A-1P	EF-20			
UH-7	15A-1P			100	69	B	70	600			15A-1P	EF-21			
EF-22	15A-1P			600	71	C	72	600			15A-1P	EF-23			
EF-24	15A-1P			600	73	A	74	600			15A-1P	EF-25			
BPB-6	15A-1P			600	75	B	76	100			15A-1P	NW CORRIDOR HS-1			
GYM PROJECTOR	15A-1P				77	C	78				15A-1P	WIREMOLD 1142			
METER	15A-1P				79	A	80				15A-1P	WIREMOLD 1142			
SECURITY PNL	15A-1P				81	B	82				15A-1P	SPARE			
SCHOOL SIGN OUTSIDE	30A-1P				83	C	84				15A-1P	SPARE			
BRK TYPE: * GFCI BREAKER				LOAD PHASE A (W): 14520											
** COMBINATION AFCI				LOAD PHASE B (W): 14700				TOTAL LOAD (W): 47120							
*** LOCK ON BREAKER				LOAD PHASE C (W): 17900				TOTAL AMPS (A): 130.7959							

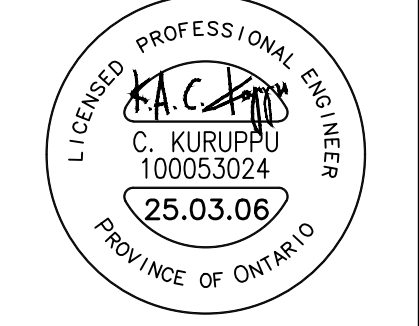
DEMOLITION KEYNOTES:

- A

EXISTING LOAD TO BE REMOVED FROM BREAKER AND LEFT AS SPARE.
- B

EXISTING LOAD TO BE REMOVED FROM BREAKER AND CONNECTED TO NEW LOAD

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B	ISSUED FOR PERMIT/ TENDER	2025.03.06
A	ISSUED FOR CLIENT REVIEW	2025.03.03
	DESCRIPTION	ISSUE DATE

PROJECT NAME:

BISHOP RYAN CATHOLIC SECONDARY SCHOOL

PROJECT ADDRESS:
1824 RYMAL RD E,
HANNON, ON LOR 1P0

PROJECT NO:
25007

DRAWING TITLE:
DEMO AND NEW PANEL SCHEDULES

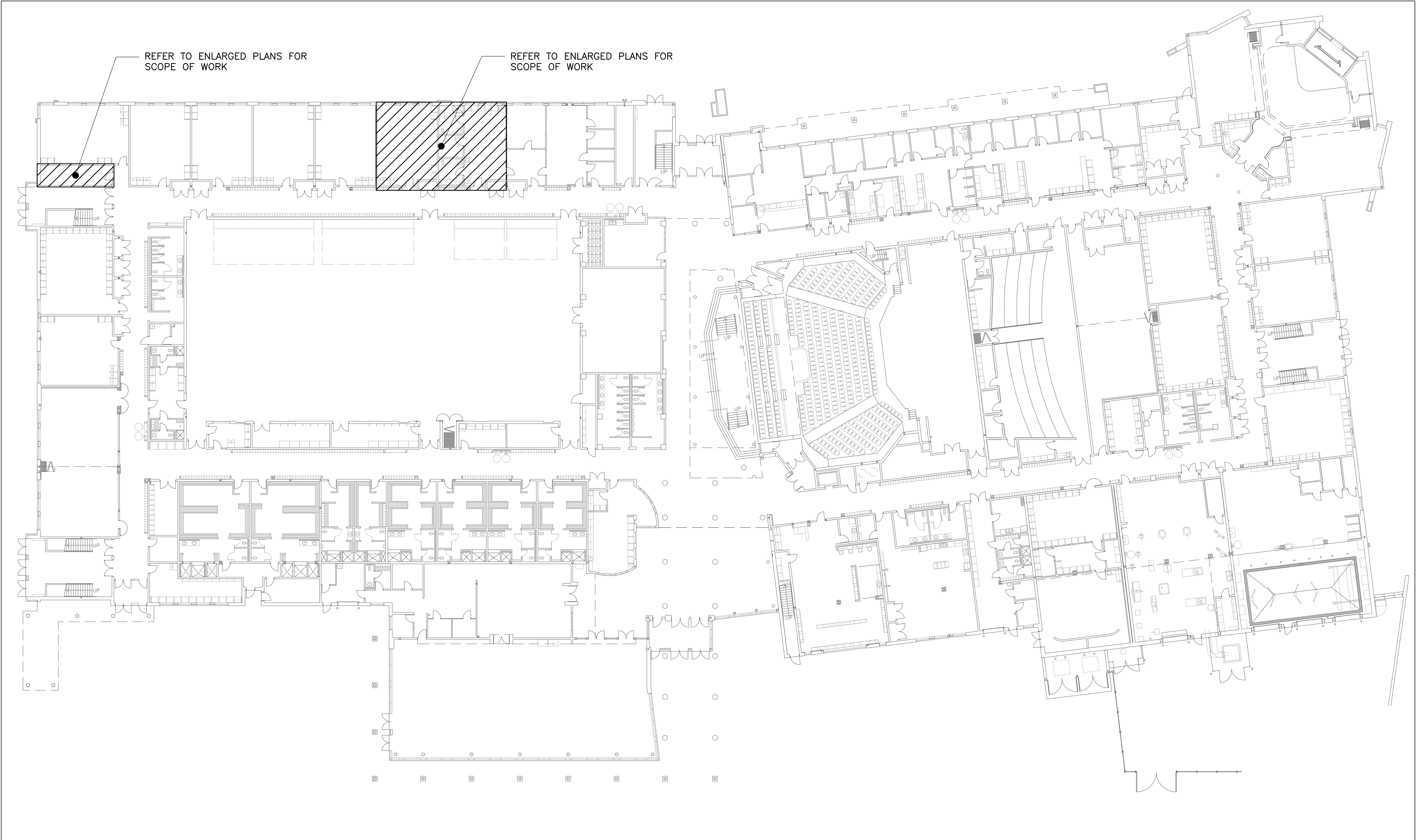
SCALE:
N.T.S.

DRAWN BY:
A.O.

CHECKED BY:
J.S.

PLOT DATE:
2025.03.03

DRAWING NO:
E1.04



ELECTRICAL KEYPLAN
SCALE: 1/250

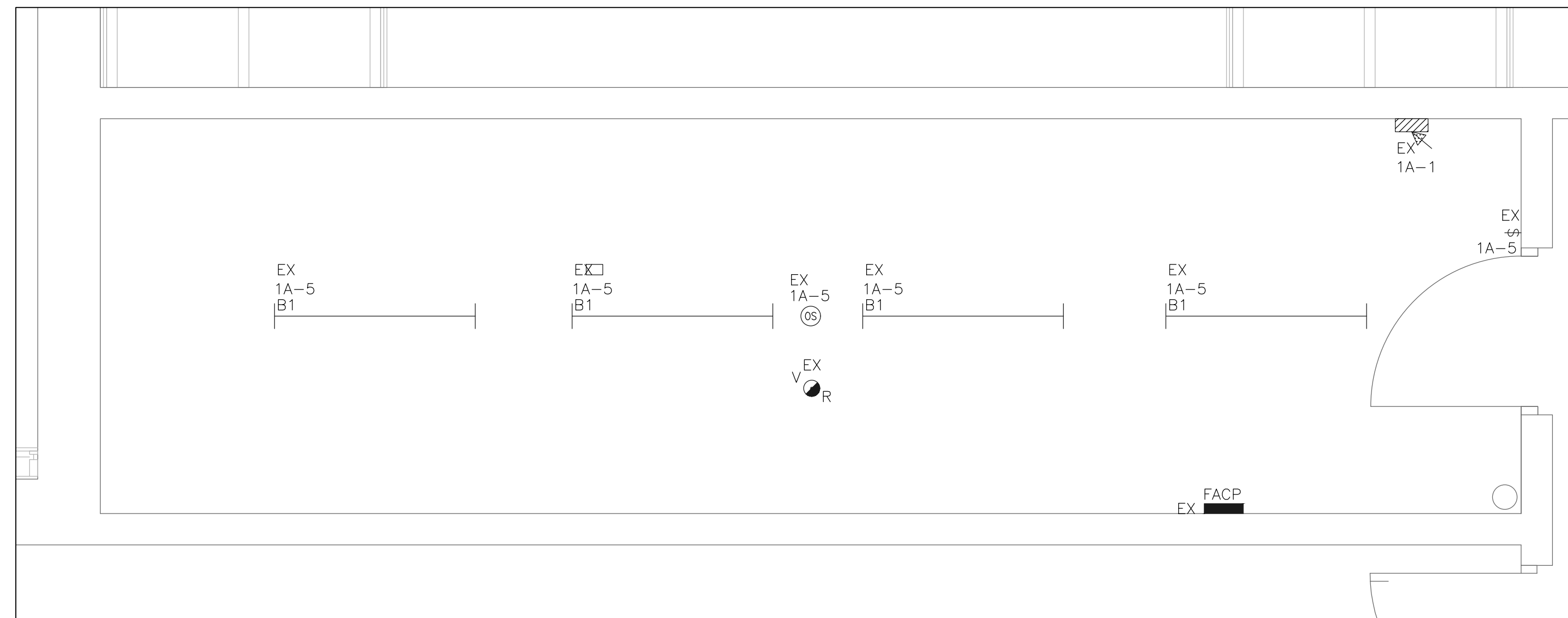
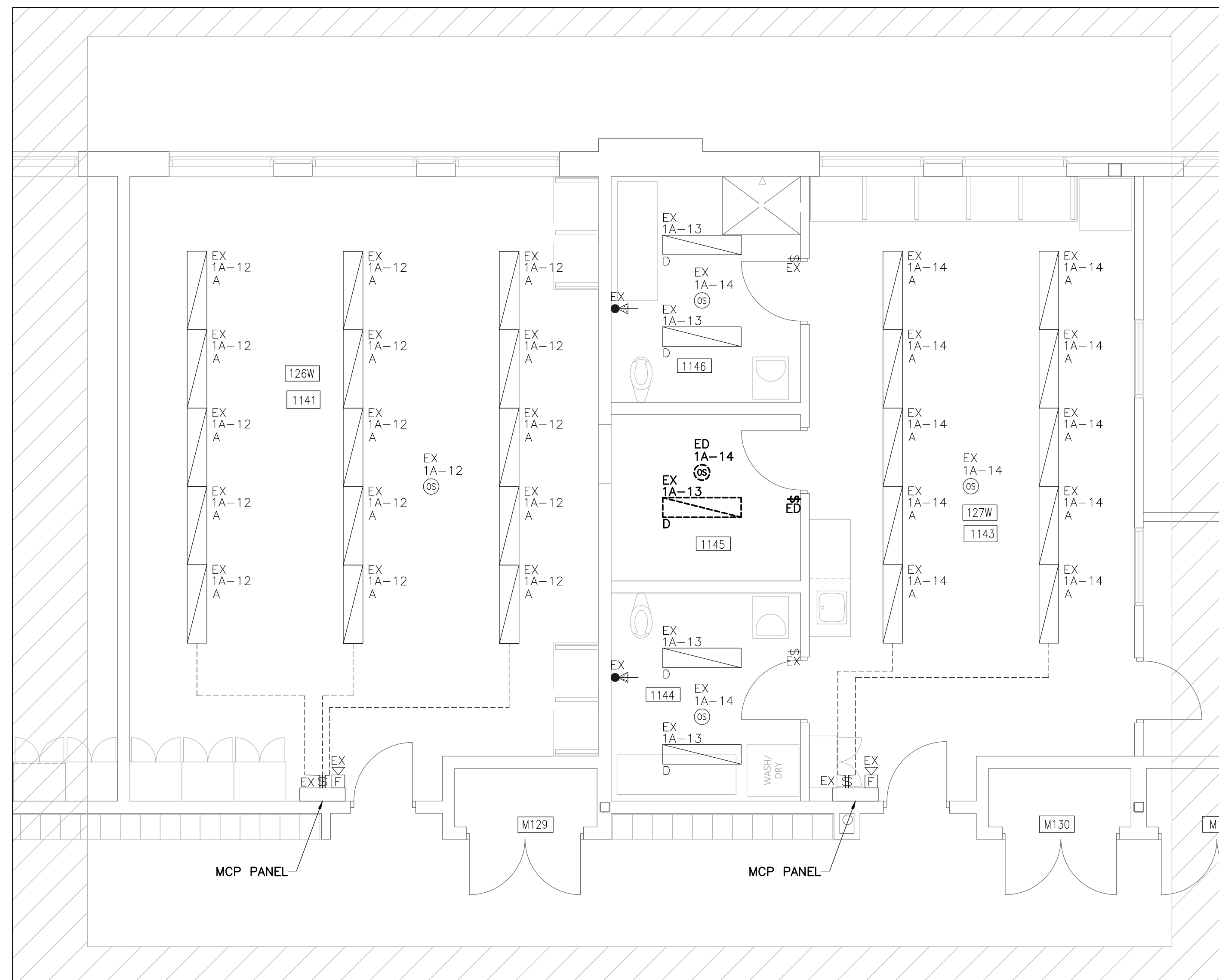
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LICENCED PROFESSIONAL ENGINEER
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100053024
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2400 INDUSTRIAL STREET
BURLINGTON, ON L7P 1A5
www.ckengr.com | info@ckengr.net | 905.631.1115

B	ISSUED FOR PERMIT/ TENDER	2025.03.06
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	DESCRIPTION	ISSUE DATE
PROJECT NAME:		
BISHOP RYAN CATHOLIC SECONDARY SCHOOL		
PROJECT ADDRESS:		
1824 RYMAL RD E, HANNON, ON L0R 1P0		
PROJECT NO:		
25007		
DRAWING TITLE:		
ELECTRICAL KEYPLAN		
SCALE:		
AS NOTED		
DRAWN BY:		
A.O.		
CHECKED BY:		
J.S.		
PLOT DATE:		
2025.03.03		
DRAWING NO:		
E2.01		



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8	ISSUED FOR PERMIT/ TENDER	2025.03.06
A	ISSUED FOR CLIENT REVIEW	2025.03.03
	DESCRIPTION	ISSUE DATE

PROJECT NAME: BISHOP RYAN CATHOLIC SECONDARY SCHOOL

PROJECT ADDRESS:
1824 RYMAL RD E,
HANNON, ON LOR 1P0

PROJECT NO:	25007
-------------	-------

DRAWING TITLE:

LIGHTING AND FIRE
ALARM DEMOLITION

SCALE: AS NOTED

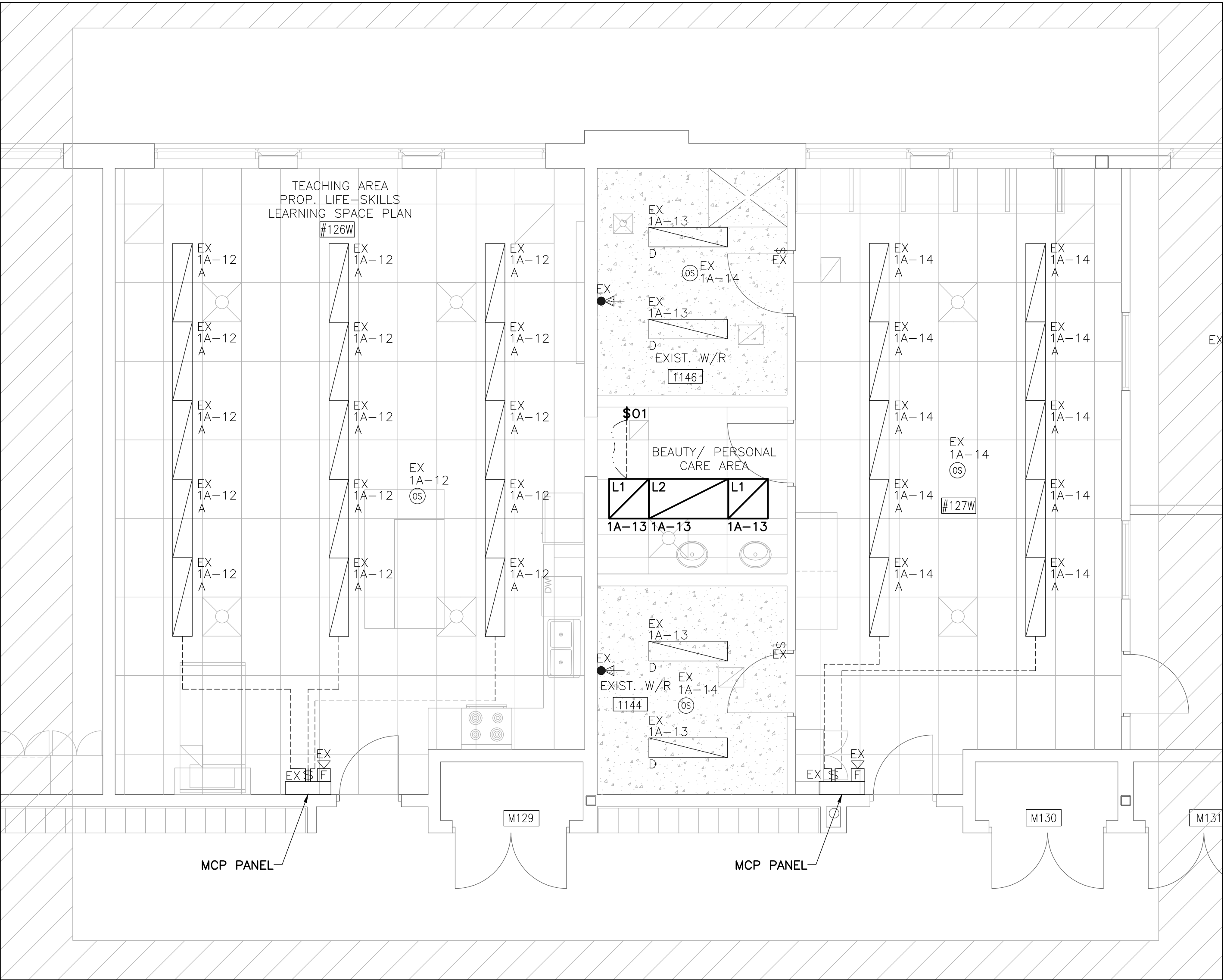
DRAWN BY: A.O.

HECKED BY: J.S.

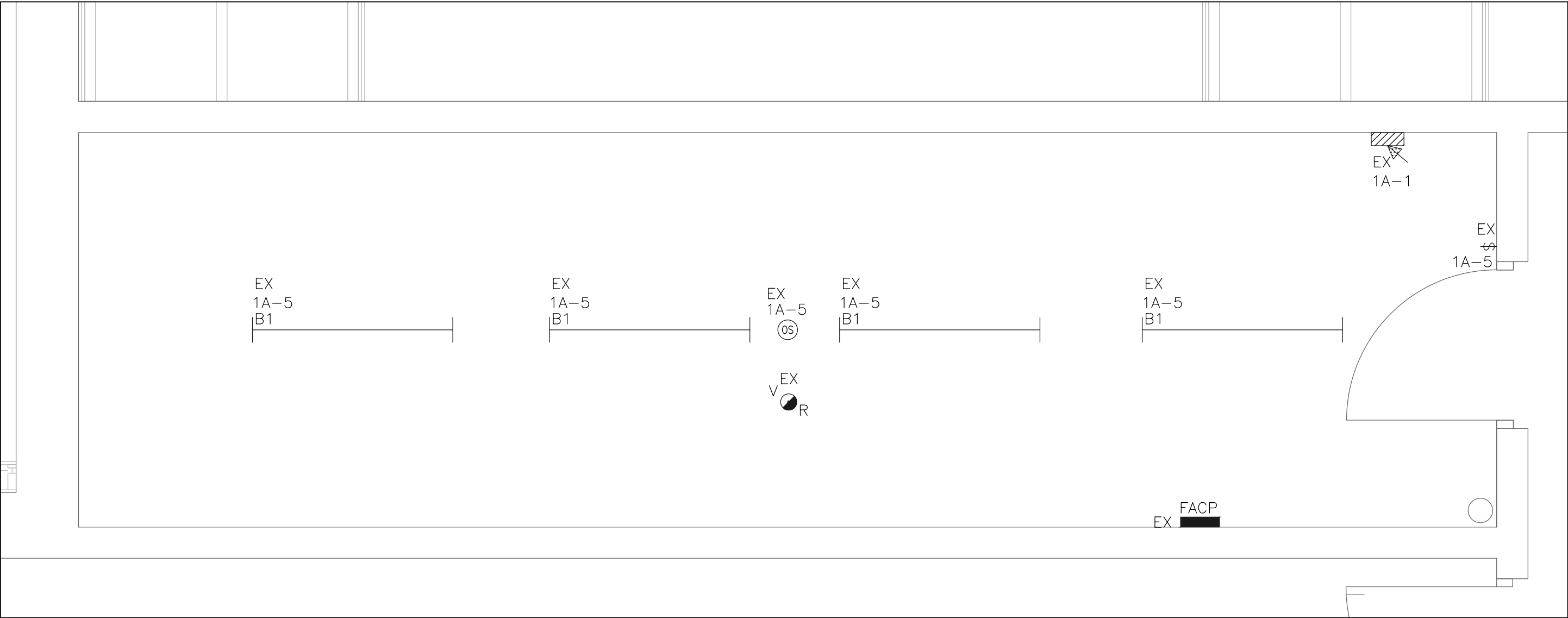
PLOT DATE: 2025.03.03

DRAWING NO:

E3.01



LIGHTING AND FIRE ALARM NEW -- ROOM 1142 AND ROOM 1143
SCALE: 1:50



LIGHTING AND FIRE ALARM NEW -- ROOM 1136 -- ELECTRICAL SERVICE ROOM
SCALE: 1:25

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LICENCED PROFESSIONAL ENGINEER
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PROJECT NAME:

BISHOP RYAN CATHOLIC SECONDARY SCHOOL

PROJECT ADDRESS:

1824 RYMAL RD E,
HANNOON, ON L0R 1P0

PROJECT NO:

25007

DRAWING TITLE:

LIGHTING AND FIRE ALARM NEW

SCALE:

AS NOTED

DRAWN BY:

A.O.

CHECKED BY:

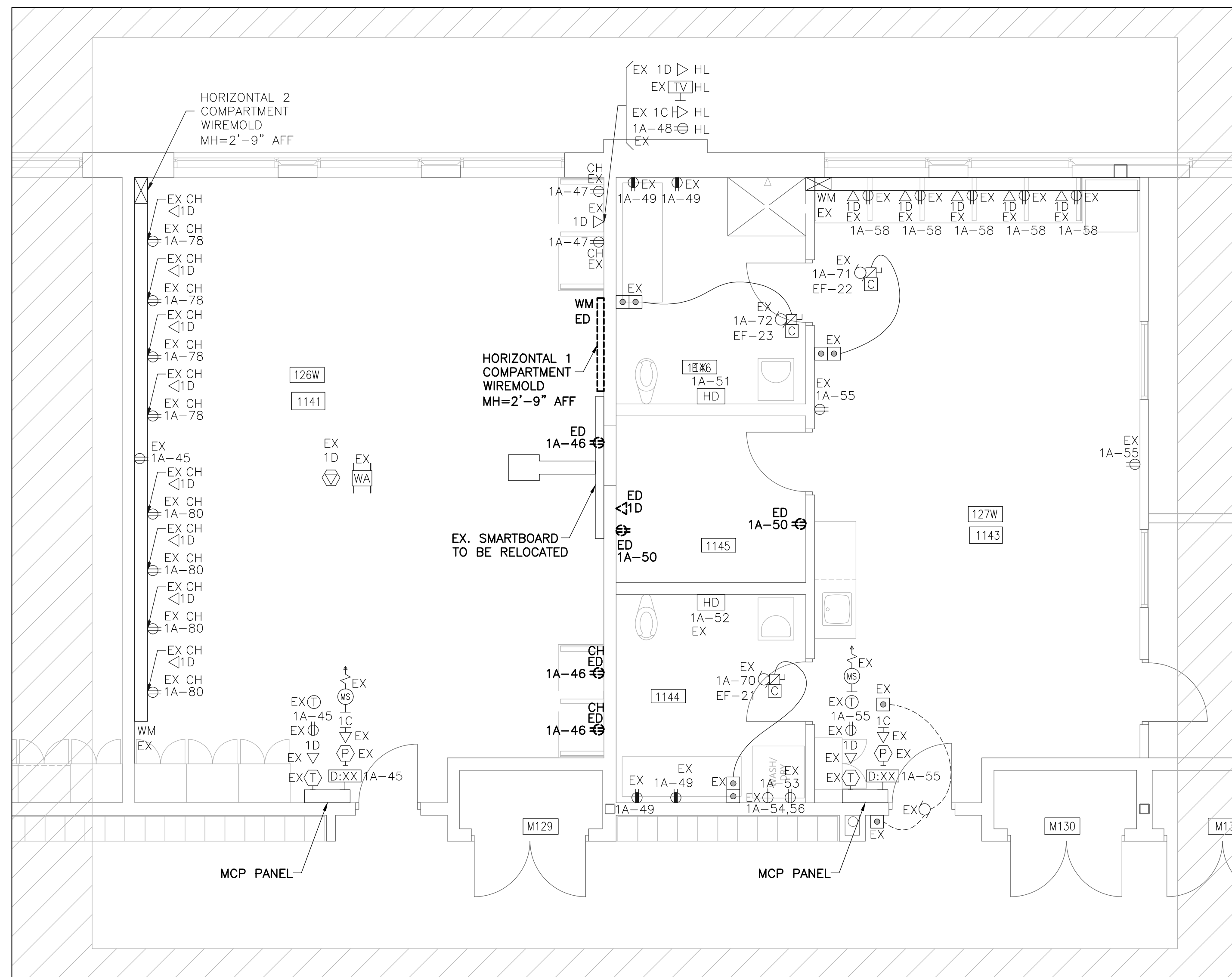
J.S.

PLOT DATE:

2025.03.03

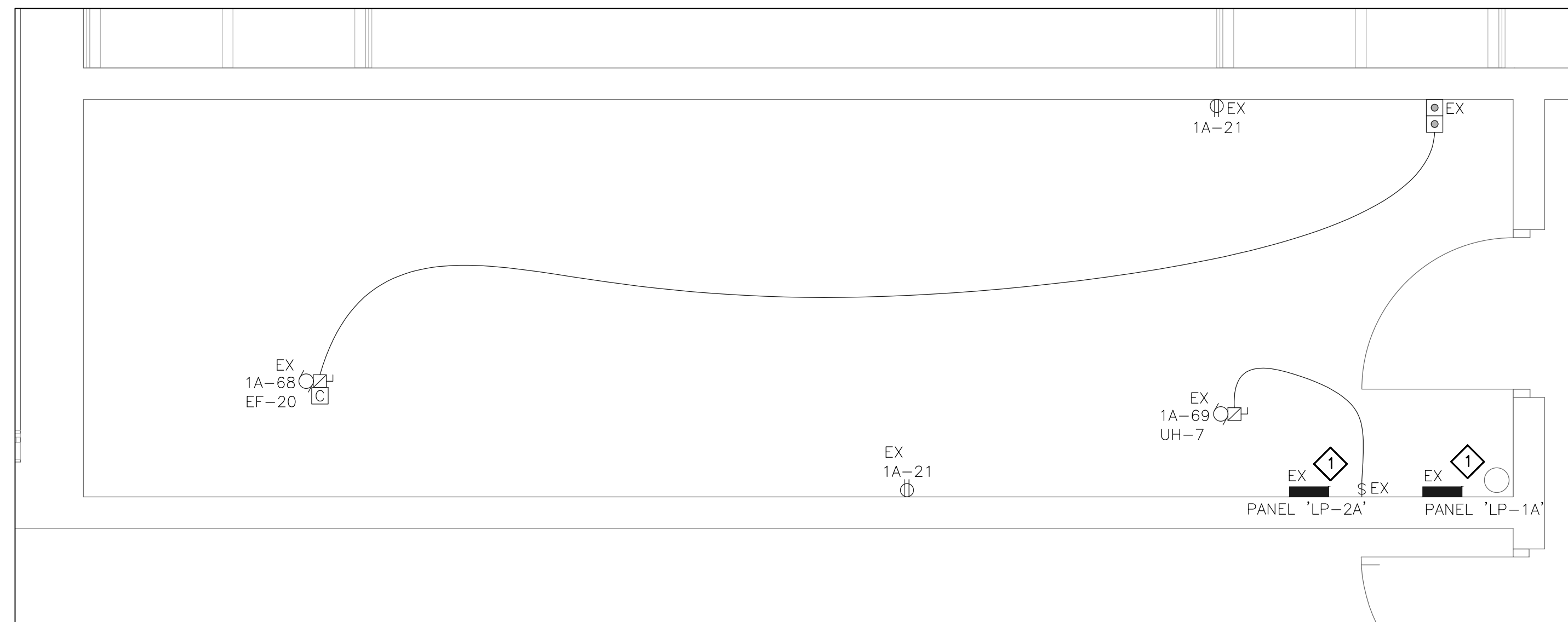
DRAWING NO:

E3.02



DRAWING KEYNOTES:

1 REFER TO PANEL SCHEDULES FOR BREAKER CHANGES IN THESE PANELS.



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	ISSUED FOR PERMIT/ TENDER	2025.03.06
	ISSUED FOR CLIENT REVIEW	2025.03.03
	DESCRIPTION	ISSUE DATE

PROJECT NAME:

BISHOP RYAN CATHOLIC
SECONDARY SCHOOL

PROJECT ADDRESS:

1824 RYMAL RD E,
HANNON, ON LOR 1P0

PROJECT NO:

25007

DRAWING TITLE:

POWER AND
SYSTEMS
DEMOLITION

SCALE:

AS NOTED

DRAWN BY:

A.O.

CHECKED BY:

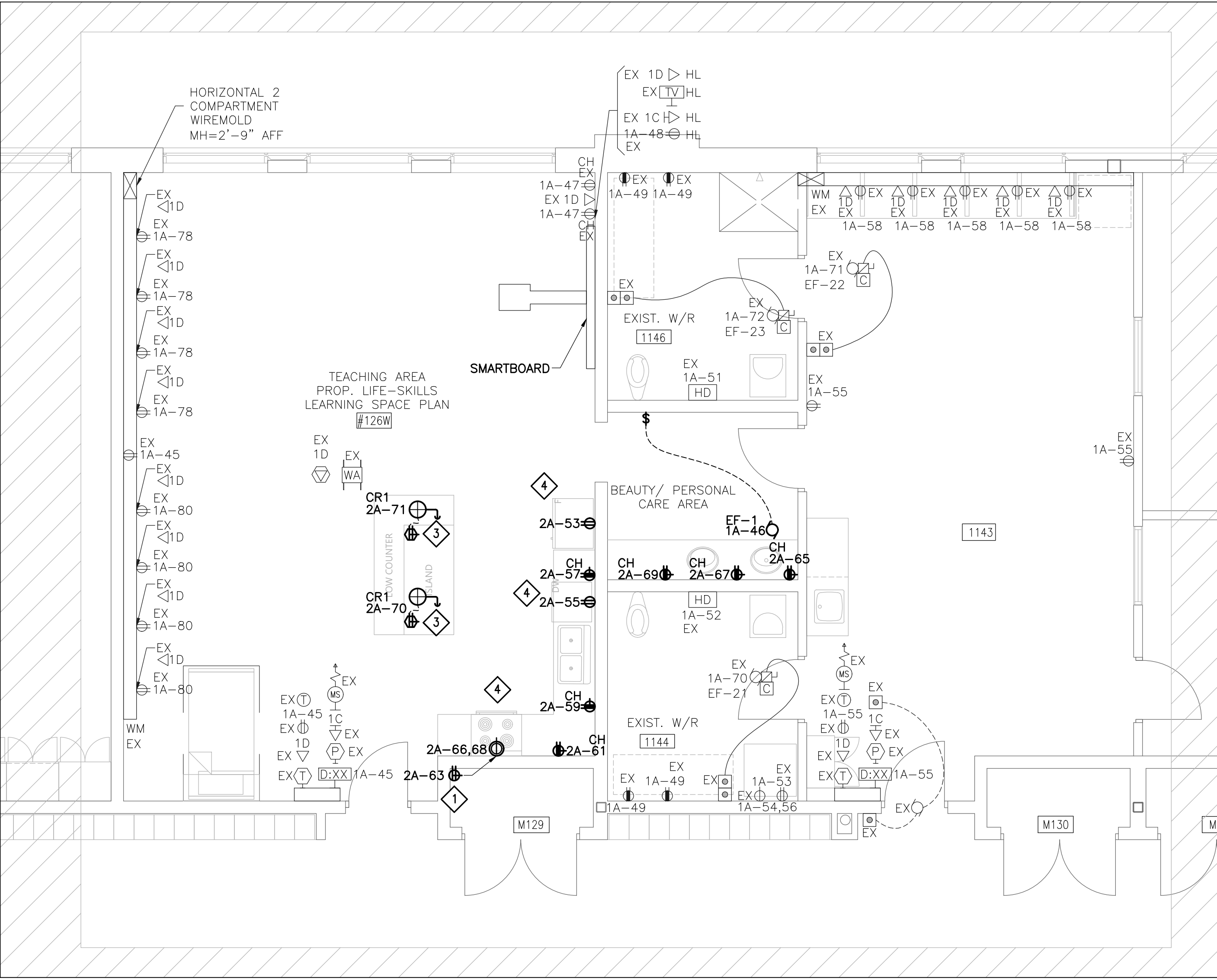
J.S.

PLOT DATE:

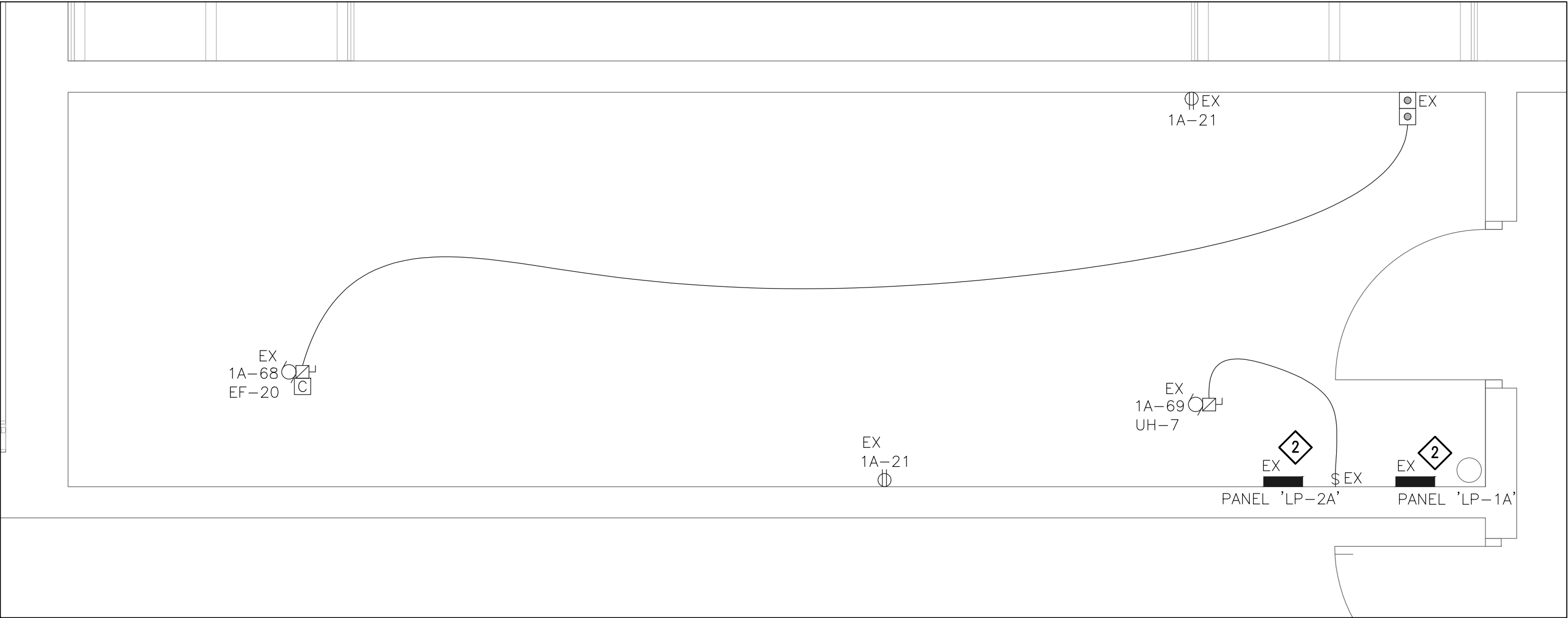
2025 03 03

DRAWING NO:

E4.01



POWER AND SYSTEMS NEW – ROOM 1142 AND ROOM 1143
SCALE: 1/8" = 1'-0"



POWER AND SYSTEMS NEW – ROOM 1136 – ELECTRICAL SERVICE ROOM
SCALE: 1/8" = 1'-0"

DRAWING KEYNOTES:

- 1 RECEPTACLE LOCATED IN CABINET ABOVE MICROWAVE. REFER TO ARCHITECTURAL MILLWORK DRAWINGS FOR DETAILS.
- 2 REFER TO PANEL SCHEDULES FOR BREAKER CHANGES IN THESE PANELS.
- 3 CORD REEL TO BE INSTALLED ABOVE THE DROPPED CEILING WITH THE CORD PENETRATING THE T-BAR CEILING.
- 4 DISHWASHER, FRIDGE, AND STOVE ARE NOT IN CONTRACT.

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REVISION	DESCRIPTION	DATE
B	ISSUED FOR PERMIT/TENDER	2025.03.06
A	ISSUED FOR CLIENT REVIEW	2025.03.03
DESCRIPTION	ISSUE DATE	

PROJECT NAME:
BISHOP RYAN CATHOLIC SECONDARY SCHOOL

PROJECT ADDRESS:
1824 RYMAL RD E,
HANNOON, ON L0R 1P0

PROJECT NO:
25007

DRAWING TITLE:
POWER AND SYSTEMS NEW

SCALE:
AS NOTED

DRAWN BY:
A.O.

CHECKED BY:
J.S.

PLOT DATE:
2025.03.03

DRAWING NO:
E5.01