



INSTRUCTIONS TO BIDDERS

Date: Feb. 1, 2017

BID PACKAGE #: CP1705

1. BID SUBMISSION

The St. Clair Catholic District School Board (Board) is seeking a contractor to provide Lighting Retrofit to a number of facilities identified in this tender document.

Bids from bidders shall be submitted in an envelope sealed and clearly marked:

Bid Package #: CP1705 – Lighting Retrofit Tenders

The envelope shall be sealed and delivered to: St. Clair Catholic District School Board
420 Creek St.
Wallaceburg, ON
N8A 4C4

Attention: Mr. Tony Prizio, Procurement Specialist

Bids will be accepted at the Board's Catholic Education Centre office not later than **February 16, 2017 @ 4:00:00 p.m.** (No extensions to Bid Closing date are anticipated. Bidders are encouraged to act immediately to prepare their submissions!)

Bids shall be filled out in ink or typed, signed in longhand by a duly authorized company official (having authority to bind). One original of the fully completed Tender Pricing Form must be submitted. **Failure to provide all of the requested information on the Tender Pricing Form may result in disqualification of the bid.**

Unsolicited bids will not be accepted.

Bids by telephone, fax or email will **not** be accepted.

After bid closing, sealed envelopes will be opened by the Board's Procurement Specialist (Tony Prizio) and a representative from Corporate Services' department.

2. SCOPE OF WORK

The Instructions to Bidders identifies the work to be performed in the Contract and takes priority if there is a conflict within the Bid Documents. **Refer to Summary of Work in section 01010.**

3. BID DOCUMENTS

The following Bid Documents form the basis of this Bid Package and shall be examined by bidders:

- 3.1** Instructions to Bidders dated Feb. 1, 2017
- 3.2** Tender Pricing Form – Section 00430
- 3.3** Lighting Retrofit Initiative - P3 document (general instructions, specifications, warranties, etc.)
- 3.4** Appendix A – Site Retrofit Summary
- 3.5** Appendix B – School Retrofit Summary
- 3.6** Appendix C – Design Drawings
- 3.6** **Prime Contract** – Board will issue a purchase order to the successful proponent(s). The Board assumes no responsibility for the bidder's failure to examine **all** of the Bid Documents.



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4. BID ACCEPTANCE

It shall be understood by all bidders, that the bid shall be valid and subject to acceptance by the Board, and that no adjustments shall be made to the Bid amounts for a period of up to and including sixty (60) days from the Bid Closing Date.

The Board reserves the right to determine the successful bidder by any combination of base bid, separate prices, requested alternate prices and voluntary alternate prices submitted with the bid. The Board is not obligated to select the bid with the lowest price and may cancel a bid prior to award without liability to any bidder.

The successful bidder shall be required to enter into a formal contract with the Board, which will include the terms and conditions of the Instructions to Bidders, Tender Pricing Form, and all other applicable documents.

5. AWARD

The Board has the right to reject any or all bids. The lowest Bid will not necessarily be accepted. The invitation to bid does not constitute an offer by the Contractor to enter into a contract.

There is no guarantee of any specific volume of work to be given to bidder(s) selected pursuant to the bid document.

SCCDSB reserves the right to add or remove from the intended project specific schools or scope to accommodate funding. No change to unit pricing will be made in order to accommodate any reduction in scope or removal of schools from the intended project.

The results of this bid will be posted in the same manner as the original posting advertising.

6. PAYMENT

The Board shall pay within forty-five (45) days after receipt of the invoices which are received and approved by the Board. All invoices must be sent to the St. Clair Catholic District School Board 420 Creek Street, Wallaceburg, ON N8A 4C4. Attention: Accounts Payable.

7. TAXES

Include in Bid all Taxes and all other Customs Duties and Excise Taxes which are in force at Bid date as detailed in General Conditions. Harmonized Sales Tax (H.S.T.) is **not** to be included in the bid.

The H.S.T. amount and the Bidder's **H.S.T. Registration Number** are to be indicated on the Tender Pricing Form in the spaces provided.

8. ADDENDA

Bidders finding discrepancies, ambiguities or omissions in the bid documents or having doubt as to the meaning or intent thereof, shall immediately notify the Procurement Specialist who may issue instructions and/or clarifications by Addendum to all Bidders. Bidders may also, during the bidding period, be advised by Addendum of any additions, deletions or alterations to bid documents. All such Addenda shall become part of the Bid Documents.

Should any questions raised by a proponent necessitate an addendum to this bid document, the addendum will post on the Boards site www.st-clair.net (Bid Opportunities) and www.biddingo.com



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All questions to be addressed in writing to: Mr. Tony Prizio, Procurement Specialist
St. Clair Catholic District School Board
Fax 519.627.8230 or
E-mail: tony.prizio@st-clair.net
Copy: marcie.myers@st-clair.net

No later than 72 hours prior to bid closing date.

9. CHANGE NOTICES, CHANGE ORDERS

The following fee percentage and overhead charges shall be applied to additional work ordered by the Board:

- For work carried out by the Contractor's own forces – 10% Overhead & Profit
- For work involving a subcontractor, the subcontractor may charge a maximum 10% fee. The General Contractor may charge a maximum of 5% in addition to subcontractor's fee.

10. BONDING:

On bids exceeding \$100,000.00, submit with the Bid an Agreement to Bond for a 50% Performance Bond, and a 50% Labour & Material Payment Bond. Upon request, the successful Bidder will be required to provide the 50% Performance Bond and 50% Labour and Material Payment Bond from a bonding company acceptable to the Board. The cost of the bond is not to be included in the bid sum, the amount of which is to be identified on the Tender Pricing Form.

11. VOLUNTARY ALTERNATE AND SEPARATE PRICES

The bid amounts are to be based on the bid documents. Where there is any conflict within the bid documents, the bid amount shall include the higher cost alternative. Alternative proposals are encouraged and must be identified in the bid. Submit complete information including any impact on schedule to allow a full evaluation of the proposal including, as applicable, any particulars in which the alternate proposal is at variance with or unable to meet the specifications. Note also any impact on other trades if the alternative is accepted. Alternative proposals may be made without limitation, including for items specified as single sourced.

12. EXAMINATION OF SITE & SITE VISIT

In submitting a bid, it will be assumed that the bidders have carefully examined the site and surrounding properties of the work and have informed themselves as to the existing conditions, access, storage areas and limitations, and have included in the bid price the complete cost of the work contemplated by the drawings and specifications and other bid documents.

Site visit are not mandatory but available upon request. Contact Juan Galindo (Tel: 226-402-4824) to schedule site visits at St Patrick's High School, Holy Trinity, and St Matthew. Contact Paul Lernout (Tel: 519-360-6262) to schedule site visits at Catholic Education Centre, St Elizabeth, and Holy Family.

13. TIMING OF PROJECT

A purchase order is expected to be issued by March 1, 2017.
Phase of work on this Project must be completed by July 31, 2017.

14. PROJECT SPECIFIC REQUIREMENTS

Lighting Retrofit specification found in the document.



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Contractor's employees shall use only those toilet and washroom facilities designated by the Owner or provide their own facilities. In the event that the contractor elects to use Board facility washrooms, the contractor will be responsible for the maintenance, stocking and cleaning of the designated washroom. The designated washroom shall be returned to the Board in the same condition as received by the contractor. Any and all damages to facilities while under the control of the contractor shall be repaired at the contractor's cost.

Please be advised that the Owner has a No Smoking Requirement on the Owners' property. Contractors are requested to ensure that employees and suppliers are advised of the Requirement. Contractor shall remove rubbish and debris from the site on a daily basis or as directed by the Board. On completion of the work, all debris shall be removed; the floor shall be thoroughly cleaned and swept; the site shall be left in a tidy condition (construction clean). Do not use the Board's equipment or facilities for cleaning or for any reason.

15. INSURANCE

Contractor must maintain, at the Contractor's expense for the entire term of the Contract or as otherwise required, all insurance as set out below:

- The successful Contractor shall provide the Board with proof of insurance for Comprehensive General Liability and Property Damage with a limit of not less than \$2,000,000.00 (two million dollars) inclusive prior to commencing work.
- The successful Contractor shall provide the Board with proof of insurance for Motor Vehicle Public Liability and Property Insurance on all owned and rented equipment with a limit of not less than **\$2,000,000.00 (two million dollars)** inclusive prior to commencing work.
- The Contractor agrees to indemnify, hold harmless, and defend the Board from and against any and all liability for loss, damage and expense, which the Board may suffer or for which the Board may be held liable by reason of injury (including death) or damage to any property arising out of negligence on the party of the proponent or any of its representatives or employees by way of ownership or operation of an automobile.
- The successful Contractor shall provide the Board with a complete certified copy of all policies.
- The successful Contractor must name the St. Clair Catholic District School Board as additional insured on their insurance policies.

16. WORKPLACE SAFETY INSURANCE BOARD (WSIB)

Contractor must furnish a copy of Workplace Safety and Insurance Board Clearance Certificate of good standing, "Section 748" of the Workplace Safety and Insurance Act with its bid documents.

17. PERMITS

The Board will apply and pay for the building permit. The Contractor shall apply for and include costs for any other permits and approvals required for the completion of their work.

18. MEETINGS

A Post Bid Meeting may be convened and chaired by the Board who will invite Contractor and his major Subcontractors to review the Contract Documents and Bid submitted. This meeting will be prior to the Board issuing a Letter of Intent or Contract. This meeting does not constitute or infer any contract award to the proposed contractor or any other contractor, nor that will the project proceed.



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During the course of Work, scheduled progress meetings may be required at the call of the Project Leader.

19. GUARANTEE

The guarantee shall be for a period of 1 year from and after completion of the entire job and acceptance thereof by the Board unless a different period of time is specified with the Board's approval. The Contractor's guarantee shall cover all work under the Contract whether or not any portion or trade has been sublet.

The Contractor agrees to correct promptly, at the Contractor's own expense, defects or deficiencies in the Work which appear prior to and during the period of guarantee, or such longer periods as may be specified for certain products or work.

If the Contractor fails to make any replacements or repairs required hereunder, after notice from the Board and reasonable opportunity to do so, the Board may have such work done at Contractor's expense, including all necessary labour costs in connection therewith. Board shall inform Contractor in advance of the approximate cost of such work to be done by the Board.

20. SCHEDULE

The Contractor will be required to perform the work in accordance with the Schedule dates provided in 13. Timing of Project. Ordering of major and long delivery items shall begin immediately upon successful bidder's receipt of contract award. The Contractor will provide a construction schedule within five (5) days of being awarded the project.

Time is of the essence. Bidders are to include adequate manpower, overtime and shift work necessary to meet or improve the schedule, and to make up any time lost to weather or normal delays. Include travel, room and board costs for out of town workers, shop overtime and other premiums to expedite material and equipment, shipping premiums and any incentive costs required to meet the schedule.

21. CONTRACTED SERVICES PROGRAM

Contractors performing work on Board property must complete the Contracted Services Program. This program has three basic components that **must** be met before the bid is awarded. Contractors who cannot meet the minimum requirements of this program will not be awarded this tender. Program information can be found on the Board's web site at www.st-clair.net or through the Board contact identified previously in this document.

22. HEALTH and SAFETY

The Occupational Health and Safety Act describes the responsibilities of an employer. The Board requires Contractors to maintain procedures, training, and enforcement so that the responsibilities are carried out in the workplace. The Contractor shall abide by and strictly adhere to the regulations and conditions set out and laid down by the most current versions of the Occupational Health and Safety Act. All staff employed or hired by the Contractor and working on the Board's premise **MUST** be trained in WHMIS in accordance with Occupational Health and Safety Act and Regulations. They **MUST** adhere to all of the Board's Health and Safety Procedures and Guidelines and to Municipal By-Laws. Contractor will submit proof of its health and safety program, procedures and training as detailed above upon request by the Board.

The Contractor shall appoint a Competent Person as the Supervisor of this project. The Competent



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Person shall be as defined in Section 1 of the Occupational Health and Safety Act.

The successful Contractor shall conform to the Ontario "Occupational Health and Safety Act" and all regulations made under said act and assume full responsibility for contraventions of same.

All workplace injuries or accidents on Board property MUST be reported by the Contractor to the Board's representative within 24 hours.

Any workplace injury that is defined under the Occupational Health and Safety Act as a "Critical Injury" must be reported to the Board's representative IMMEDIATELY.

23. SAFE SCHOOL PROCEDURES

Contractor's staff is required to report to the main office of each school during regular school hours and notify the school office staff of the purpose of the visit. The Contractor is required to adhere to all school specific procedures if applicable.

It is the responsibility of the Contractor's staff to sign in and sign out of the Log Book, which is located in the main office area, while performing their duties.

The following information must be recorded in a legible manner:

- Date
- Company Name
- Employee Name
- Employee Signature
- Reason for Visit
- Time Entering Building
- Time Leaving Building

24. PARKING

Contractors must park within the designated areas and allow for provisions to and from the designated parking area onto the job site.

25. EVALUATION PROCESS

All bid submissions will first be evaluated on their compliance with the requirements of this bid document.

All compliant bid submissions will be evaluated by the SCCDSB based on the following evaluation criteria: compliance with specifications and price

The determination of equal quality will be based on our internal professional opinions.

In the event of a tie the SCCDSB will resolve the tie by a draw. The names of the tied proponents will be entered into a draw conducted by the Procurement Specialist and a member of SCCDSB's Corporate Services Teams.

26. CANCELLATION OF CONTRACT / LOSS OF SERVICE

The Board reserve the right to terminate the proposed contract with 30 days written notice if, in its opinion, the successful proponent(s) fails to meet the terms and conditions of the contract.



ST. CLAIR CATHOLIC
DISTRICT SCHOOL BOARD
Lighting the Way ~ Rejoicing in Our Journey

LIGHTING RETROFIT TENDER

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Notwithstanding the termination of the contract, the successful proponent(s) shall remain responsible for its obligations under the contract up to the date of termination. The Board reserve the right to commence an action in a court of competent jurisdiction against the successful proponent(s) for damages that result from the breach of the terms and conditions of the contract.

The Board shall have the right to retain and set off from any monies payable to the successful proponent(s) under the contract the total outstanding amount for all damage claims by the Board or any third parties arising out of the contract which have not been resolved by the successful proponent(s) or its insurer.

The Board reserve the right to withhold monies owing under the contract to the value of the obligation to a maximum of the monies owing to the successful proponent(s) for any indebtedness of the supplier that may impact on the Board.

The successful proponent(s) shall be responsible for ensuring continuous delivery of the goods and services in the event of a labour disruption by either, the successful proponent(s), the Board staff or third party interruptions.

In the event that the successful proponent(s) becomes insolvent, and/or the successful proponent(s) is unable or unwilling to provide the contracted service, the Board shall have the right to replace the successful proponent(s) with another service provider suitable to the Board in addition to all of its other rights pursuant to the term of this bid.



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27. ACKNOWLEDGEMENT OF TERMS AND CONDITIONS

I hereby acknowledge that I have read, understand and agree to the forgoing Contract Terms and Conditions as listed. It is the SCCDSB's intention that the successful bidder's returned bid form the basis of the contract. All of the terms and conditions of this bid are assumed to be accepted by the bidder and incorporated into the bidder's submission. It is the SCCDSB's intention to use a Purchase Order when establishing a contract with the successful bidder(s).

I/We have received the following addendum #'s: ____ of ____.

This page must be signed below and returned with your submission for your bid to be accepted.

NAME: _____

TITLE: _____

SIGNATURE: _____

COMPANY: _____

ADDRESS: _____

EMAIL: _____

TELEPHONE: _____

FAX: _____

END OF INSTRUCTIONS TO BIDDERS

ST CLAIR CATHOLIC DISTRICT SCHOOL BOARD

LIGHTING RETROFIT INITIATIVE – P3

PROJECT NO. CP1705

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DIVISION 100200 GENERAL INSTRUCTIONS

1.1 SITE LOCATION(S):

- | | | |
|----|---|----------|
| 1. | Holy Family
649 Murray St.,
Wallaceburg, ON
N8A 1W1 | Site 616 |
| 2. | St. Elizabeth
1350 Bertha Ave.,
Wallaceburg, ON
N8A 3K4 | Site 629 |
| 3. | Holy Trinity
60 Lorne Crescent
Sarnia, ON
N7S 0C3 | Site 651 |
| 4. | St. Matthew
720 Elm Ave.,
Sarnia, ON
N7T 4G7 | Site 652 |
| 5. | St. Patrick's High School
1001 The Rapids Pkwy,
Sarnia, ON N7S 6K2 | Site 720 |
| 6. | Catholic Education Centre
420 Creek Street
Wallaceburg, ON
N8A 4C4 | Site 525 |

1.2 SITE RETROFIT SUMMARY

- .1 Provided in Appendix A & B – Site & School Retrofit Summaries.
- .2 Appendixes A & B provide a grand total and a per school/site summary of the retrofit plan, the retrofit code, a description and quantity is provided. The fixture condition is indicated on the drawings, and is to be matched against the descriptions detailed in the schedules. The schedules have been provided for the Bidders' convenience and are to be read in concert with the drawings.
- .3 Total costs are to be copied to the Pricing Form in Section 00430, Item 1.2

- .4 Bidders to provide pricing on all schools/site in their entirety in the Pricing Form Section 00430, Item 1.2. Award of contract will be based on the grand total price submitted for all sites combined.

1.3 SITE PLANS / DESIGN DRAWINGS

- .1 Provided in Appendix C – Site Design Drawings.
- .2 Appendix C provides a per school/site existing lighting drawing. Symbols utilized to identify fixtures by type are indexed on page 1 of Appendix C. Existing light fixture type and 'retrofit to' are provided in the Site and School Retrofit summaries in Appendixes A and B. The fixture condition is indicated on the drawings is to be matched against the descriptions detailed in the schedules A & B.

1.4 ACRONYMS

- .1 The St. Clair Catholic District School Board to be referred to in this document as SCCDSB.
- .2 The term High Intensity Discharge lighting is referred to as HID.
- .3 The term Design Lighting Consortium is referred to as DLC.
- .4 The term Light Emitting Diode is referred to as LED.
- .5 The term Consortium for Energy Efficiency is referred to as CEE.
- .6 The term Low Ballast Factor Electronic Ballast is referred to as LBF.
- .7 The term Normal Ballast Factor Electronic Ballast is referred to as NBF.
- .8 The term High Ballast Factor Electronic Ballast is referred to as HBF.
- .9 The term Total Harmonic Distortion is referred to as THD.
- .10 The term Electrical Safety Authority is referred to as ESA.
- .11 The term Universal is referred to as UNV.
- .12 The term Passive Infrared is referred to as PIR.
- .13 The term Colour Rendering Index is referred to as CRI.
- .14 The term Contemplated Change Notice is referred to as CCN.
- .15 The term Change Order is referred to as CO.

1.5 COMPLETION OF WORK

- .1 Work on this Project to be substantially complete by July 31, 2017.
- .2 Contractor shall provide a written construction schedule showing resources assigned to complete Project within the desired completion date.

1.6 CONSTRAINTS

- .1 Contractor shall perform all Work after school hours while school is in session (i.e. between 4:00 PM and 6:00 AM Monday to Friday). Work outside of these hours, weekends, holidays and summer break is also allowed but shall be requested in advance, and coordinated with SCCDSB's Project Manager.

- .2 Contractor shall coordinate with SCCDSB's Project Manager areas of the school's interior, exterior or parking lot to be closed to public traffic while work is undertaken.
- .3 Areas left un-clean shall be cleaned by SCCDSB cleaning staff and charged back to the Contractor.
- .4 It is believed that there are no PCB containing ballasts in this Project. The Contractor shall be required however, to inspect all ballasts for potential PCB content. If any are found, they shall be stored and disposed of according to provincial guidelines. Disposal costs as well as storage drums shall be paid for by the SCCDSB.
- .5 Contractor shall be responsible for any sub-trades as may be required.
- .6 Any deviations from these specifications shall be approved by SCCDSB's Project Manager.

1.7 DELIVERY, STORAGE, HANDLING

- .1 The Contractor shall be permitted to use only those areas which have been designated for equipment, camp or construction areas provided that such use shall not interfere with any part of the work or the work of other Contractors or other agencies in the vicinity.
- .2 Contractor shall provide, at his own cost, his own storage facilities where necessary. Space in SCCDSB's schools is limited and not available for storing materials on pallets or of similar volume or quantity.
- .3 Storage of waste is specified in Section 01330 Waste Management & Disposal.
- .4 Staging and storage of materials shall be the responsibility of the Contractor. Contractor shall lock and secure all materials, tools, etc. on a daily basis.

1.8 INSPECTION AND TESTS OF MATERIAL

- .1 All materials furnished and all Work performed shall be subject to inspection. The Contractor shall demonstrate that all components are suitable and satisfactory for their intended purpose and that they meet all applicable requirements.
- .2 The Contractor shall provide SCCDSB with Manufacturer's product information sheets and/or shop drawings for all materials installed as part of this Project.

1.9 MANUFACTURER'S INSTRUCTIONS

- .1 The Contractor shall be responsible for the correct installation and assembly of all materials and equipment. Manufacturer's instructions shall be carefully read and rigidly adhered to in the installation of materials and equipment.
- .2 Any damage resulting from either a failure to observe the manufacturer's instructions or as a result of proceeding with the work without complete knowledge of how a particular job is to be done, shall be the Contractor's

responsibility and the Contractor shall make good on any loss or damage resulting from same.

- .3 Notify SCCDSB's Project Manager in writing any conflicts between the specifications and manufacturer's instructions, so that the correct course of action may be taken.

1.10 WORK BY OTHERS

- .1 The Contractor shall coordinate his activities with occupants so that the work of all concerned shall proceed with efficiency and dispatch. No claim for additional payment shall be considered on account of delays, changes in construction schedules, or any other reason whatsoever, due to the fact that others are operating in the area.

1.11 PROTECTION OF CONSTRUCTED WORKS

- .1 The Contractor shall be responsible for the protection of all materials, equipment and constructed works until acceptance and take-over of the work.
- .2 The Contractor shall be responsible for keeping the construction area clean and free of hazards.

1.12 COMMUNICATION

- .1 The Contractor's site foreman shall be available by cellphone at all times while on-site throughout the duration of this work.

1.13 PROTECTION OF PERSONS AND PROPERTY

- .1 The Contractor shall use due care and take all necessary precautions to ensure the protection of persons and property and shall comply with the most current requirements of the applicable federal and provincial government agencies including but not limited to the Workplace Safety and Insurance Board and the Ontario Occupational Health and Safety Act and Regulations for Construction Projects. All training and safety equipment acquisition, transportation and maintenance shall be the responsibility of the Contractor.
- .2 The Contractor shall have a site safety management plan prior to mobilizing work on site. This plan shall include provisions to ensure the safety of the public, those engaged in the work under this contract and those employed by other agencies or contractors who may require access to the site against accident and injury. The Contractor shall post on site all necessary and applicable signs regarding safety hazards and the required personal safety equipment. The Contractor shall appoint a competent site supervisor who shall be responsible for the implementation of the site safety plan. The Contractor shall be responsible for all daily construction activities with authority over all contractors, subcontractors and workers on site, with respect to the site safety management plan.
- .3 The Contractor shall abide at all times to the Health and Safety Policies of the SCCDSB. Requirements will include but are not limited to: the completion of training, testing, and site safety meetings. The Contractor shall not bill SCCDSB

for worker time spent completing such safety training, testing and meetings deemed necessary by the SCCDSB.

- .4 The Contractor shall without additional instructions, supply and maintain at all times during the progress or suspension of the work, suitable lock-out devices, barricades and signs as are necessary to ensure the safety of the public, those engaged in the work under this contract, and those employed by other agencies or contractors who may require access to the site against accident and injury.
- .5 Notwithstanding the provisions of the General Conditions, in any emergency affecting the safety of life, or of the work, or of adjoining property, the Contractor, without direction from the SCCDSB, shall act in a reasonable manner to prevent loss or injury.

1.14 WASTE MANAGEMENT GOALS

- .1 The Waste Management Goal is that 90 percent of total Project Waste shall be diverted from landfill sites.
- .2 Provide documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.
- .3 Preserve environment and prevent pollution and environment damage.

00430 SUPPLEMENTARY TENDER FORM

1.1 UNIT PRICES

- .1 Insert Price 1 for each Site to include Lighting Retrofits in the School Interiors, Gymnasium, and Exterior Measures.
- .2 Insert Price 2 for each Site to include Lighting Controls Measure (Occupancy Sensors).
- .3 Insert Price 3 for each Site to include Corridor Locking Switches Measure.
- .4 Total Extended Price Per School shall be the Sum of Price 1, Price 2 and Price 3.
- .5 Sum Total Cost for Phase 3 Sites.
- .6 The Grand Total Project Cost shall be the Sum of Phase 3 costs including HST.
- .7 Pricing to include all related costs including labour, material, permits, recycling, tools, equipment, overhead, and profit and represent the Final Cost to the Project.

1.2 PRICING FORM

Line No.	School Name and Site No.	(\$ Price 1 Interior, Gymnasium ¹ , Exterior	(\$ Price 2 Corridor Lighting Controls	(\$ Price 3 Corridor Locking Switches	Total Extended Price Per School Price 1+2+3 (\$)
	PHASE 1				
1	Holy Family (Site 616)				
2	St. Elizabeth (Site 629)				
3	Holy Trinity (Site 651)				
4	St. Matthew (Site 652)				
5	St. Patrick's High School (Site 720)				
6	Catholic Education Cntr (Site 525)				
7	TOTAL COST PHASE 3				\$
8	SEPARATE PRICE #1: COST TO BOND				\$
9	HST				\$
10	PH3 - TOTAL COST INCLUDING BONDS AND HST				\$

¹ Include All Sections of Work as outlined in Section 16500, Items 1.4.1 to 1.4.5.

01010 SUMMARY OF WORK

1.1 WORK COVERED BY TENDER DOCUMENT

- .1 T8 LED Lamp and Ballast Upgrade. Work generally consists of replacement of existing lighting T8 fluorescent lamps and ballast with highly efficient T8LED lamps and High Efficiency Electronic T8 ballast (UL type A).
- .2 Elimination of Tandem Wiring. Where fixtures had been wired in Master-Satellite configuration, fixtures shall be rewired to accommodate one (1) ballast in each fixture. Contractor to assume all luminaires with retrofits including the -BBX or +BG suffixes will require this re-wiring to accommodate one ballast in each fixture. Rewiring will include Code Compliant power conductors, ballast disconnects and grounding.
- .3 Gymnasiums. Replace existing gymnasium fluorescent and HID (High Intensity Discharge) lighting with new LED fixture layout as provided. Fixtures to be suitable for gymnasium application, contain integral sensor and be supplied with new wiring to installation points as detailed in Retrofit Description. Refit to include new conduit, junction boxes, wire and all electrical devices required to perform a complete electrical installation that is satisfactory for ESA Inspection purposes.
- .4 Gymnasiums. Remove existing Occupancy Controls and all associated devices.
- .5 Gymnasiums. Organize and re-assign switching to existing wall-switch control on a row by row basis. Assign (1) toggle switch per row of Gymnasium Lighting. The rows in this case are defined as across the width of the Gymnasium as opposed to the length of the room. The desired switching effect will have rows parallel to the stage so that during assemblies or other events lights can be turned off in rows nearest to the stage. Width shall be the smaller of the two floor plan dimensions unless other wised directed by SCCDSB.
- .6 Corridor Occupancy Controls. Supply and install corridor occupancy controls as detailed in Section 16500 Item 1.5. For Layout Drawings, refer to Appendix A Design Drawings.
- .7 Corridor Switches. Replace all existing corridor switches with approved keyed 2, 3, or 4 way switches as detailed in Section 1.2.11. Test, demonstrate, confirm and commission system to the satisfaction of SCCDSB. NOTE Contractor to review, confirm and record switch count. Unit pricing will be used to adjust final invoiced amounts.
- .8 Exterior LED Upgrade. Replace existing pole, wall and canopy mounted lighting with new LED light source as detailed in Section 16500, Item 1.6.
- .9 LED Lamp Replacement. Retain existing light fixture and re-fit with new LED lamp as detailed in Section 16500, Item 1.2.4.

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- .10 Exit Signage. Replace identified exit signs with new LED light source exit signage, as detailed in Section 16500, Item 1.3.3.
- .11 Contracting Services. Supply of all labour, permits, inspections, tools, equipment, and warehousing required to complete the work.
- .12 Project Logistics. Provide delivery and coordinate receiving to site of all materials and equipment. Contractor is required to provide receiving and unloading of all deliveries at site, and to provide safe and orderly unloading, staging and storage of materials and equipment. Contractor is responsible for providing external storage on site or transport materials to site for working day. Minimal storage on site will be available in a working school facility.
- .13 Lamp Recycling. Store lamps removed off-site and provide lamp recycling certificate for each site.
- .14 Ballast Recycling. Store ballasts removed off-site and provide a ballast recycling certificate from an authorized recycling company for each site.
- .15 Metal Recycling. Store light fixtures removed off-site and provide a metal recycling certificate from an authorized recycling company for each site.
- .16 Due Diligence. Contractor shall visit each school prior to ordering materials to assess site conditions that may affect product requirement. No claim shall be made for material ordered improperly to the site conditions that could have been identified prior to work commencement.
- .17 Contractor to fully familiarize themselves to the site condition and the intent of the retrofit and shall confirm prior to ordering materials that intent of the retrofit can be executed. Contractor to verify voltages, retrofit lamp or kit fit, requirement of any additional supportive or structural materials required in order to execute the work in an orderly fashion within reason.

1.2 PROJECT IMPLEMENTATION

- .1 Commencement of the project shall begin upon award of the contract. This includes site reviews, ordering of materials and organization of labour as to achieve total completion by July 31, 2017.
- .2 SSCSB reserves the right to add or remove from the intended project specific schools or scope to accommodate funding. No change to unit pricing will be made in order to accommodate any reduction in scope or removal of schools from the intended project.

1.3 COMPLETION

- .1 Provide sufficient labour and materials to complete the Work within the time required for each construction phase.
- .2 Arrange and carry out the Work so as to maintain access and exits; avoid conditions of unacceptable noise, dust, and appearance as to minimize disruption to the normal operation of the school.

- .3 The SCCDSB's requirement is to maintain normal school operations which takes precedence during the school year. Contractor to return work space to acceptable condition for continuation of regular schedule school activities.
- .4 Complete the Work so as to be certifiable by the Consultant as having attained Substantial Completion on or before the date as detailed in the Contract to be issued to the successful Contractor.

1.4 SCHEDULE/WORK SEQUENCE

- .1 Contractor shall provide a preliminary and proposed sequence of construction and construction schedule, for presentation at a preconstruction meeting for review and acceptance in principle by the Consultant and the SCCDSB. Schedule to be in Gantt chart format.
- .2 The Contractor shall revise the proposed schedule as directed for final acceptance before commencement of on-site construction Work and as work progresses (i.e. whenever a deviation from the schedule occurs).
- .3 Construction schedule shall be broken down on a school by school basis.

01140 WORK RESTRICTIONS

1.1 HOURS OF WORK

- .1 Shall be determined at initial Project meeting in consultation with the SCCDSB.
- .2 For purposes of Bid, construction hours shall be during off school hours (i.e. 4:00 PM to 6:00 AM)
- .3 Working outside of hours, including day-time access during weekends, holidays, march and summer break, shall be at the sole discretion of the SCCDSB's Project Manager.

1.2 SERVICE SHUTDOWN

- .1 Provide a written requirement of service shut-down a minimum 48 hours in advance of the shut-down.

01290 PAYMENT PROCEDURES

1.1 SUBMITTALS PRIOR TO FIRST PROGRESS PAYMENT

- .1 Submit construction schedule.
- .2 Submit installation schedule showing detailed progress report and associated relevance to progress billing. Detail to include breakdown of Contract amount as directed and aggregating the Contract amount. After approval, cost breakdown will be used as the basis of progress payments.

1.2 PROGRESS PAYMENT

- .1 Contractor to submit progress invoices in a manner acceptable to both the client and the needs of the SaveOnEnergy retrofit program as administered by the IESO.
- .2 Invoice only for completed schools during the billing period unless otherwise instructed or permitted by the owner.
- .3 Issue one invoice only per completed school only. Each school to be invoiced separately.
- .4 Each invoice shall detail the cost breakdown of materials, labour, permits and recycling for each school. The total invoice amount shall also be equal to the sum of all unit prices for that school.
- .5 Material breakdown must include pertinent equipment data (product make and model) for cross reference against IESO's approval criteria.
- .6 Failure to provide invoice details in a method acceptable to the owner will result in invoice rejection.
- .7 Invoice terms to be net 30 days.
- .8 Contractor may issue a separate working document, (ie. Excel Document) included with the invoice for clarification in the provision of invoicing details.
- .9 Each appended sheet must be clearly marked as to the school it pertains to, the invoice number and the date.

01310 CONSTRUCTION MANAGEMENT & COORDINATION

1.1 PROJECT MEETINGS

- .1 Attend regular project meetings occurring bi-weekly or as determined by the SCCDSB's Project Manager.
- .2 Contractor's Project Manager and Contractor's on-site foreman shall be in attendance at each meeting.
- .3 Prior to each meeting, Contractor shall provide team with updated progress report, forecasted schedule, and updated record of changes.
- .4 Contractor shall record all as-built conditions and any changes to the Work on an on-going basis as the Work progresses at the end of each working day. Maintain accurate records to show deviations from Contract drawings and/or schedules

1.2 CHANGE ORDER PROCEDURE

- .1 On receipt of a Contemplated Change Notice (CCN) initiated by the SCCDSB's Project Manager, the Contractor shall provide cost or credit for the CCN.
- .2 If the SCCDSB's Project Manager accepts the CCN, the SCCDSB shall issue a Change Order (CO) for the required Work.
- .3 No modifications described by a CCN shall proceed without a CO in place.

01330 WASTE MANAGEMENT AND DISPOSAL

1.1 COMPLIANCE

- .1 Comply with the Environmental Protection Act, Ontario Regulations O.Reg. 102/94 and O. Reg. 103/94 for waste management program on construction and demolition projects.

1.2 COST TO DISPOSE

- .1 Contractor shall be responsible for costs incurred with the disposal of all waste generated during this Project including on-site storage containers and transportation costs.

1.3 PROCEDURES

- .1 Contractor shall be responsible for the recycling of all waste materials generated from the Work up to and including all metals, wire, plastics, spent fluorescent, HID (High Intensity Discharge) and CFL (Compact Fluorescent) lamps, non-PCB ballast, all replaced light fixtures, wood and paper waste that may be generated through the course of construction.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate Government regulations and codes.
- .3 The SCCDSB holds exclusive salvage rights on all materials and components decommissioned or removed during this Project.
- .4 Contractor shall maintain separate bins for lamps, metal, and non-recyclables.
- .5 A separate area shall be designated for all items the SCCDSB may salvage.
- .6 The Contractor shall be entitled to any financial return from reclaiming, recycling, or reusing of waste material not claimed by the SCCDSB resulting from Work under this Contract.
- .7 Project waste or recyclables shall not be disposed of through existing waste disposal systems in place at the site (including bins, containers, delivery or pickup).
- .8 Proof of proper disposal as defined in this document shall be required in the form of a receipt and certificate from a qualified recycling company. Utility rebate programs require this proof in order to process rebate claims, which the SCCDSB intends to proceed with. Separate certificates must be produced for lamps, scrap metal and plastics.
- .9 **NOTE:** Contractor will be held financially responsible for any lost incentives as a result of a failure to comply with the lamp, ballast and metal recycling requirements detailed in Section 01330, Item 1.4

- .10 Incentive amounts lost by the SCCDSB shall be charged back to the Contractor's final invoice at point of substantial completion for any losses due to the Contractor's negligence in obtaining and submitting recycling certificates on a per school basis.
- .11 Substantial Completion will not be recognized prior to receipt of adequate recycling certificates and documentation.

1.4 LAMP RECYCLING

- .1 Recycle fluorescent lamps through an approved company registered to provide hazardous material recycling in the Province of Ontario.
- .2 Provide Certificate indicating Project, location and quantity of material recycled from recycling Company. Certificate to comply with the requirements of the SaveONenergy utility rebate program.
- .3 Protect, store and transport lamps in such a way that they shall not break.
- .4 Disposal of the fluorescent lamps in this scope shall include recapturing the mercury content of the bulb.
- .5 Disposal of the High Intensity Discharge lamps in this scope shall include recapturing the mercury content of the bulb.

01357 HAZARDOUS MATERIALS

1.1 PCB CONTAINING WASTE

- .1 It is believed that there are no PCB containing ballasts in this Project. Bid submissions shall reflect this.
- .2 If however, PCB ballasts are encountered during the execution of this Project, notify the SCCDSB's Project Manager immediately.
- .3 Source and supply approved containers for PCB ballasts storage and store ballast containing PCB's in designated containers.
- .4 Ensure containers are sealed and stored safely for disposal.
- .5 The SCCDSB shall coordinate and pay for the supply, handling and disposal of the filled containers.

1.2 ASBESTOS

- .1 It is believed that asbestos containing materials (ACM's) shall not be impacted through the course of this work
- .2 If however, materials suspected as containing asbestos are encountered, stop work in the area immediately and notify the SCCDSB's Project Manager for direction.

01410 REGULATORY REQUIREMENTS

1.1 PERMITS

- .1 The Work shall conform to the latest Standards and Codes listed in the Ontario School Code, National School Code and all applicable provincial and municipal codes as of the date of this Project in case of conflict or discrepancy, the most stringent requirement shall apply
- .2 The Contractor shall comply with all WSIB regulations as they apply to the Work of this Contract.
- .3 Contractor shall apply for and obtain all required SCCDSB or Provincial licenses as necessary.
- .4 Contractor shall apply for ESA (Electrical Safety Authority) permit before any Work is started. **NOTE:** requirement for special 'Retrofitted Luminaires Application' permit will be required for all retrofitted fixtures requiring internal modifications (bracket kits) where applicable.
- .5 Pay all fees and obtain all permits. Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work conforms to requirements of Authority having jurisdiction.

01520 CONSTRUCTION FACILITIES

1.1 PROCEDURES

- .1 Provide or rent scaffolding, ramps, ladders, work platforms, and all other temporary services required to execute the Work.
- .2 Coordinate parking with SCCDSB's project manager. Designated parking will be provided as well as locations for storage bins and trailers as required at no cost to the Contractor.
- .3 Contractor shall be permitted to use designated washrooms in SCCDSB's schools. Contractor shall keep facilities clean.
- .4 Notify the SCCDSB of intended interruption of services, obtain requisite permission.
- .5 Give 48 hours' notice related to each necessary interruption of any mechanical or electrical service throughout the course of the work. Keep duration of these interruptions to a minimum.
- .6 All construction work at all locations and at all times shall be delineated from SCCDSB's employee traffic using pylons, construction tape, and signage.
- .7 It shall be Contractor's responsibility to remove notices as soon as work in the respective areas has been completed.

01740 CLEANING

1.1 REQUIREMENTS

- .1 Store waste in covered metal containers.
- .2 Prevent accumulations of wastes which create hazardous conditions.
- .3 Remove waste from site at regularly scheduled times.
- .4 Deposit waste material in containers at end of each working day.
- .5 Remove waste products and debris and leave work area clean.
- .6 Clean any areas to pre-condition if they have been soiled due to construction.
- .7 Contractor shall conduct an inspection of each area of Work and notify Consultant that final cleaning has been performed prior to Certificate of Completion is issued.
- .8 All Work and activities shall be performed in accordance with the Occupational Health and Safety Act, RSO Chapter 0.1 as amended.

01770 CLOSEOUT PROCEDURES**1.1 INSPECTION**

- .1 Contractor shall conduct an inspection of Work to identify deficiencies and defects, and repair as required.
- .2 Request Consultant's final inspection.
- .3 Consultant's Inspection. Consultant and Contractor shall perform inspection of Work to identify deficiencies. Contractor shall correct work accordingly.
- .4 Final Inspection. When items noted in deficiency report are completed, Contractor shall request final inspection. If work is deemed incomplete by Consultant, the Contractor shall complete outstanding items and request re-inspection.

1.2 SUBMITTALS

- .1 Contractor shall provide updated installation schedule indicating any changes in quantity or retrofit, and the reason for change.
- .2 Contractor shall provide marked up layout drawings noting any change in quantity or layout, and the reason for the change.
- .3 Provide Electrical Safety Authority Certificate of Inspection(s) for each school site showing final certificate of inspection with any and all defects corrected.
- .4 Furnish all related certificates/inspections to the Consultant at completion of the Contract as evidence of a complete and proper installation.

1.3 OPERATIONS AND MAINTENANCE MANUALS

- .1 Spare parts: List all recommended spares that shall be maintained on site to ensure optimum efficiency. List all special tools appropriate to unique application. All parts/tools detailed must be identified as to manufacturer, manufacturer part number and supplier (including address).
- .2 Contractor shall provide one set of clearly marked up and legible drawings marked "As-Built" indicating corrections and changes made during the installation of the project to the Consultant. Submit with one full set of material shop drawings (bound separately) as part of the required close out documents.
- .3 Contractor shall provide proof of waste material recycling.
- .4 NOTE: Participation in the SaveOnenergy program of rebates requires recycling certificates for all lamps, ballast and metals removed from site. It is imperative that the Contractor provide certificates within 30 days of the completion of each school for SCCDSB to process incentive applications. Failure to provide this

documentation and any financial loss realized by SCCDSB shall be the responsibility of the Contractor and back charges equal to the loss of rebates shall be deducted from outstanding amounts owed.

01900 WARRANTIES

1.1 SCHEDULE OF WARRANTIES

- .1 Contractor shall warrant workmanship for (1) year from the date of substantial completion.
- .2 Contractor shall register and extend manufacturer's warranty on new LED light fixtures for performance and replacement at no cost for a period of (5) years in the event of malfunction.
- .3 Contractor shall provide required labour, parts and components to service all installed items and return lighting to serviceable condition for a period of (5) years.
- .4 Warranty period shall start from date of "Certificate of Completion" issued by the Consultant.

DIVISION 1616010 ELECTRICAL GENERAL REQUIREMENTS

1.1 QUALIFICATIONS

- .1 Electrical Work shall be carried out by qualified, licensed electricians who hold valid Master Electrical Contractor license or apprentices in accordance with authorities having jurisdiction as per the conditions of Provincial Act respecting manpower vocational training and qualification.
- .2 Employees registered in provincial apprentice program are permitted, under direct supervision of qualified licensed electrician, to perform specific tasks.
- .3 Permitted activities for apprentices are to be determined based on training level attained and demonstration of ability to perform specific duties as directed by the supervising Master Electrician.

1.2 OPERATING INSTRUCTIONS

- .1 Provide operating instructions for each system and principal item of equipment supplied in this work. Operating instructions shall include following:
 - .1 Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.
 - .2 Safety precautions.
 - .3 Procedures shall be followed in event of equipment failure.
 - .4 Other items of instruction as recommended by manufacturer of each system or item of equipment.
 - .5 Installation methods shall be in accordance with CSA 22.1.
- .2 Operating instructions shall be provided to the Consultant for inclusion in the Operations and Maintenance Manuals.

1.3 WORK INCLUDED

- .1 Perform all electrical Work associated with the conversion of existing lighting systems to energy efficient technologies.
- .2 Comply with Division 1.
- .3 Comply with Warranty Section 01900.
- .4 Work shall include all labour, materials, tools and equipment required for a complete and working installation.

1.4 SHOP DRAWINGS

- .1 Upon award of Contract, submit shop drawings for items specified in sections of Division 16.
- .2 Shop drawings shall be reviewed by Consultant for compliance with material specifications as outlined in Division 16.
- .3 The review is for the sole purpose of ascertaining conformance with the general design concept, and does not mean approval of the design details inherent in the shop drawings, responsibility for which shall remain with the Contractor. Such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of his responsibility for meeting all requirements of the Contract Documents.
- .4 Contractor shall receive written review of Shop drawings from Consultant *before* orders placed with suppliers.
- .5 Failure of Contractor to receive written approval of Project material may result in material being rejected.

1.5 PRE-CONSTRUCTION SITE SPECIFIC SUBMITTALS

- .1 Upon award of Contract, the Contractor shall submit the following summary information for each site awarded:
 - .1 A list of all lighting equipment planned for use at that site complete with make and model number, and matching manufacturer cut sheets in Adobe .PDF format.
 - .2 A Budget Breakdown showing the separate costs for materials, labour, permits and recycling costs per site.

1.6 ALTERNATES

- .1 Total Contract Price shall be based on Representative Product as listed in Section 16500 and on Drawing No. 800 in this Tender.
- .2 Where a tender specifies, "Or Approved Equivalent", SCCDSB reserves the right to accept or reject any alternate product(s) at its sole discretion.
- .3 It is the Contractors responsibility, not SCCDSB's to review the submittals to assure that product meet the required performance prior to submitting alternates.
- .4 Alternates submitted that do not closely meet performance requirements as detailed specifically in Section 16010, Subsection 1.5.1 will not be considered, and will not be responded to.

- .5 Alternates submitted for approval MUST meet minimum performance requirements and include Screen Capture in .jpg or .png format, of the exact part number as it appears on:
- .1 DLC Qualified Product Listing website
(<https://www.designlights.org/QPL>)
 - or,
 - .2 Energy Star Product List website
(<https://www.energystar.gov/products>)
- .6 Alternates submitted for approval MUST meet minimum performance requirements and matching photometric performance and distribution within +/- 5%
- .7 Alternates submitted for approval are to be comparable with specified products in terms of Lumen Output, Efficiency, Voltage, L70 rating, CRI, CCT. Products should be within +/- 5% of Representative Product for all criteria to be considered as alternate.
- .8 SCCDSB may require additional information during the review and evaluation of proposed alternates including Warranty Statements, Samples, References, and IES Testing Data (LM79, LM-80 and TM21 test results)
- .9 If an alternate product is deemed, in the opinion of SCCDSB, to be an acceptable substitute, and addendum will be issued advising bidders of this approval prior to tender closing.
- .10 If no further addendum is issued before tender closing, the product submitted for consideration had not been approved.
- .11 The deadline for any such request for Alternates is a minimum of three (3) business days prior to the specified closing date.
- .12 Alternate product shall meet performance requirements of representative product in all respects. Photometric files may be requested to prove performance of product submitted for consideration.
- .13 Where warranty requirements are conditional on lamp and ballast being the same manufacturer, SCCDSB reserves the right to select final product based on this matching requirement.
- .14 All new LED luminaires to be Energy Star or DLC certified for their respective and intended application.
- .15 No alternate shall be accepted unless notified in writing by SCCDSB.

1.7 CLEANING

- .1 Contractor shall clean the interior surfaces of all light fixtures within the Project where a retrofit is specified.
- .2 Contractor shall remove dust from devices, terminals, and vacuum the inside of control panels and enclosures.
- .3 Touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.
- .4 Contractor shall clean the diffuser or lens with approved acrylic cleaner for this purpose with a lint free cloth; ensure lens is clear with no streaks after cleaning.

1.8 WORKMANSHIP

- .1 Work shall be performed by experienced tradesperson in similar and relevant Projects.

1.9 PATCHING & REMEDIAL WORK

- .1 Submit written request in advance of cutting or alteration of exposed school elements.
- .2 Do not include any cost or allowance for touch up painting on ceilings and walls. SCCDSB's Project Manager will clarify this item at the Bid Meeting.
- .3 Notify SCCDSB of any immediate concern of patching or remedial work that may be necessary, so corrective action may be planned by SCCDSB or incorporated into future plans.

1.10 LENS REPLACEMENT

- .1 Notify of any existing fixture where lens is broken, cracked or missing.
- .2 SCCDSB Project Manager shall notify by method of Change Order any repair or replacement of lenses or other replacement part in writing to proceed.

16100 BASIC MATERIALS & METHODS**1.1 WORK INCLUDED**

- .1 All new fixture installations and fixture retrofits shall comply with all codes and standards described in Division 1.

1.2 QUALITY ASSURANCE

- .1 All new light fixture installation shall be as per manufacturer's recommended installation procedures.
- .2 All components, including wiring components shall be CSA and/or ULC approved listed and labeled on the device
- .3 Carry out Work using qualified licensed workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.

1.3 CONDUIT

- .1 All conduit shall be provided by the Contractor.
- .2 Conduit shall be used in all open spaces in parallel evenly spaced runs.
- .3 Conduit shall be run parallel or perpendicular to school lines.
- .4 Provide a separate ground conductor in all EMT conduits.
- .5 Support and secure surface mounted conduit in accordance with the "Canadian Electrical Code" requirements.
- .6 Colour code conduits, boxes and metallic sheathe cables with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor. For conduits or cables up to 250V use yellow on prime lines, and for lines up to 600V use Yellow on Prime lines, and green on auxiliary lines.

1.4 WIRING

- .1 In Gymnasiums where new fixtures are being installed, all new wiring shall be enclosed in EMT and to match the existing adjacent conduits, connectors and enclosures.
- .2 In Gymnasiums all redundant light fixtures and related wiring, conduits and enclosures to be removed and made safe.
- .3 In Gymnasiums all redundant light fixtures and related wiring, conduits and enclosures to be removed and made safe.

- .4 Low Voltage. All low voltage wiring to be FT6 rated to manufacturer's requirements for conductor size and type. Wiring to be supported every 4' in ceiling space and be installed in such a manner as to leave a loop of wire at the sensor installed location to serve as a strain relieve in the event wire is disturbed or moved in the course of other work.

1.5 BALLAST DISCONNECTS

- .1 Shall be supplied by the Contractor.
- .2 All ballasts shall have a local means of disconnect by an approved manufacturer regardless of primary supply voltage.

1.6 VOLTAGE

- .1 Shall be verified by Contractor to site conditions.
- .2 Although every effort has been made to verify the existing Voltage, it is the responsibility of the Contractor to confirm the Voltage at each Site before the purchasing of materials.

1.7 DELETION

- .1 Include deletion of light fixture(s) and all associated conduit, flexible conduit, hangers, and wire back to nearest junction box.
- .2 Circuit shall be made electrically safe.
- .3 Install cover plate shall match existing conditions.

1.8 FIXTURE INSTALLATION AND MOUNTING

- .1 Locate and install luminaires as indicated.
- .2 Contractor shall review site conditions and supply mounting adaptor to match existing site requirements. Install new luminaires as per manufacturer's instructions.
- .3 All new fixtures shall be mounted in the same orientation. Mount new luminaires so as to ensure all lamps in a given area parallel to one another.
- .4 Contractor shall supply all mounting materials and equipment.
- .5 Contractor to include for all mounting options, including where exterior lighting is specified, to adapt NEW lighting to existing conditions with manufacturer supplied options. For example, in the case where a New exterior fixture is to be installed, the Contractor is responsible for allowing for the proper mounting option (ie. Arm for Square Pole or Arm for Round Pole), to match site conditions.

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- .6 Chain mount. Where chain mount specified, use steel double-loop working load limit 90lbs. BEN-MOR 51059 #3 (Zinc) Double Loop Chain Steel *or* equivalent.
- .7 Fixtures shall be mounted using Manufacturer recommended stems, clips or brackets
- .8 To ensure the vapour fastness of certain moisture tight luminaires fixture bodies of IP rated luminaires shall not be perforated using screws, bolts or other mounting hardware as a method of surface mounting.
- .9 All luminaires shall be level, with mounting cables plumb and neatly finished, free of frayed ends.
- .10 Contractor shall review site conditions and supply mounting adaptor to match existing site requirements. Install as per manufacturer's instructions.
- .11 Installation of luminaires shall follow school lines. Fixtures shall be parallel or perpendicular to building grid lines

16500 LIGHTING

1.1 PRODUCT ELECTRICAL SPECIFICATIONS

- .1 All new lamps, ballasts and new light fixtures shall be approved for use in Canada and bear a Listing Mark from one or more of the following approval bodies: CSA, ETL, ULc.
- .2 All LED Lamps shall have a current listing on the DLC (Design Lights Consortium) or Energy Star Qualified Product Listing.
- .3 All LED Fixtures shall have a current listing on the DLC Qualified Product List.
- .4 All Fluorescent Ballasts shall have a current listing on the CEE (Consortium for Energy Efficiency) products lists or the Energy Star Product lists.
- .5 Ballasts shall be approved under the IESO SaveONenergy program as high performance product.
- .6 LED Fixtures and Lamps shall be approved under the IESO's SaveONenergy program.

1.2 LIGHTING RETROFIT COMPONENT SPECIFICATIONS

- .1 LOW BALLAST FACTOR BALLAST
 - .1 Electronic Instant Start Ballast
 - .2 Universal Voltage 120V-277V, or 347 V
 - .3 0.78 Ballast factor
 - .4 High Efficiency, CEE Listed
 - .5 Approved Brands: Osram-Sylvania, Philips Advance, GE
 - .6 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*
- .2 NORMAL BALLAST FACTOR BALLAST
 - .1 Electronic Instant Start Ballast
 - .2 Universal Voltage 120V-277V, or 347 V
 - .3 0.88 Ballast factor
 - .4 High Efficiency, CEE Listed
 - .5 Approved Brands: GE, Osram-Sylvania, Philips Advance
 - .6 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*
- .3 HIGH BALLAST FACTOR BALLAST
 - .1 Electronic Instant Start Ballast
 - .2 Universal Voltage 120V-277V, or 347 V
 - .3 1.20 Ballast factor
 - .4 High Efficiency, CEE Listed
 - .5 Approved Brands: Osram-Sylvania, Philips Advance, GE

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- .6 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*
- .4 LIGHTING RETROFIT TYPES A, B, C, D, DI, E, G, Q, S, V, W
- .1 These retrofits involve the installation of LED T8 Lamps and new corresponding electronic ballast
- .2 LED T8 Replacement Lamps shall be compatible with instant start electronic T8 ballasts with input voltage of Universal 120-277V and 347V.
- .3 Where two ballast are required in bi-level switched fixtures the suffix (2) indicating 2 ballast is appended to the corresponding fixture symbol as in A3(2) indicating a 3 lamp fixture with 2 ballast.
- .4 LED T8 lamps must not be operated by line voltage at the medium bi-pin socket.
- .5 LED T8 Replacement Lamps shall have a rated life (L_{70} Rating) of 50,000 Hours minimum.
- .6 Lamp shall be 4100°K (+/- 100°K) of CCT and shall have a CRI of 80 or more.
- .7 LED 2ft T8 8W Replacement Lamps shall be rated for 1100 Lumens Minimum.
- .8 LED 3ft T8 12W Replacement Lamps shall be rated for 1600 Lumens Minimum.
- .9 LED 4ft T8 15W Replacement Lamps shall be rated for 2200 Lumens Minimum.
- .10 LED U6 T8 15W Replacement Lamps shall be rated for 2200 Lumens Minimum.
- .11 Shall be DLC listed.
- .12 No UV emission.
- .13 THD <20%
- .14 Power Factor 0.90
- .15 Representative Product: SYLVANIA LED08T8/L24/F/841/SUB/G5
- .16 Representative Product: SYLVANIA LED12T8/L36/F/841/SUB/G5
- .17 Representative Product: SYLVANIA LED15T8/L48/F/841/SUB/G5
- .18 Representative Product: SYLVANIA LED15T8/U/F/841/SUB/G5 (as in EU(2))
- .19 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*
- .5 RETROFITS INCLUDING '+BG'
- .1 These retrofits call for the removal of tandem fixture wiring in row mount fixtures.
- .2 Where light fixture is to be converted from satellite operation to standalone ballast operation with (1) one new ballast per fixture.
- .3 Master fixture to retain one (1) new ballast for appropriate number of lamps.
- .4 Install line voltage wire to secondary fixture with acceptable sized conductors complete with ground wire.
- .6 RETROFITS INCLUDING '-BBX'
- .1 These retrofits call for the removal of 'master-satellite' wiring.
- .2 Where light fixture is to be converted from satellite operation to standalone ballast operation with (1) one new ballast per fixture.
- .3 Master fixture to retain one (1) new ballast for appropriate number of lamps.
- .4 Install line voltage wire to secondary fixture with acceptable sized BX armoured cable complete with ground conductor.
- .7 RETROFITS INCLUDING '-KIT'
- .1 Where light fixture is to be converted from 3-lamp cross-section or 4-lamp cross-section configuration to 2-lamp cross-section operation.
- .2 Install custom made socket alignment bracket KIT to properly center the new 2-Lamp operation in the light fixture for maximum efficiency.
- .3 Socket bracket KIT to be made by a company experienced in the manufacture of this product.

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- .4 Socket bracket KIT to be made by a company that will provide CSA approval of the product.
- .5 Approved Manufacturer: BJ Take
- .6 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .8 MR10 RELAMP
 - .1 Where light fixture is to be re-lamped from halogen based lamp.
 - .2 Install one (1) New MR16 LED type lamp.
 - .3 Representative Product, SYLVANIA LED9MR16/DIM/830/FL35
 - .4 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .9 PL4V, PL4H RELAMP
 - .1 Where existing downlight fixture contains 4-pin compact fluorescent lamp.
 - .2 Re-lamp downlight with (1) new type LED 4-pin vertical or horizontal lamp.
 - .3 Where suffix (2) has been added as in PL4H(2) allow for 2 lamps.
 - .4 Lamp Watts, 10.5 (PL4V), 8.5 (PL4H)
 - .5 Life, 40,000hrs.
 - .6 Rotatable end cap for positioning.
 - .7 ULc rated.
 - .8 Representative Product: (PL4V) Philips 10.5PL-C/T LED/26V-3000 IF 4P
 - .9 Representative Product: (PL4H) Philips 8.5PL-C/T LED/26V-3000 IF 4P
 - .10 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .10 R7, R11, R17 RELAMP
 - .1 Where existing downlight fixture contains existing compact fluorescent lamp.
 - .2 Re-lamp downlight with (1) new type LED lamp, Medium Base (E26) BR or PAR type reflector lamp
 - .3 Lamp Watts, 7 (R7), 11 (R11), 17 (R17)
 - .4 Life, 50,000hrs (L₇₀), (R7/ R11) 25,000hrs (L₇₀)
 - .5 Energy Star Listed.
 - .6 ETL rated.
 - .7 Representative Product: (R7) Sylvania LED7R20/DIM/HO/827/G4
 - .8 Representative Product: (R11) Sylvania LED9BR30/DIM/HO/850/G4/RP
 - .9 Representative Product: (R17) Sylvania LED17PAR38/PRO/930/FL40/P3
 - .10 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .11 K, K2, K4, RELAMP
 - .1 Where existing fixture contains one or more medium based screw-in lamps.
 - .2 Re-lamp fixture with new LED lamp(s)
 - .3 K type requires 1 Lamp, K2 requires 2 Lamps, and K4 requires 4 Lamps
 - .4 Lamp Watts, 9 (+/-1 W)
 - .5 Lamp Lumens, 800lm
 - .6 Life, 25,000hrs (L₇₀)
 - .7 Energy Star Listed.
 - .8 ETL rated.
 - .9 Representative Product: Sylvania LED9A19DIM0827G5
 - .10 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .12 CORRIDOR - LOCKING KEYED SWITCHES
 - .1 Where corridors contain existing toggle switches for manual control.

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- .2 Replace existing toggle switches with locking switch.
- .3 New switch to be operated by keyed switch for manual override of corridor lighting when required.
- .4 New switch capable of 3-way operation.
- .5 Match colour to school site conditions.
- .6 Representative Product: Hubbell HBL1203L Series
- .7 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

1.3 LIGHTING RETROFIT BY TYPE

.1 TYPE FM-13

- .1 New LED Small Area Ceiling or Surface Mount Light
- .2 Input Power, 28W
- .3 Lumens, 1,900lm
- .4 Colour temperature, 4000K
- .5 Construction, Aluminum Housing
- .6 CRI, >80
- .7 Lens, Diffuse Frosted Acrylic
- .8 Energy Star Listed
- .9 ULc Rated
- .10 Representative Product, LITHONIA VERSI-LITE FMML-13-8-40
- .11 or Approved Equivalent, *submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

.2 TYPE LS1

- .1 New LED Linear Narrow Strip Design General Purpose Light
- .2 Input Power, 37W
- .3 Lumens, 4,400lm
- .4 Colour temperature, 5000K
- .5 Construction, Steel
- .6 Dimmable Driver
- .7 Lens, Diffuse Frosted Acrylic
- .8 DLC Listed
- .9 CSA Rated
- .10 Representative Product, BJ TAKE BLSP-4-4L-37-UNV-L18
- .11 or Approved Equivalent, *submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

.3 TYPE NEXT

- .1 New LED Exit Sign
- .2 Input Power, 2W
- .3 Construction, Steel
- .4 Direction, Removable Chevron Arrows
- .5 Face, Universal
- .6 Mounting, Universal
- .7 Backup, Universal DC
- .8 CSA 22.2 No.141 Performance Certified
- .9 Representative Product, BEGHELLI SLE-L-R-U-M-UDC
- .10 or Approved Equivalent, *submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

.4 TYPE WS1

- .1 New LED Wall Light Down Light
- .2 Input Power, 25W
- .3 Lumens, 2,730 lumens
- .4 Colour temperature, 4000K
- .5 Construction, Extruded Aluminum, White Finish
- .6 Lens, Clear Tempered Glass
- .7 UL/cUL Rated, DLC Approved
- .8 Representative Product, McGraw Edison (Cooper) ISS-E01-LED-E1(120V)-BL4-WH
- .9 or Approved Equivalent, *submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

1.4 LIGHTING GYMNASIUM BY TYPE

- .1 TYPE GHB1, GHB1-347
 - .1 New LED High-Bay
 - .2 Nominal 2' size
 - .3 Low Profile, 3.5" depth
 - .4 Input Power, 145W
 - .5 Lumens, 16,000lm
 - .6 Integral High-Bay PIR Occupancy Sensor
 - .7 Colour temperature, 5000K
 - .8 CRI, 83.Heavy duty steel construction for Gymnasium application
 - .9 Protection, Heavy duty Wire Guard
 - .10 Mounting, holes for S-hook chain mount
 - .11 Lens, Frosted High-Impact
 - .12 Voltage, UNV or 347V
 - .13 Representative Product, BJ Take BLH-2-16L-ULT850-UNV-L25-W12-G1
 - .14 Representative Product, BJ Take BLH-2'-16L-ULT850-347-L25-W12-G1
 - .15 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .2 TYPE GHB2
 - .1 New LED High-Bay
 - .2 Nominal 2' size
 - .3 Low Profile, 3.5" depth
 - .4 Input Power, 185W.
 - .5 Lumens, 20,000lm
 - .6 Integral High-Bay PIR Occupancy Sensor
 - .7 Colour temperature, 5000K
 - .8 CRI, 83.Heavy duty steel construction for Gymnasium application
 - .9 Protection, Heavy duty Wire Guard
 - .10 Mounting, holes for S-hook chain mount
 - .11 Lens, Frosted High-Impact
 - .12 Voltage, UNV or 347V
 - .13 Representative Product, BJ Take BLH-2-20L-ULT850-UNV-L25-W12-G1
 - .14 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .3 TYPE GHB3
 - .1 New LED High-Bay
 - .2 Nominal 2' size
 - .3 Low Profile, 3.5" depth
 - .4 Input Power, 215W
 - .5 Lumens, 24,000lm
 - .6 Integral High-Bay PIR Occupancy Sensor
 - .7 Colour temperature, 5000K
 - .8 CRI, 83
 - .9 Heavy duty steel construction for Gymnasium application
 - .10 Protection, Heavy duty Wire Guard
 - .11 Mounting, holes for S-hook chain mount
 - .12 Lens, Frosted High-Impact
 - .13 Voltage, UNV or 347V

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- .14 Representative Product, BJ Take BLH-2-24L-ULT850-UNV-L25-W12-G1
- .15 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .4 NOTE 1: REMOVAL OF EXISTING GYM OCCUPANCY SENSORS
 - .1 Work shall be performed schools scheduled for gymnasium lighting redesign.
 - .2 Remove redundant sensors, conduits, wire-guards and control units associated with the occupancy control installation.
 - .3 Switches. Existing wall switches to remain in place and active. Switches to be designated for re-use with corresponding rows of New Lighting as detailed in Section 16500, 1.4.5.

- .5 NOTE 2: SWITCHING OF NEW GYMNASIUM LIGHTING
 - .1 Organize and re-assign existing wall toggle switches in Gymnasiums.
 - .2 This work to be in parallel with the installation of the New Gymnasium Lighting Installation.
 - .3 Switching to achieve row-by-row control, with one (1) toggle switch per row.
 - .4 The row as defined in this application is the width of the room, parallel with the stage unless otherwise noted.

1.5 LIGHTING CONTROLS BY TYPE

- .1 TYPE OS-1 HALLWAY SENSOR
 - .1 Long Narrow PIR Detection
 - .2 Large motion detection to 70ft at 7ft mounting
 - .3 Low Voltage Class II rated
 - .4 No field calibration required
 - .5 Current Draw, 4mA
 - .6 Control Unit, PP20
 - .7 Mounting, Ceiling Mount Bracket
 - .8 Representative Product, SENSORSWITCH HW-13+PP20+WVBR BRACKET
 - .9 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .2 TYPE OS-3 CEILING SENSOR
 - .1 360⁰ PIR Detection
 - .2 Large motion extended range, 24ft radial coverage
 - .3 Low Voltage Class II rated
 - .4 No field calibration required
 - .5 Current Draw, 4mA
 - .6 Control Unit, PP20
 - .7 Mounting, Junction Box
 - .8 Representative Product, SENSORSWITCH CM10+PP20
 - .9 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .3 TYPE OS-4 WIDE VIEW SENSOR
 - .1 Corner Mount PIR Detection
 - .2 Small Motion 40ft range detection
 - .3 Low Voltage Class II rated
 - .4 No field calibration required

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- .5 Current Draw, 4mA
- .6 Control Unit, PP20
- .7 Mounting, Ceiling Mount Bracket
- .8 Representative Product, SENSORSWITCH WV-16+PP20+WVBR BRACKET
- .9 or Approved Equivalent, *submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .4 TYPE OS-5 WALL SWITCH SENSOR
 - .1 Wall Switch PIR Detection
 - .2 Line Voltage Operation
 - .3 Coverage, 180° 28ft Radial
 - .4 Lens, Hard Vandal Resistant
 - .5 No field calibration required
 - .6 Tamper-Proof Automatic Version, No Manual Operation
 - .7 Colour, Match Colour to Site Conditions
 - .8 ULc Rated
 - .9 Representative Product, HUBBELL AP127711N
 - .10 or Approved Equivalent, *submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

1.6 LIGHTING EXTERIOR BY TYPE

- .1 TYPE AL1, AL3, AL4, AL4-347
 - .1 AL1, LED Post Top
 - .2 AL3, AL4, LED Area Light
 - .3 Input Power, 80W (AL1), 60W (AL3), 90W (AL4)
 - .4 Lumens, 7,200lm (AL1), 7,300lm (AL3), 10,600lm (AL4)
 - .5 Colour temperature, 5000K
 - .6 Distribution, Type 5 (AL1), Type 3 (AL3, AL4)
 - .7 Construction, Die-Cast Aluminum
 - .8 Photocell Control
 - .9 Dimmable Driver
 - .10 DLC Listed
 - .11 IP65 Rated
 - .12 Suitable for operation between -40°C and +40°C
 - .13 Representative Product, AL1 RAB DESIGN RAL-LED78-B-5K-BRZ-PCX
 - .14 Representative Product, AL3 RAB DESIGN AL1-LED60-B-5K-T3-BRZ-DIM-PC
 - .15 Representative Product, AL4 RAB DESIGN AL1-LED90-B-5K-T3-BRZ-DIM-PC
 - .16 Representative Product, AL4 RAB DESIGN AL1-LED90-C-5K-T3-BRZ-DIM-PC-347V
 - .17 or Approved Equivalent, *submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .2 TYPE CAN2, CAN2-347
 - .1 LED Canopy Light
 - .2 Input Power, 20W (120v), 40W (347v)
 - .3 Lumens, 2,300lm
 - .4 Colour temperature, 5000K
 - .5 Construction, Die-Cast Aluminum
 - .6 Lens, Vandal Resistant Polycarbonate
 - .7 Photocell Control
 - .8 DLC Listed, ULc Listed
 - .9 IP66 Rated
 - .10 Suitable for operation between -40°C and +40°C

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- .11 Representative Product, RAB VANLED-20-F-PCS, VANLED-40-F-347-PCS
- .12 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .3 TYPE CAN1
 - .1 LED Canopy Light
 - .2 Input Power, 15W
 - .3 Lumens, 1,500lm
 - .4 Colour temperature, 4000K
 - .5 Construction, Die Cast Aluminum Housing
 - .6 Lens, Polycarbonate
 - .7 Mounting flush or surface
 - .8 IP65 Rated
 - .9 Suitable for operation between -40°C and +40°C
 - .10 ULc, Listed
 - .11 Representative Product, Lithonia OLCFM-15-DDB
 - .12 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .4 TYPE FL-1, FL-1-347
 - .1 LED Wall Light
 - .2 Input Power, 50W
 - .3 Lumens, 5,300lm
 - .4 Colour temperature, 5000K
 - .5 Construction, Die Cast Aluminum Housing
 - .6 Lens, Clear Tempered Glass
 - .7 IP65 Rated
 - .8 Suitable for operation between -40°C and +40°C
 - .9 DLC Listed
 - .10 ULc Rated
 - .11 Representative Product, RAB DESIGN VEK2-LED52W-A-5K-BR
 - .12 Representative Product, RAB DESIGN VEK2-LED52W-C-5K-BR-347V
 - .13 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .5 TYPE WP2, WP2-347, WP3, WP5
 - .1 LED Wall Pack
 - .2 Input Power, 20W (WP2), 30W (WP3), 40W (WP5)
 - .3 Lumens, 1,600lm (WP2), 2,800lm (WP3), 4,400lm (WP5)
 - .4 Colour temperature, 5000K
 - .5 Construction, Die Cast Aluminum
 - .6 Lens, Clear Tempered Glass
 - .7 Photo Control
 - .8 IP65 Rated
 - .9 Suitable for operation between -40°C and +40°C
 - .10 DLC Listed
 - .11 ULc Rated
 - .12 Surge Protection
 - .13 Representative Product, (WP2) LUMARK XTOR2A-PC1, RAB DESIGN DWL1-LED18-A-5K-BRZ
 - .14 Representative Product, (WP2-347) LUMARK XTOR2-PC1-347V
 - .15 Representative Product, (WP3) LUMARK XTOR3A-PC1
 - .16 Representative Product, (WP5) LUMARK XTOR5A-PC1
 - .17 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

APPENDIX A - SITE RETROFIT SUMMARY

APPENDIX A – OVERVIEW

APPENDIX A provides a description of each lighting retrofit measure (existing symbol - to - retrofit symbol), the major components used in the measure (for example lamp and ballast combination or new fixture) as well as the total quantity of each measure for the entire project.

Unit pricing and extensions to be used for the bidder's convenience. Enter grand total price for each site into the Pricing Form in section 1.2.

Utilize the quantities shown in these schedules to formulate bid price.

LIGHTING RETROFIT SCHEDULE

Existing to Retrofit Symbol	Descriptions	Major component	Qty
A2 to A2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	1674
A2(2) to A2(2)	Retrofit 2 lamp, 2 ballasted fixture with 2 T8LED lamps and two 1 lamp 120V Low Ballast Factor ballast as detailed in 16500	Sylvania 2x QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	526
A2-LED to N/C	No Change to existing LED lamped fixture	Not Applicable	7
A3 to A2-KIT	Retrofit 3 lamp fixture to 2 T8LED lamps and a 120V Low Ballast Factor ballast and a socket alingment bracket KIT as to space the lamps equally within the fixture.	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps, BJTake BRK-15-2 Kit	2
A3 to A3	Retrofit 3 lamp fixture with 3 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE3x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	533
A3(2) to A3	Retrofit 3 lamp fixture with 2 ballast to 3 T8LED lamps and a single 3 lamp Low Ballast Factor ballast as detailed in 16500	Sylvania QHE3x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	6
A3(2) to A3(2)	Retrofit 3 lamp fixture with 2 ballast to 3 T8LED lamps and two Low Ballast Factor ballast as detailed in 16500	Sylvania 2x QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	51
A4 to A2	Retrofit 4 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500. Decommission 2nd pair of sockets.	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	1
A4 to A2-KIT	Retrofit 4 lamp fixture to 2 T8LED lamps and a 120V Normal Ballast Factor ballast and a socket alingment bracket KIT as to space the lamps equally within the fixture.	Sylvania QHE2x32T8/UNV ISN, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps, BJTake BRK-15-2 Kit	150
AL to AL3	Replace Existing Area Light with a New LED Area Light, Approximately 60W Type 3 Distribution with appropriate arm and adaptor for existing pole	RAB DESIGN AL1-LED60-B-5K-T3-BRZ-DIM-PC	15
C1 to C1	Retrofit 1 lamp fixture with 1 T8LED lamp and a 120V Low Ballast Factor Electronic ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	109
C2 to C2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	147
D2 to D2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	2
DI1(T5) to N/C	No change to existing T5 fixture	Not Applicable	76
DI2 to DI2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	302
G2 to GHB1	Install new gymnasium LED fixture type GHB1 complete with new wiring and integrated controls as detailed in 16500. Delete all existing lights and sensors.	BJTAKE BLH-2-16L-850-UNV-W306-L67-W12-G1	9
G3 to GHB1	Install new gymnasium LED fixture type GHB1 complete with new wiring and integrated controls as detailed in 16500. Delete all existing lights and sensors.	BJTAKE BLH-2-16L-850-UNV-W306-L67-W12-G1	10
G4 to GHB1	Install new gymnasium LED fixture type GHB1 complete with new wiring and integrated controls as detailed in 16500. Delete all existing lights and sensors.	BJTAKE BLH-2-16L-850-UNV-W306-L67-W12-G1	40

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Existing to Retrofit Symbol	Descriptions	Major component	Qty
HB-LED to N/C	No change to existing LED High Bay Gym fixture	Not Applicable	12
K to K	Relamp one lamp incandescent fixture with 1 new K type LED lamp as detailed in 16500	OSRAM LED9A19DIMO827G5 (PRODUCT No. 79246)	13
NA to NA	Note Applicable, No Change	Not Applicable	0
P to K	Relamp incandescent lamp in downlight with 1 new K type LED lamp as detailed in 16500	OSRAM LED9A19DIMO827G5 (PRODUCT No. 79246)	14
P to N/C	No change to existing light	Not Applicable	1
P1 to PL4H	Relamp existing 4 pin compact fluorescent downlight with in 1 new PL4H type LED 4 pin horizontal lamp as detailed in 16500	PHILIPS 8.5PL-C/T LED/26H-3000 IF 4P	125
P2 to PL4H(2)	Relamp two lamp 4 pin compact fluorescent downlight with in 2 new PL4H type LED 4 pin horizontal lamps as detailed in 16500	PHILIPS 8.5PL-C/T LED/26H-3000 IF 4P	13
P-LED to N/C	No change to existing LED fixture	Not Applicable	221
Q1(2') to Q1(2')	Retrofit 1 lamp 2' fixture with a 2' T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED08T8/L24/F/841/SUB/G5 2' T8LED lamps	25
Q1(3') to Q1(3')	Retrofit 1 lamp 3' fixture with a 3' T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED08T8/L24/F/841/SUB/G5 2' T8LED lamps	2
Q2 to Q2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	12
R to N/C	No change to existing LED lamp	Not Applicable	2
R to R-11	Relamp compact fluorescent downlight with in 1 new type 11W BR LED lamp as detailed in 16500	OSRAM LED9BR30/DIM/HO/850/G4/RP	2
R to R-12	Relamp compact fluorescent downlight with in 1 new type 12W PAR20 LED lamp as detailed in 16500	OSRAM LED12PAR20	6
R to R-17	Relamp compact fluorescent downlight with in 1 new type 17W PAR LED lamp as detailed in 16500	OSRAM LED17PAR38/PRO/930/FL40/P3	11
S1 to GHB1	Install new gymnasium LED fixture type GHB1 complete with new wiring and integrated occupancy controls as detailed in 16500. Delete all existing lights and sensors.	BJTAKE BLH-2-16L-850-UNV-W306-L67-W12-G1	9
S1 to S1	Retrofit 1 lamp fixture with a T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamp	34
S2 to GHB3	Install new gymnasium LED fixture type GHB1 complete with new wiring and integrated controls as detailed in 16500. Delete all existing lights and sensors.	BJTAKE BLH-2-24L-850-UNV-W306-L67-W12-G1	24

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LIGHTING RETROFIT SCHEDULE

Existing to Retrofit Symbol	Descriptions	Major component	Qty
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	226
SPC to N/C	Specialized lighting to No Change	Not Applicable	1
SPC to WS1	Specialized CF fixture replaced with McGraw-Edison quarter sphere 25w LED fixture	McGraw-Edison ISS-E01-LED-UNV-347-BL4-WH	10
V2 to V2	Retrofit 2 lamp fixture with 2 T8LED lamps and 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	9
W1 to W1	Retrofit 1 lamp fixture with a T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	32
W2 to W2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	305
W3 to W3	Retrofit 3 lamp fixture with 3 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	2
WP to WP2	Replace exterior Wall Pack fixtures with new LED Full Cutoff Wall Pack, approximately 20W as detailed in drawings and in 16500	EATON (LUMARK) XTOR2A-PC1	29
WP-LED to N/C	No change to existing LED fixture	Not Applicable	16
X-LED to N/C	No change to existing LED Exit sign fixtures	Not Applicable	76
E2U to E2U	Retrofit 2 lamp fixture with 2 T8LED U6" lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/U/F/841/SUB/G5 T8LED lamps	1
G2 to G2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	2
X to NEXT	Replace existing incandescent or compact fluorescent Exit Sign with new Exit sign fixture as detailed in 16500	BEGHELLI SLE-L-R-U-M	3
CAN to CAN2	Replace exterior Canopy Lights with new LED Canopy Light, approximately 20W as detailed in drawings and in 16500	RC Lighting VANLED-20	7
WP to WP5	Replace exterior Wall Pack fixtures with new LED Fowrad Through Wall Pack, approximately 40W as detailed in drawings and in 16500	EATON (LUMARK) XTOR4A-PC1	1
CAN to CAN1	Replace exterior round canopy fixture with new LED 15W round canopy fixture as detailed in drawings and in 16500	Lithonia OLCFM-15-DDB	34

Grand Total

4940

APPENDIX B - SCHOOL RETROFIT SUMMARY

APPENDIX B - OVERVIEW

APPENDIX B provides a description of each lighting retrofit measure (existing symbol to retrofit symbol), the major components used in the measure (for example lamp and ballast combination or new fixture) and the Grand Total quantity of each measure for the entire project.

Appendix B

SCHOOL RETROFIT SUMMARY

616 - HOLY FAMILY

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	220		
A2-LED to N/C	No Change to existing LED lamped fixture	Not Applicable	6		
A4 to A2-KIT	Retrofit 4 lamp fixture to 2 T8LED lamps and a 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	Sylvania QHE2x32T8/UNV ISN, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps, BJTake BRK-15-2 Kit	1		
C1 to C1	Retrofit 1 lamp fixture with 1 T8LED lamp and a 120V Low Ballast Factor Electronic ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	84		
CAN to CAN2	Replace exterior Canopy Lights with new LED Canopy Light, approximately 20W as detailed in drawings and in 16500	RC Lighting VANLED-20	2		
G2 to G2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	2		
G2 to GHB1	Install new gymnasium LED fixture type GHB1 complete with new wiring and integrated controls as detailed in 16500. Delete all existing lights and sensors.	BJTAKE BLH-2-16L-850-UNV-W306-L67-W12-G1	9		
K to K	Relamp one lamp incandescent fixture with 1 new K type LED lamp as detailed in 16500	OSRAM LED9A19DIM0827G5 (PRODUCT No. 79246)	5		
NA to NA	Note Applicable, No Change	Not Applicable	0		
Q2 to Q2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	2		
R to R-11	Relamp compact fluorescent downlight with in 1 new type 11W BR LED lamp as detailed in 16500	OSRAM LED9BR30/DIM/HO/850/G4/RP	2		
S1 to S1	Retrofit 1 lamp fixture with a T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamp	5		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	12		
W2 to W2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	11		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Full Cutoff Wall Pack, approximately 20W as detailed in drawings and in 16500	EATON (LUMARK) XTOR2A-PC1	13		
X to NEXT	Replace existing incandescent or compact fluorescent Exit Sign with new Exit sign fixture as detailed in 16500	BEGHELLI SLE-L-R-U-M	3		
X-LED to N/C	No change to existing LED Exit sign fixtures	Not Applicable	10		
			387	Sub Total	

Appendix B

SCHOOL RETROFIT SUMMARY

616 - HOLY FAMILY

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
OS-1	Sensor Switch HW-13 PIR Hallway Sensor + PP20 Power Pack + WVBR Ceiling Mount Bracket	SENSOR SWITCH HW-13 PIR	5		
OS-3	Sensor Switch CM-10 360 degree PIR Ceiling Mount Sensor + PP20 Power Pack	SENSOR SWITCH CM-10 PIR	5		
				Sub Total	

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace existing 2, 3 and 4 way switches with locking keyed swithces. Contractor to confirm count & site requirements.	HUBBELL HBL120(2L), (3L) or (4L)	8		
				Sub Total	

Grand Total	
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SCHOOL RETROFIT SUMMARY

628 - ST ELIZABETH

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	256		
A3 to A3	Retrofit 3 lamp fixture with 3 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE3x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	13		
C1 to C1	Retrofit 1 lamp fixture with 1 T8LED lamp and a 120V Low Ballast Factor Electronic ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	22		
C2 to C2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	16		
CAN to CAN2	Replace exterior Canopy Lights with new LED Canopy Light, approximately 20W as detailed in drawings and in 16500	RC Lighting VANLED-20	4		
K to K	Relamp one lamp incandescent fixture with 1 new K type LED lamp as detailed in 16500	OSRAM LED9A19DIMO827G5 (PRODUCT No. 79246)	1		
P1 to PL4H	Relamp existing 4 pin compact fluorescent downlight with in 1 new PL4H type LED 4 pin horizontal lamp as detailed in 16500	PHILIPS 8.5PL-C/T LED/26H-3000 IF 4P	1		
P-LED to N/C	No change to existing LED fixture	Not Applicable	4		
Q1(2') to Q1(2')	Retrofit 1 lamp 2' fixture with a 2' T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED08T8/L24/F/841/SUB/G5 2' T8LED lamps	1		
R to R-17	Relamp compact fluorescent downlight with in 1 new type 17W PAR LED lamp as detailed in 16500	OSRAM LED17PAR38/PRO/930/FL40/P3	11		
S1 to GHB1	Install new gymnasium LED fixture type GHB1 complete with new wiring and integrated occupancy controls as detailed in 16500. Delete all existing lights and sensors.	BJTAKE BLH-2-16L-850-UNV-W306-L67-W12-G1	9		
S1 to S1	Retrofit 1 lamp fixture with a T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamp	13		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Full Cutoff Wall Pack, approximately 20W as detailed in drawings and in 16500	EATON (LUMARK) XTOR2A-PC1	3		
WP to WP5	Replace exterior Wall Pack fixtures with new LED Fowrad Through Wall Pack, approximately 40W as detailed in drawings and in 16500	EATON (LUMARK) XTOR4A-PC1	1		
WP-LED to N/C	No change to existing LED fixture	Not Applicable	2		
X-LED to N/C	No change to existing LED Exit sign fixtures	Not Applicable	12		
			369	Sub Total	

SCHOOL RETROFIT SUMMARY

628 - ST ELIZABETH

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
OS-1	Sensor Switch HW-13 PIR Hallway Sensor + PP20 Power Pack + WVBR Ceiling Mount Bracket	SENSOR SWITCH HW-13 PIR	7		
OS-3	Sensor Switch CM-10 360 degree PIR Ceiling Mount Sensor + PP20 Power Pack	SENSOR SWITCH CM-10 PIR	4		
				Sub Total	

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace existing 2, 3 and 4 way switches with locking keyed switches. Contractor to confirm count & site requirements.	HUBBELL HBL120(2L), (3L) or (4L)	11		
				Sub Total	

Grand Total	
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Appendix B

SCHOOL RETROFIT SUMMARY

651 - HOLY TRINITY

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	349		
A3 to A3	Retrofit 3 lamp fixture with 3 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE3x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	4		
AL to AL3	Replace Existing Area Light with a New LED Area Light, Approximately 60W Type 3 Distribution with appropriate arm and adaptor for existing pole	RAB DESIGN AL1-LED60-B-5K-T3-BRZ-DIM-PC	3		
C2 to C2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	30		
CAN to CAN2	Replace exterior Canopy Lights with new LED Canopy Light, approximately 20W as detailed in drawings and in 16500	RC Lighting VANLED-20	16		
DI2 to DI2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	40		
G4 to GHB1	Install new gymnasium LED fixture type GHB1 complete with new wiring and integrated controls as detailed in 16500. Delete all existing lights and sensors.	BJTAKE BLH-2-16L-850-UNV-W306-L67-W12-G1	20		
P1 to PL4H	Relamp existing 4 pin compact fluorescent downlight with in 1 new PL4H type LED 4 pin horizontal lamp as detailed in 16500	PHILIPS 8.5PL-C/T LED/26H-3000 IF 4P	60		
P2 to PL4H(2)	Relamp two lamp 4 pin compact fluorescent downlight with in 2 new PL4H type LED 4 pin horizontal lamps as detailed in 16500	PHILIPS 8.5PL-C/T LED/26H-3000 IF 4P	4		
P-LED to N/C	No change to existing LED fixture	Not Applicable	1		
Q1(2') to Q1(2')	Retrofit 1 lamp 2' fixture with a 2' T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED08T8/L24/F/841/SUB/G5 2' T8LED lamps	1		
Q1(3') to Q1(3')	Retrofit 1 lamp 3' fixture with a 3' T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED08T8/L24/F/841/SUB/G5 2' T8LED lamps	1		
Q2 to Q2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	4		
S1 to S1	Retrofit 1 lamp fixture with a T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamp	1		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	35		
SPC to WS1	Specialized CF fixture replaced with McGraw-Edison quarter sphere 25w LED fixture	McGraw-Edison ISS-E01-LED-UNV-347-BL4-WH	5		
W1 to W1	Retrofit 1 lamp fixture with a T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	16		

Appendix B

SCHOOL RETROFIT SUMMARY

651 - HOLY TRINITY

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
WP to WP2	Replace exterior Wall Pack fixtures with new LED Full Cutoff Wall Pack, approximately 20W as detailed in drawings and in 16500	EATON (LUMARK) XTOR2A-PC1	3		
X-LED to N/C	No change to existing LED Exit sign fixtures	Not Applicable	19		
			612	Sub Total	

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
OS-1	Sensor Switch HW-13 PIR Hallway Sensor + PP20 Power Pack + WVBR Ceiling Mount Bracket	SENSOR SWITCH HW-13 PIR	7		
OS-3	Sensor Switch CM-10 360 degree PIR Ceiling Mount Sensor + PP20 Power Pack	SENSOR SWITCH CM-10 PIR	9		
				Sub Total	

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace existing 2, 3 and 4 way switches with locking keyed switches. Contractor to confirm count & site requirements.	HUBBELL HBL120(2L), (3L) or (4L)	14		
				Sub Total	

Grand Total	
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Appendix B

SCHOOL RETROFIT SUMMARY

652 - ST MATTHEW

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	343		
A3 to A3	Retrofit 3 lamp fixture with 3 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE3x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	2		
AL to AL3	Replace Existing Area Light with a New LED Area Light, Approximately 60W Type 3 Distribution with appropriate arm and adaptor for existing pole	RAB DESIGN AL1-LED60-B-5K-T3-BRZ-DIM-PC	4		
C2 to C2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	33		
CAN to CAN2	Replace exterior Canopy Lights with new LED Canopy Light, approximately 20W as detailed in drawings and in 16500	RC Lighting VANLED-20	18		
DI2 to DI2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	40		
G4 to GHB1	Install new gymnasium LED fixture type GHB1 complete with new wiring and integrated controls as detailed in 16500. Delete all existing lights and sensors.	BJTAKE BLH-2-16L-850-UNV-W306-L67-W12-G1	20		
P1 to PL4H	Relamp existing 4 pin compact fluorescent downlight with in 1 new PL4H type LED 4 pin horizontal lamp as detailed in 16500	PHILIPS 8.5PL-C/T LED/26H-3000 IF 4P	54		
P2 to PL4H(2)	Relamp two lamp 4 pin compact fluorescent downlight with in 2 new PL4H type LED 4 pin horizontal lamps as detailed in 16500	PHILIPS 8.5PL-C/T LED/26H-3000 IF 4P	4		
Q1(2') to Q1(2')	Retrofit 1 lamp 2' fixture with a 2' T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED08T8/L24/F/841/SUB/G5 2' T8LED lamps	1		
Q1(3') to Q1(3')	Retrofit 1 lamp 3' fixture with a 3' T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED08T8/L24/F/841/SUB/G5 2' T8LED lamps	1		
Q2 to Q2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	4		
S1 to S1	Retrofit 1 lamp fixture with a T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamp	2		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	32		
SPC to N/C	Specialized lighting to No Change	Not Applicable	1		
SPC to WS1	Specialized CF fixture replaced with McGraw-Edison quarter sphere 25w LED fixture	McGraw-Edison ISS-E01-LED-UNV-347-BL4-WH	5		
W1 to W1	Retrofit 1 lamp fixture with a T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	16		

Appendix B

SCHOOL RETROFIT SUMMARY

652 - ST MATTHEW

WP to WP2	Replace exterior Wall Pack fixtures with new LED Full Cutoff Wall Pack, approximately 20W as detailed in drawings and in 16500	EATON (LUMARK) XTOR2A-PC1	3		
X-LED to N/C	No change to existing LED Exit sign fixtures	Not Applicable	19		
			602	Sub Total	

Symbol	Description	Description	Number of Sensors	Unit Price	Extended Price
OS-1	Sensor Switch HW-13 PIR Hallway Sensor + PP20 Power Pack + WVBR Ceiling Mount Bracket	SENSOR SWITCH HW-13 PIR	6		
OS-3	Sensor Switch CM-10 360 degree PIR Ceiling Mount Sensor + PP20 Power Pack	SENSOR SWITCH CM-10 PIR	9		
				Sub Total	

Symbol	Description	Description	Number of Keys	Unit Price	Extended Price
Keyed Switch	Replace existing 2, 3 and 4 way switches with locking keyed switches. Contractor to confirm count & site requirements.	HUBBELL HBL120(2L), (3L) or (4L)	14		
				Sub Total	

Grand Total	
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Appendix B

SCHOOL RETROFIT SUMMARY

720 - ST PATRICKS

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	270		
A2(2) to A2(2)	Retrofit 2 lamp, 2 ballasted fixture with 2 T8LED lamps and two 1 lamp 120V Low Ballast Factor ballast as detailed in 16500	Sylvania 2x QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	454		
A2-LED to N/C	No Change to existing LED lamped fixture	Not Applicable	1		
A3 to A2-KIT	Retrofit 3 lamp fixture to 2 T8LED lamps and a 120V Low Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps, BJTake BRK-15-2 Kit	2		
A3 to A3	Retrofit 3 lamp fixture with 3 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE3x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	387		
A4 to A2	Retrofit 4 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500. Decommission 2nd pair of sockets.	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	1		
A4 to A2-KIT	Retrofit 4 lamp fixture to 2 T8LED lamps and a 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	Sylvania QHE2x32T8/UNV ISN, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps, BJTake BRK-15-2 Kit	115		
C2 to C2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	49		
DI1(T5) to N/C	No change to existing T5 fixture	Not Applicable	76		
DI2 to DI2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	222		
HB-LED to N/C	No change to existing LED High Bay Gym fixture	Not Applicable	12		
P to K	Relamp incandescent lamp in downlight with 1 new K type LED lamp as detailed in 16500	OSRAM LED9A19DIMO827G5 (PRODUCT No. 79246)	14		
P-LED to N/C	No change to existing LED fixture	Not Applicable	201		
Q1(2) to Q1(2)	Retrofit 1 lamp 2' fixture with a 2' T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED08T8/L24/F/841/SUB/G5 2' T8LED lamps	22		
R to R-12	Relamp compact fluorescent downlight with 1 new type 12W PAR20 LED lamp as detailed in 16500	OSRAM LED12PAR20	6		
S1 to S1	Retrofit 1 lamp fixture with a T8LED lamp and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamp	13		
S2 to GHB3	Install new gymnasium LED fixture type GHB1 complete with new wiring and integrated controls as detailed in 16500. Delete all existing lights and sensors.	BJTAKE BLH-2-24L-850-UNV-W306-L67-W12-G1	24		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	123		
V2 to V2	Retrofit 2 lamp fixture with 2 T8LED lamps and 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	6		

Appendix B

SCHOOL RETROFIT SUMMARY

720 - ST PATRICKS

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
W2 to W2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	294		
W3 to W3	Retrofit 3 lamp fixture with 3 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	2		
			2294	Sub Total	

Symbol	Description	Representative Major Component	Number of Sensors	Unit Price	Extended Price
	NOT REQUIRED AT THIS SCHOOL		0		
				Sub Total	

Symbol	Description	Representative Major Component	Number of Keys	Unit Price	Extended Price
	NOT REQUIRED AT THIS SCHOOL		0		
				Sub Total	

Grand Total	
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Appendix B

SCHOOL RETROFIT SUMMARY

525 - CATHOLIC EDUCATION CENTRE

Symbol	Description	Representative Major Component	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	87		
A3 to A3	Retrofit 3 lamp fixture with 3 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE3x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	63		
A3(2) to A3	Retrofit 3 lamp fixture with 2 ballast to 3 T8LED lamps and a single 3 lamp Low Ballast Factor ballast as detailed in 16500	Sylvania QHE3x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	6		
A3(2) to A3(2)	Retrofit 3 lamp fixture with 2 ballast to 3 T8LED lamps and two Low Ballast Factor ballast as detailed in 16500	Sylvania 2x QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	51		
AL to AL3	Replace Existing Area Light with a New LED Area Light, Approximately 60W Type 3 Distribution with appropriate arm and adaptor for existing pole	RAB DESIGN AL1-LED60-B-5K-T3-BRZ-DIM-PC	8		
C1 to C1	Retrofit 1 lamp fixture with 1 T8LED lamp and a 120V Low Ballast Factor Electronic ballast as detailed in 16500	Sylvania QHE1x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	2		
C2 to C2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	3		
P1 to PL4H	Relamp existing 4 pin compact fluorescent downlight with in 1 new PL4H type LED 4 pin horizontal lamp as detailed in 16500	PHILIPS 8.5PL-C/T LED/26H-3000 IF 4P	10		
P2 to PL4H(2)	Relamp two lamp 4 pin compact fluorescent downlight with in 2 new PL4H type LED 4 pin horizontal lamps as detailed in 16500	PHILIPS 8.5PL-C/T LED/26H-3000 IF 4P	5		
P-LED to N/C	No change to existing LED fixture	Not Applicable	15		
Q2 to Q2	Retrofit 2 lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	2		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and a 120V Low Ballast Factor ballast as detailed in 16500	Sylvania QHE2x32T8/UNV ISL, Sylvania LED15T8/L48/F/841/SUB/G5 T8LED lamps	7		
			259	Sub Total	

Appendix B

SCHOOL RETROFIT SUMMARY

525 - CATHOLIC EDUCATION CENTRE

Symbol	Description		Number of Sensors	Unit Price	Extended Price
	NOT REQUIRED AT THIS SCHOOL				
				Sub Total	

Symbol	Description		Number of Keys	Unit Price	Extended Price
	NOT REQUIRED AT THIS SCHOOL				
				Sub Total	

Grand Total	
-------------	--

APPENDIX C – DESIGN DRAWINGS

APPENDIX C - OVERVIEW

Appendix C contains lighting site plans for each school. Detailed in the drawings are the existing fixture types as well as details on the exterior lighting, new gym layouts and corridor occupancy sensors and switches.

Drawings to be used as a guide only. Utilize the quantities identified in Appendix A and B to formulate Contactor's bid price.

The fixture condition is indicated on the drawings, and is to be matched against the descriptions detailed in the schedules. The schedules have been provided for the Bidders' convenience and are to be read in concert with the drawings.

Print Instructions:

Recommended print size for ease of viewing is 24" x 36" (Arch size D) for all schools.

EXISTING LIGHTING EQUIPMENT

LUMINAIRE SCHEDULE		
SYMBOL	TYPE	DESCRIPTION
	A	2' x 4' Recessed Troffer. Number designates 2, 3 or 4 lamp
	B	2x4' Surface Mount Box (may be suspended). Number designates 2, 3 or 4 lamp
	C	1x4' Recessed Troffer. Number designates 1, 2, 3 lamp
	D	1x4' Surface Mount Box (may be suspended). Number designates 2, 3 or 4 lamp
	E	2x2' Recessed Troffer. Number designates 2, 3 or 4 two foot lamp. Suffix 'U' used to indicate U lamp
	F	2x2' Surface Mount Box. Number designates 2, 3 or 4 two foot lamp. Suffix 'U' used to indicate U lamp
	G	Noninal 2x4' Gym Fixture. Number designates number of lamps. Assumed T5HO lamp type
	Q	Noninal 1x4' Cube Fixture. Wall or Surface mount. Number designates 1 or 2 lamps.
	W	1x4' Wrap Lens Fixture. Surface or suspended. Number designates 1, 2, 3 or 4 lamps.
	V	1x4' Vapour Tight Fixture. Surface or suspended. Number designates 1, 2, 3 or 4 lamps.
	S	Noninal 1x4' Strip Fixture. Number designates lamp cross section. Reported in 4' sections.
	JJ	Vapour tight Jan Jar style fixture. Medium base lamp.

LUMINAIRE SCHEDULE		
SYMBOL	TYPE	DESCRIPTION
	DI	Noninal 1x4' Direct/Indirect Suspended Fixture. Number designates lamp cross section. 4' sections.
	L	2x4' LED Panel type fixture. Includes edge lit or centre shielded array.
	H	1x4' LED Panel type fixture. Includes edge lit or centre shielded array.
	P	Recessed Downlight
	X	Exit Sign. Assumed LED. Note CF or Incandescent
	T	Track head or stage light.
	K	Wall or Ceiling Keyless Receptacle.
	U	Up/Downlight Can Fixture
	Y	Downlight Can Fixture
	Z2	Decorative Wall Sconce
	Z3	Decorative Chandelier

LIGHTING CONTROLS SCHEDULE		
SYMBOL	TYPE	DESCRIPTION
	S	Standard Wall Switch
	SS	Wall Switch Sensor
	DS	Wall or Ceiling Mounted Occupancy Sensor

EXTERIOR LIGHTING SCHEDULE		
SYMBOL	TYPE	DESCRIPTION
	VP	Exterior wall pack with wattage noted
	CAN	Exterior canopy with wattage noted
	RC	Round canopy fixture
	FL	Exterior Flood Light with wattage noted
	AL	Exterior Area Light with wattage noted

Prepared By: Dynamic Energy Services



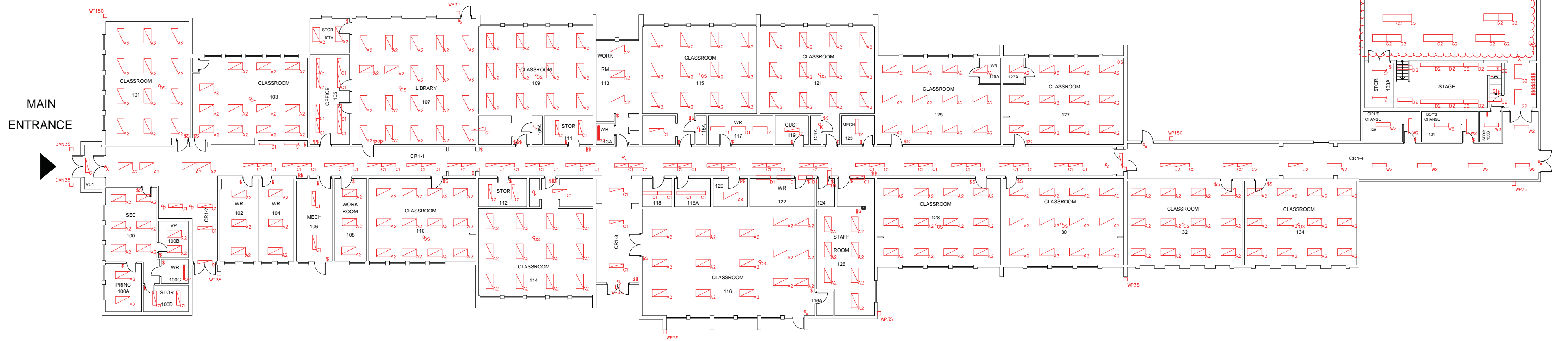
Symbol Schedule

Drawn By:	BM	Date:	01.24.2017
Checked By:	TM	Scale:	NTS

St. Clair Catholic District School Board

Lighting Retrofit Initiative - 2017

000



Prepared By:



Existing Lighting Layout

Drawn By: MH
Checked By: MM

Date: 09.15.2015
Scale: NTS

Holy Family
Catholic School

649 Murray St
Wallaceburg, ON N8A 1W1

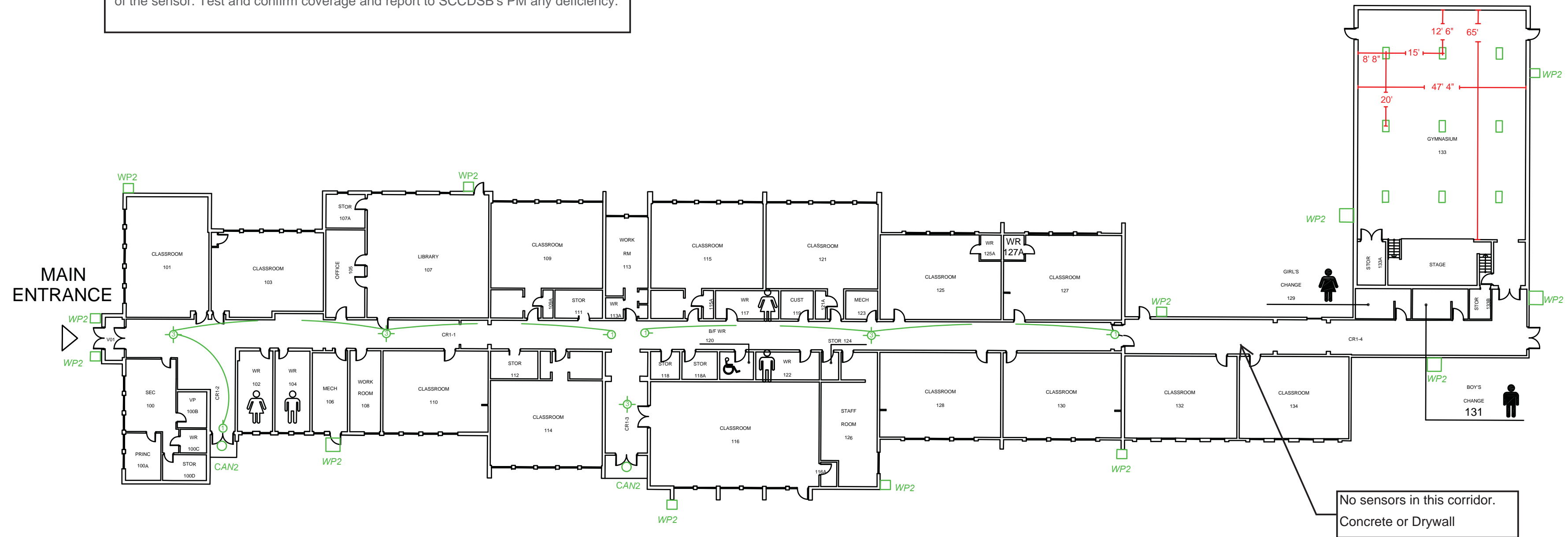
616-1

Note 1: In gym arrange new fixtures in rows as shown. Allow for minor variances due to obstructions.

Note 2: Organize gym switching in rows parallel to the stage and from the front (stage) to the rear of the gym. Switching should allow for the row of lights in front of the stage to be off while a row at the rear of the gym to be on if desired during stage use.

Note 3: Confirm type and count of corridor light switches and supply and install replacement keyed switches to match (all 2 way, 3 way and 4 way switches).

Note 4: Install OS-1 type sensor in the centre of the corridor and aimed down the middle of the corridor as per manufacturer's instructions and to maximize the range of the sensor. Test and confirm coverage and report to SCCDSB's PM any deficiency.



Prepared By: Dynamic Energy Services



Gym Fixture and Corridor Occupancy Sensor Layout

Drawn By:	BM	Date:	11.22.2016
Checked By:	TM	Scale:	NTS

**Holy Family
Catholic School**

649 Murray Street
Wallaceburg, ON N8A 1W1

616-2

GYM DEMOLITION
 REMOVE ALL EXISTING S1 FIXTURES FROM CEILING
 REMOVE ALL REDUNDANT WIRING AND EMT THAT IS NOT REQUIRED FOR NEW LIGHTING LAYOUT
 REMOVE ALL EXISTING OCCUPANCY SENSORS AND RELATED WIRING AND CONDUITS.
 MAKE SAFE ALL ELECTRICAL WORK TO INDUSTRY STANDARDS AND SATISFACTION OF SCCDSB



Prepared By:



Existing Lighting Layout

Drawn By: MH Date: 09.15.2015
 Checked By: MM Scale: NTS

**St Elizabeth
 Catholic School**

1350 Bertha Ave
 Wallaceburg, ON N8A 3K4

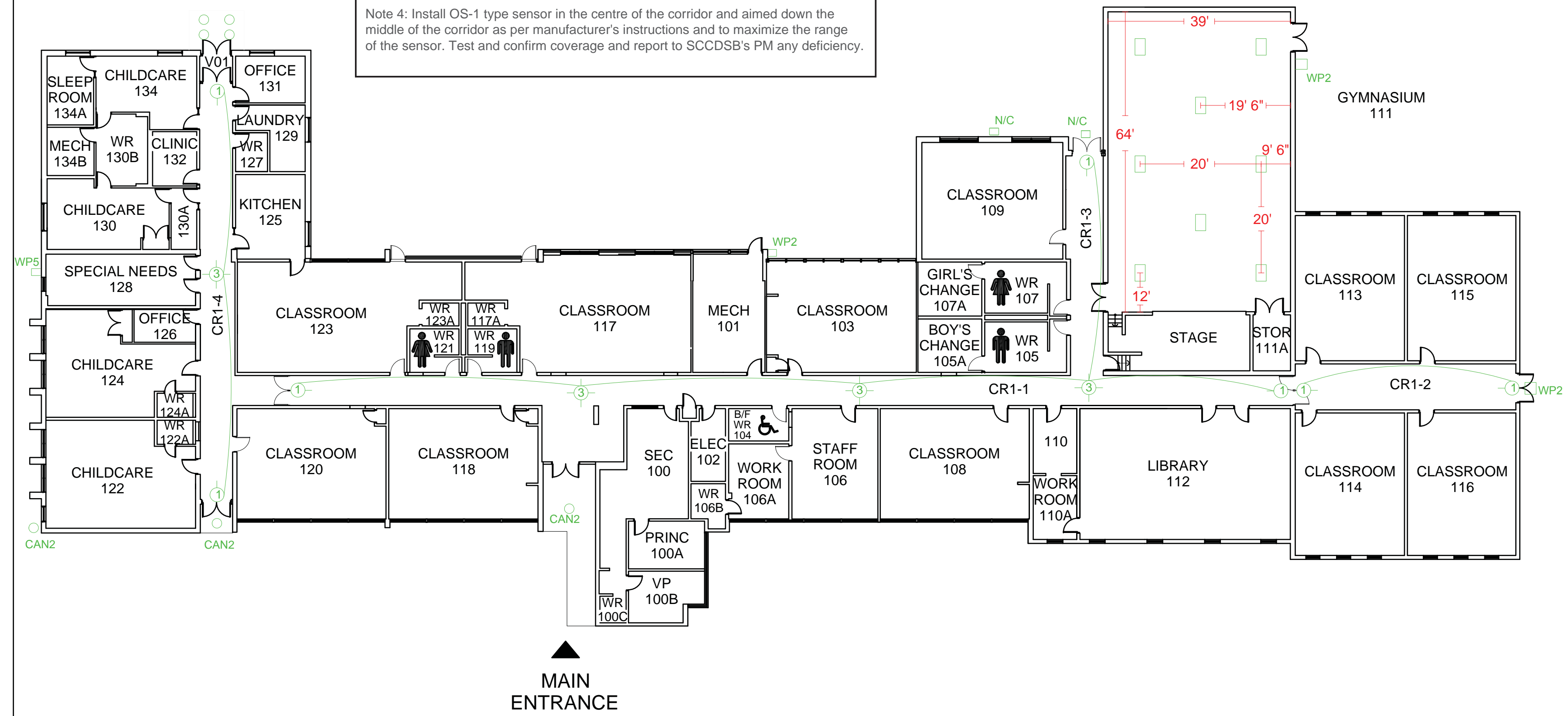
629-1

Note 1: In gym arrange new fixtures in rows as shown. Allow for minor variances due to obstructions.

Note 2: Organize gym switching in rows parallel to the stage and from the front (stage) to the rear of the gym. Switching should allow for the row of lights in front of the stage to be off while a row at the rear of the gym to be on if desired during stage use.

Note 3: Confirm type and count of corridor light switches and supply and install replacement keyed switches to match (all 2 way, 3 way and 4 way switches).

Note 4: Install OS-1 type sensor in the centre of the corridor and aimed down the middle of the corridor as per manufacturer's instructions and to maximize the range of the sensor. Test and confirm coverage and report to SCCDSB's PM any deficiency.



Prepared By: Dynamic Energy Services



Gym Fixture and Corridor Occupancy Sensor Layout

Drawn By:	BM	Date:	11.22.2016
Checked By:	TM	Scale:	NTS

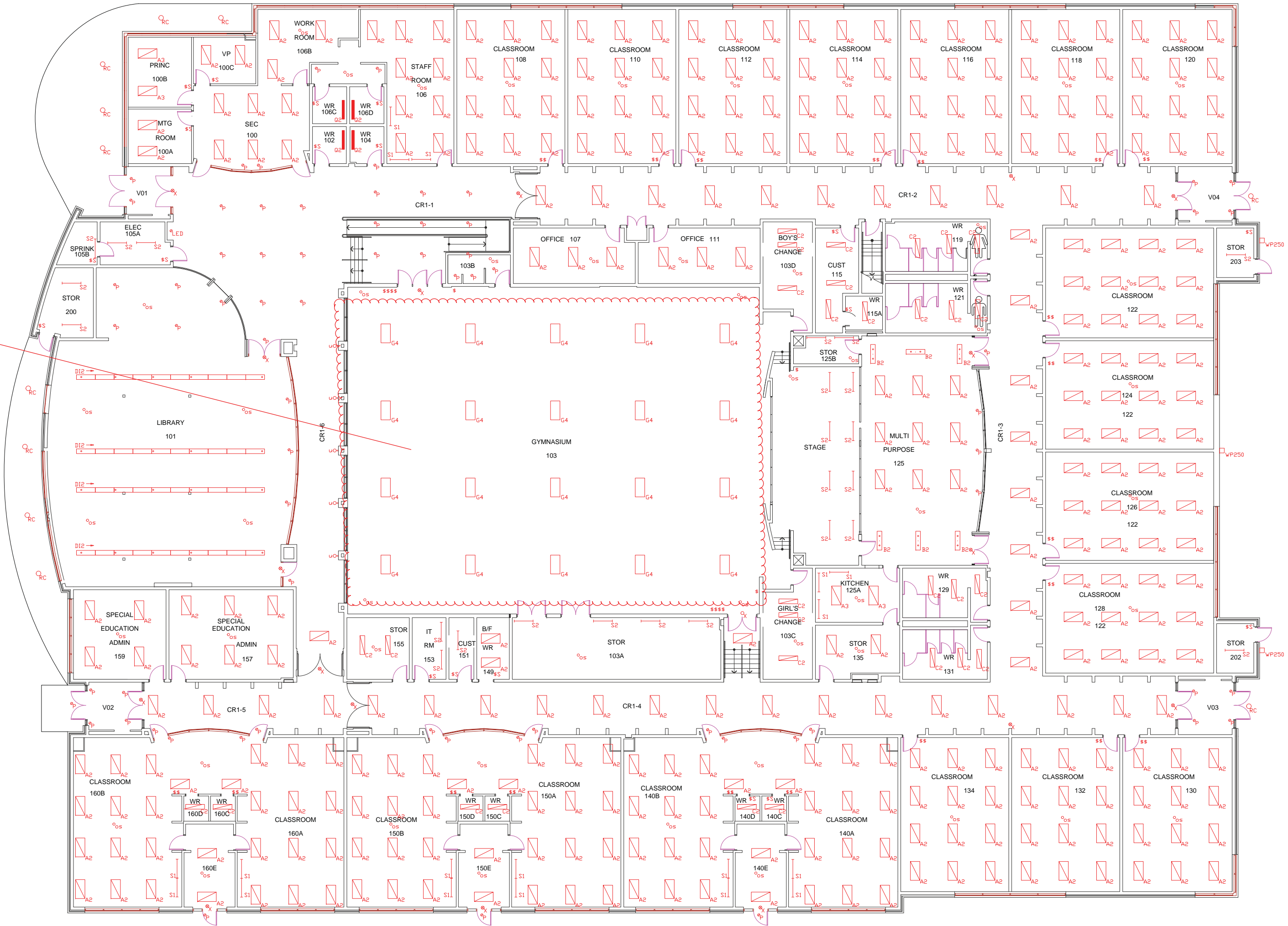
**St Elizabeth
Catholic School**

1350 Bertha Avenue
Wallaceburg, ON N8A 3K4

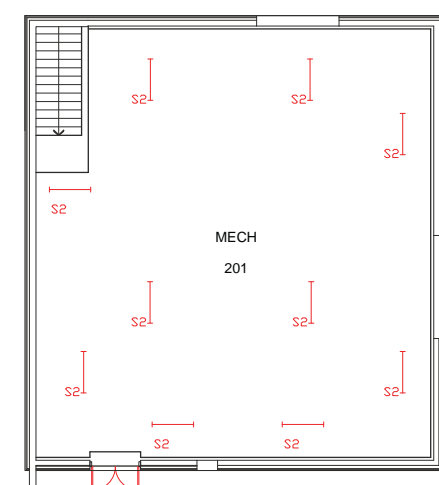
629-2

MAIN ENTRANCE →

GYM DEMOLITION
 REMOVE ALL EXISTING G4 FIXTURES FROM CEILING
 REMOVE ALL REDUNDANT WIRING AND EMT THAT IS NOT REQUIRED FOR NEW LIGHTING LAYOUT
 REMOVE ALL EXISTING OCCUPANCY SENSORS AND RELATED WIRING AND CONDUITS
 MAKE SAFE ALL ELECTRICAL WORK TO INDUSTRY STANDARDS AND SATISFACTION OF SCCDSB



GROUND FLOOR



SECOND FLOOR

Prepared By:



Existing Lighting Layout

Drawn By: MH Date: 09.15.2015
 Checked By: MM Scale: NTS

**Holy Trinity
 Catholic School**

60 Lorne Cr
 Sarnia, ON N7S 0C3

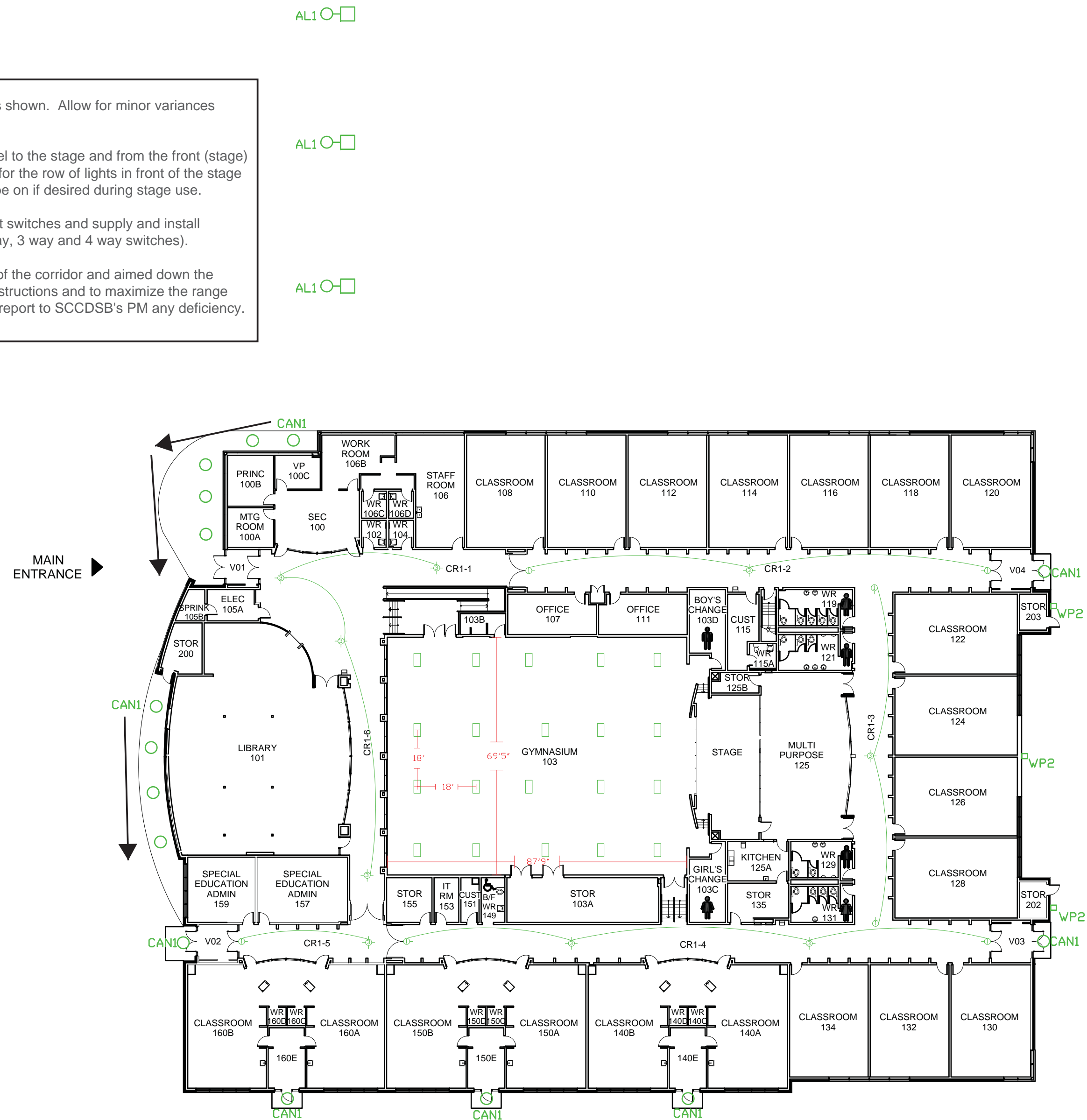
651-1

Note 1: In gym arrange new fixtures in rows as shown. Allow for minor variances due to obstructions.

Note 2: Organize gym switching in rows parallel to the stage and from the front (stage) to the rear of the gym. Switching should allow for the row of lights in front of the stage to be off while a row at the rear of the gym to be on if desired during stage use.

Note 3: Confirm type and count of corridor light switches and supply and install replacement keyed switches to match (all 2 way, 3 way and 4 way switches).

Note 4: Install OS-1 type sensor in the centre of the corridor and aimed down the middle of the corridor as per manufacturer's instructions and to maximize the range of the sensor. Test and confirm coverage and report to SCCDSB's PM any deficiency.



Prepared By: Dynamic Energy Services



Gym Fixture and Corridor Occupancy Sensor Layout

Drawn By:	BM	Date:	11.21.2016
Checked By:	TM	Scale:	NTS

**Holy Trinity
Catholic School**

60 Lorne Crescent
Sarnia, ON N7S 0C3

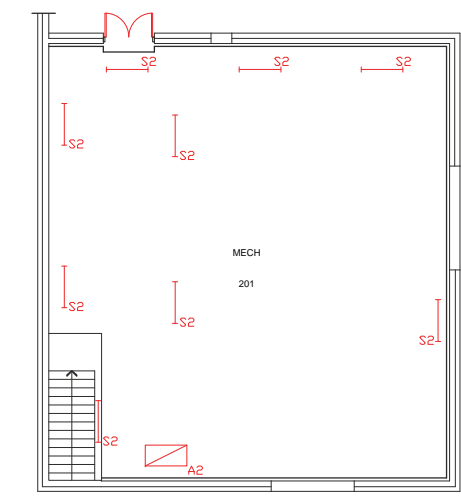
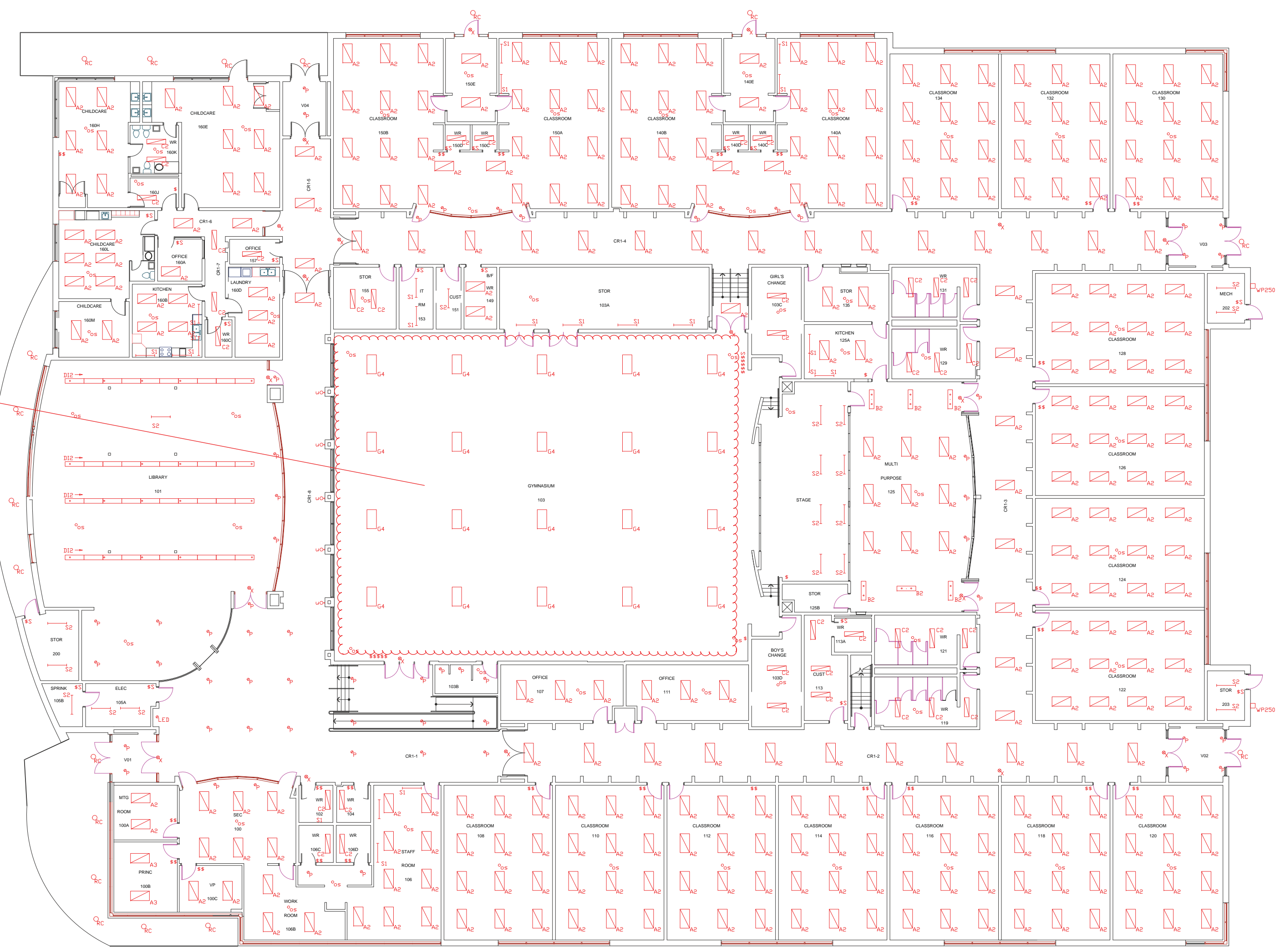
651-2

GYM DEMOLITION
 REMOVE ALL EXISTING G4 FIXTURES FROM CEILING
 REMOVE ALL REDUNDANT WIRING AND EMT THAT IS NOT REQUIRED FOR NEW LIGHTING LAYOUT
 REMOVE ALL EXISTING OCCUPANCY SENSORS AND RELATED WIRING AND CONDUITS.
 MAKE SAFE ALL ELECTRICAL WORK TO INDUSTRY STANDARDS AND SATISFACTION OF SCCDSB

MAIN ENTRANCE

GROUND FLOOR

SECOND FLOOR



Prepared By:

Existing Lighting Layout	
Drawn By: MH	Date: 09.15.2015
Checked By: MM	Scale: NTS

St Matthew Catholic School
 720 Elm Ave
 Sarnia, ON N7T 4G7

652-1

Note 1: In gym arrange new fixtures in rows as shown. Allow for minor variances due to obstructions.

Note 2: Organize gym switching in rows parallel to the stage and from the front (stage) to the rear of the gym. Switching should allow for the row of lights in front of the stage to be off while a row at the rear of the gym to be on if desired during stage use.

Note 3: Confirm type and count of corridor light switches and supply and install replacement keyed switches to match (all 2 way, 3 way and 4 way switches).

Note 4: Install OS-1 type sensor in the centre of the corridor and aimed down the middle of the corridor as per manufacturer's instructions and to maximize the range of the sensor. Test and confirm coverage and report to SCCDSB's PM any deficiency.

POLE MOUNT AREA LIGHT



POLE MOUNT AREA LIGHT



POLE MOUNT AREA LIGHT



Prepared By: Dynamic Energy Services



Gym Fixture and Corridor Occupancy Sensor Layout

Drawn By:	BM	Date:	11.21.2016
Checked By:	TM	Scale:	NTS

**St Matthew
Catholic School**

720 Elm Ave
Sarnia, ON N7T 4G7

652-2



Prepared By: Dynamic Energy Services



**Part Ground Floor Plan
Area A Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
Checked By: TM Scale: NTS

**St. Patrick's Catholic High School
St. Clair Catholic District School Board**

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

E2.1



Prepared By: Dynamic Energy Services



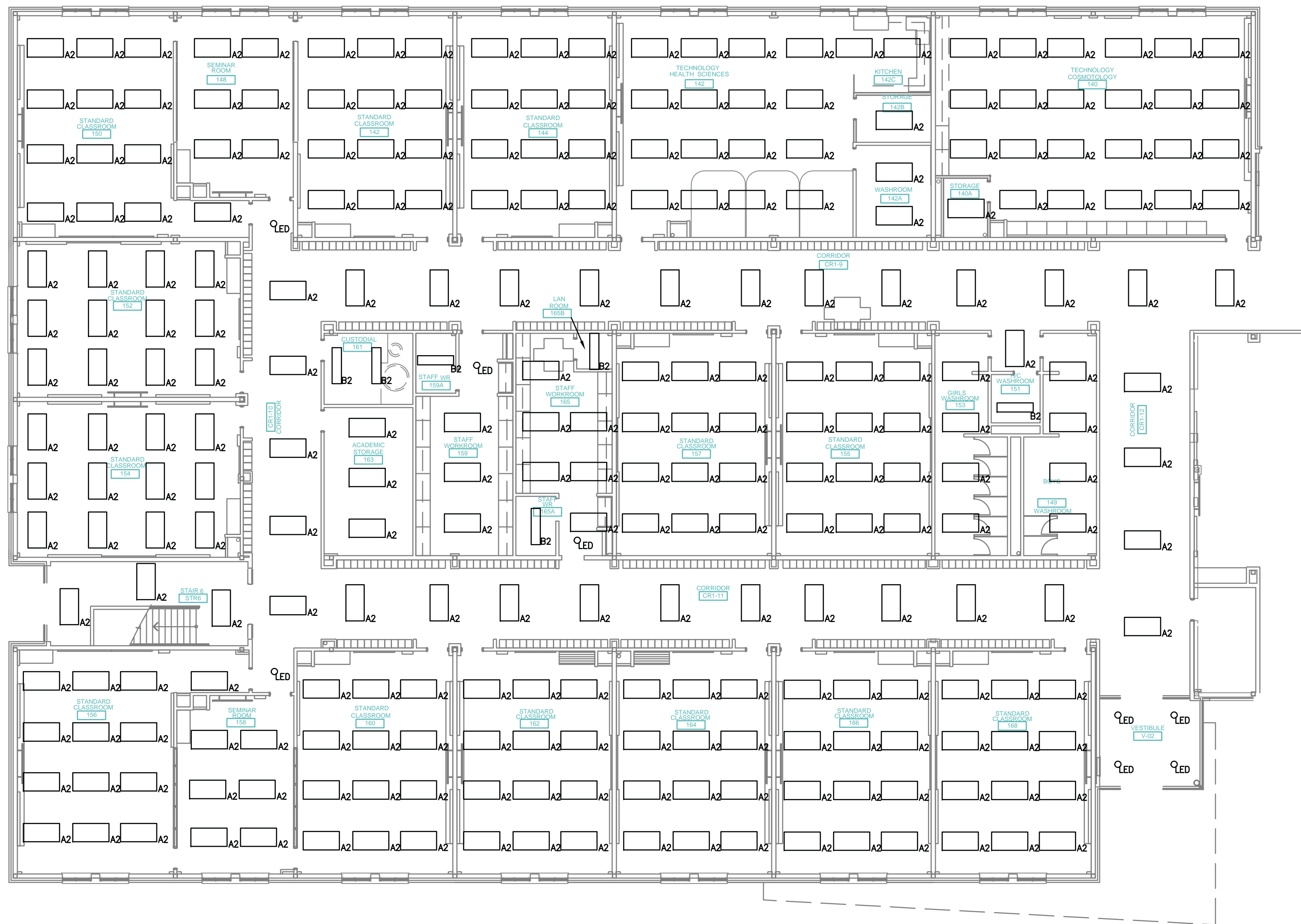
**Part Ground Floor Plan
Area B Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
Checked By: TM Scale: NTS

**St. Patrick's Catholic High School
St. Clair Catholic District School Board**

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

E2.2



Prepared By: Dynamic Energy Services



**Part Ground Floor Plan
Area C Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
Checked By: TM Scale: NTS

**St. Patrick's Catholic High School
St. Clair Catholic District School Board**

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

E2.3



Prepared By: Dynamic Energy Services



**Part Ground Floor Plan
Area D Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
Checked By: TM Scale: NTS

St. Patrick's Catholic High School
St. Clair Catholic District School Board

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

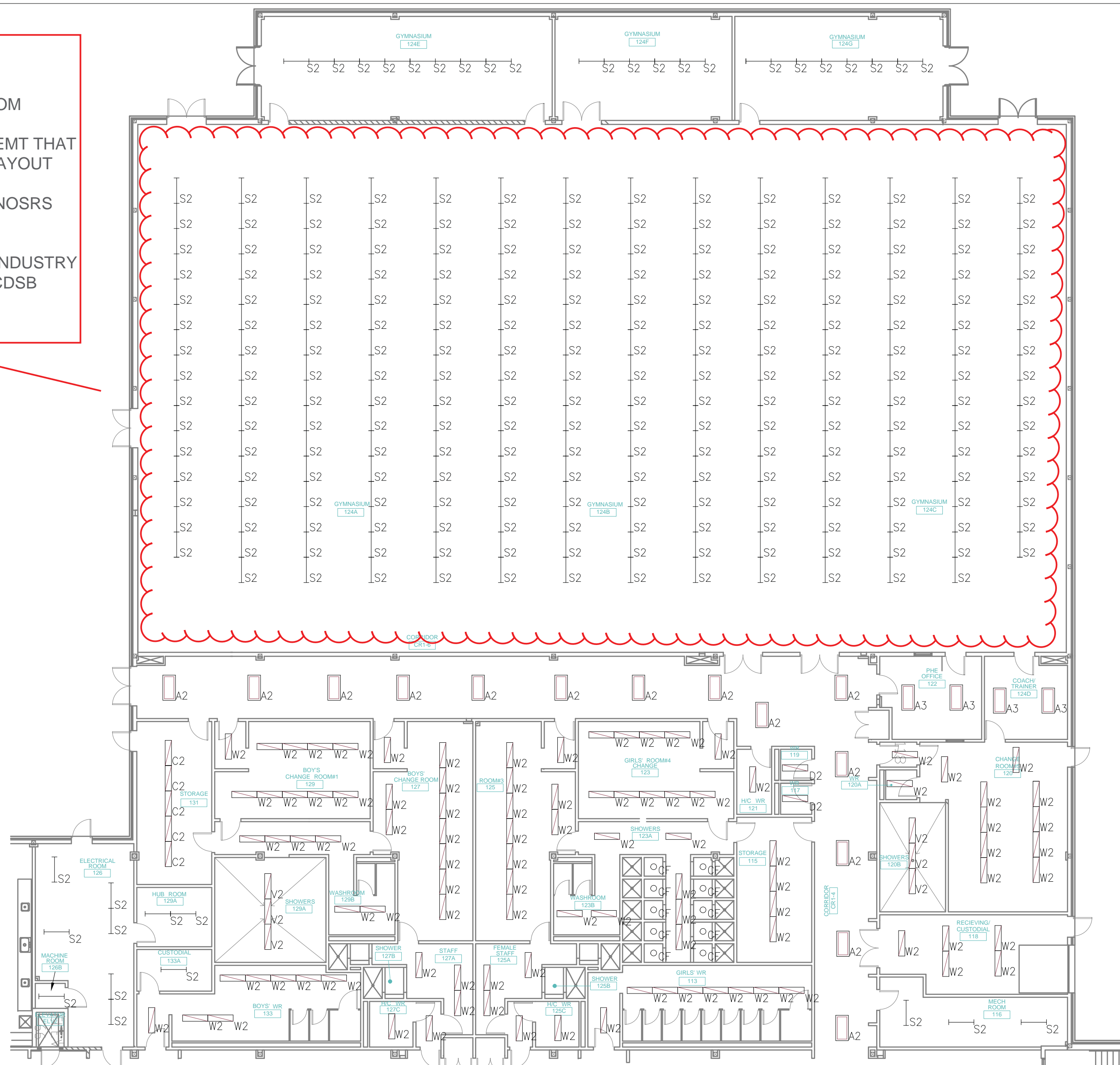
E2.4

GYM DEMOLITION

REMOVE ALL EXISTING S2 FIXTURES FROM CEILING
 REMOVE ALL REDUNDANT WIRING AND EMT THAT IS NOT REQUIRED FOR NEW LIGHTING LAYOUT

REMOVE ALL EXISTING OCCUPANCY SENSORS AND RELATED WIRING AND CONDUITS

MAKE SAFE ALL ELECTRICAL WORK TO INDUSTRY STANDARDS AND SATISFACTION OF SCCDSB



Prepared By: Dynamic Energy Services



**Part Ground Floor Plan
 Area E Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
 Checked By: TM Scale: NTS

**St. Patrick's Catholic High School
 St. Clair Catholic District School Board**

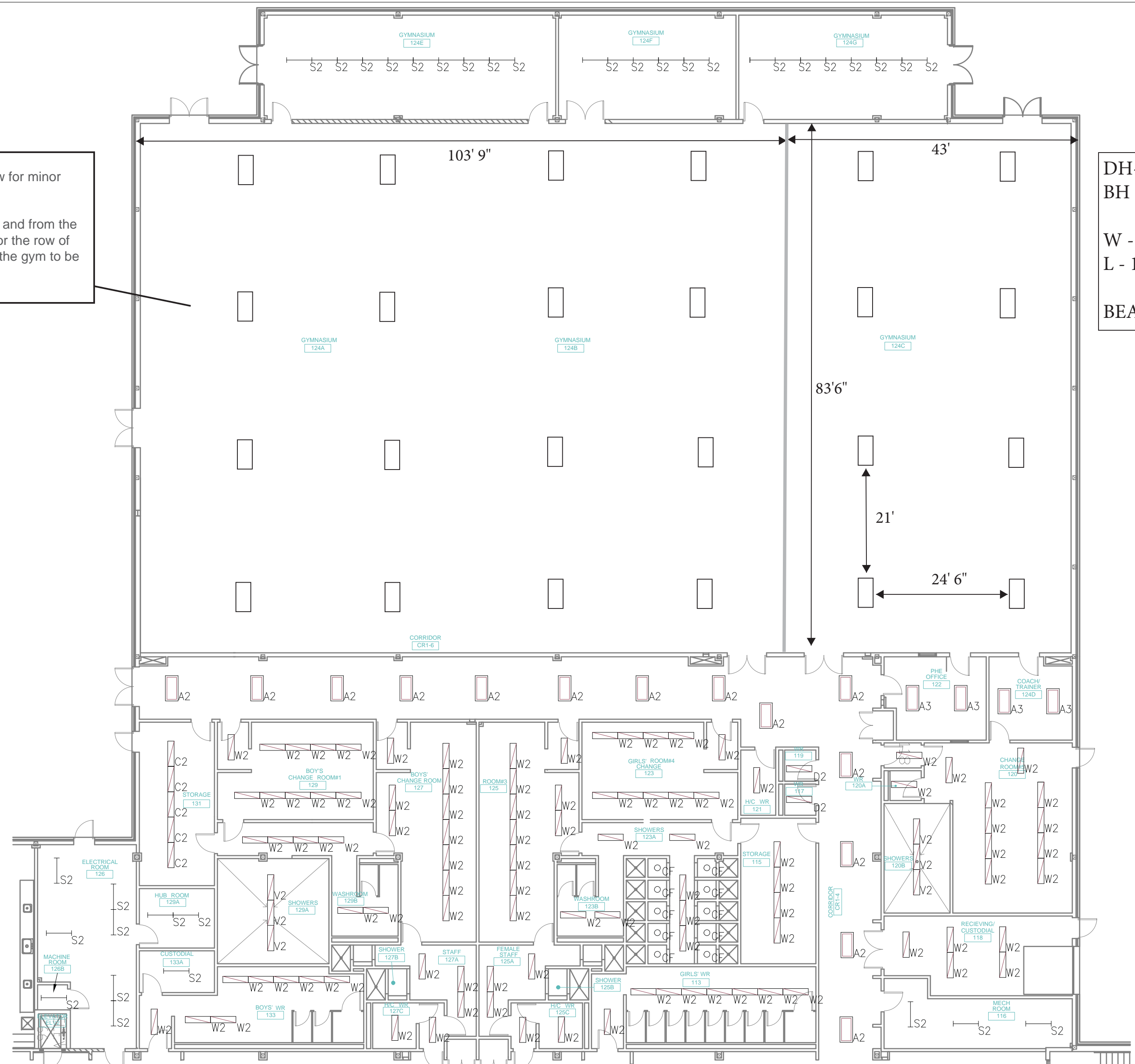
1001 The Rapids Pkwy, N7S 6K2
 Sarnia, Ontario

E2.5-1

Note 1: In gym arrange new fixtures in rows as shown. Allow for minor variances due to obstructions.

Note 2: Organize gym switching in rows parallel to the stage and from the front (stage) to the rear of the gym. Switching should allow for the row of lights in front of the stage to be off while a row at the rear of the gym to be on if desired during stage use.

DH - 25' 10"
 BH - 21' 2"
 W - 83' 6"
 L - 146' 9"
 BEAMS ON 9' 6" CENTRES



Prepared By: Dynamic Energy Services



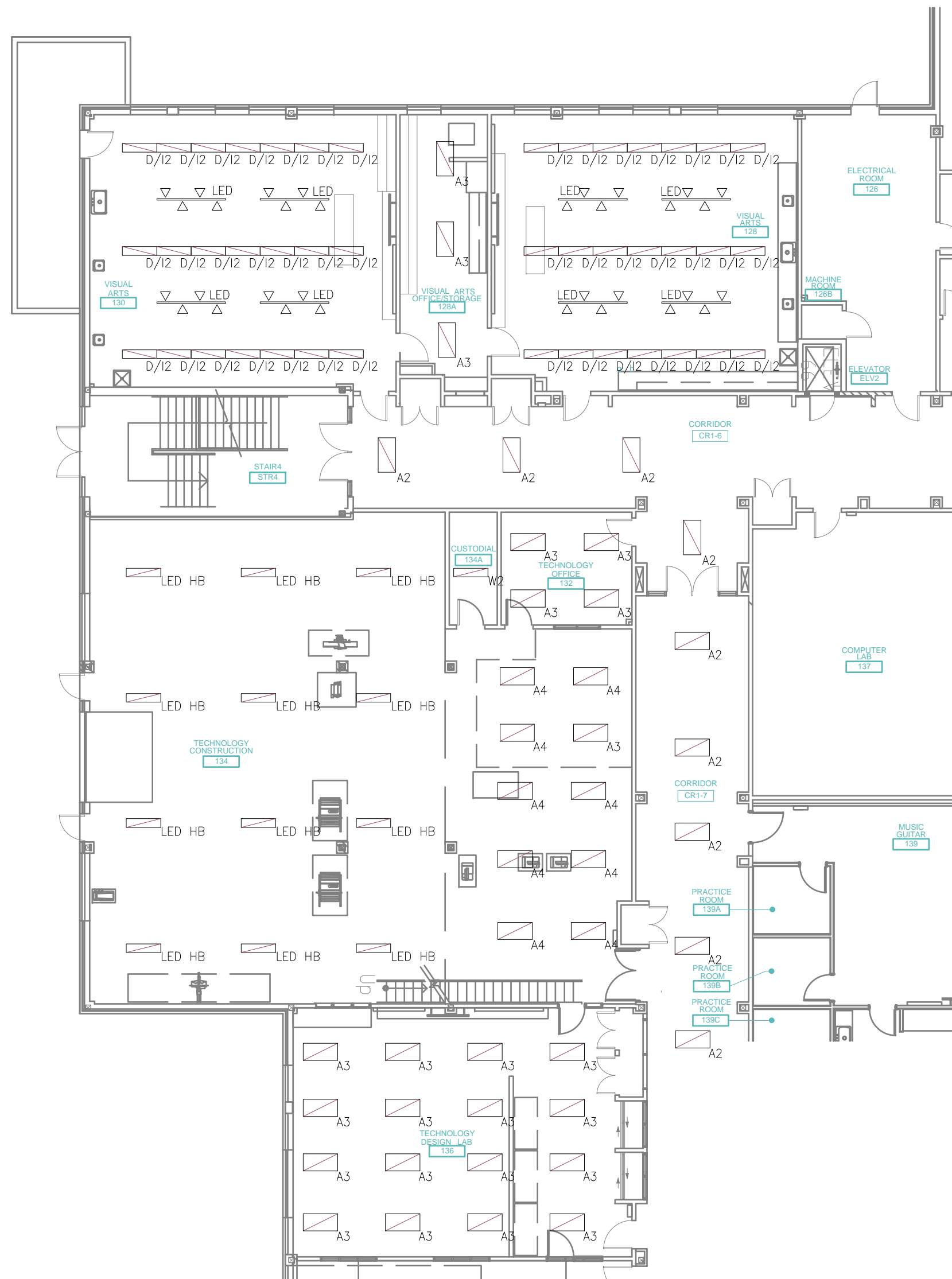
**Part Ground Floor Plan
 Area E Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
 Checked By: TM Scale: NTS

**St. Patrick's Catholic High School
 St. Clair Catholic District School Board**

1001 The Rapids Pkwy, N7S 6K2
 Sarnia, Ontario

E2.5-2



Prepared By: Dynamic Energy Services



**Part Ground Floor Plan
Area F Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
Checked By: TM Scale: NTS

**St. Patrick's Catholic High School
St. Clair Catholic District School Board**

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

E2.6



Prepared By: Dynamic Energy Services



**Part Second Floor Plan
Area A Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
Checked By: TM Scale: NTS

**St. Patrick's Catholic High School
St. Clair Catholic District School Board**

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

E2.7



Prepared By: Dynamic Energy Services



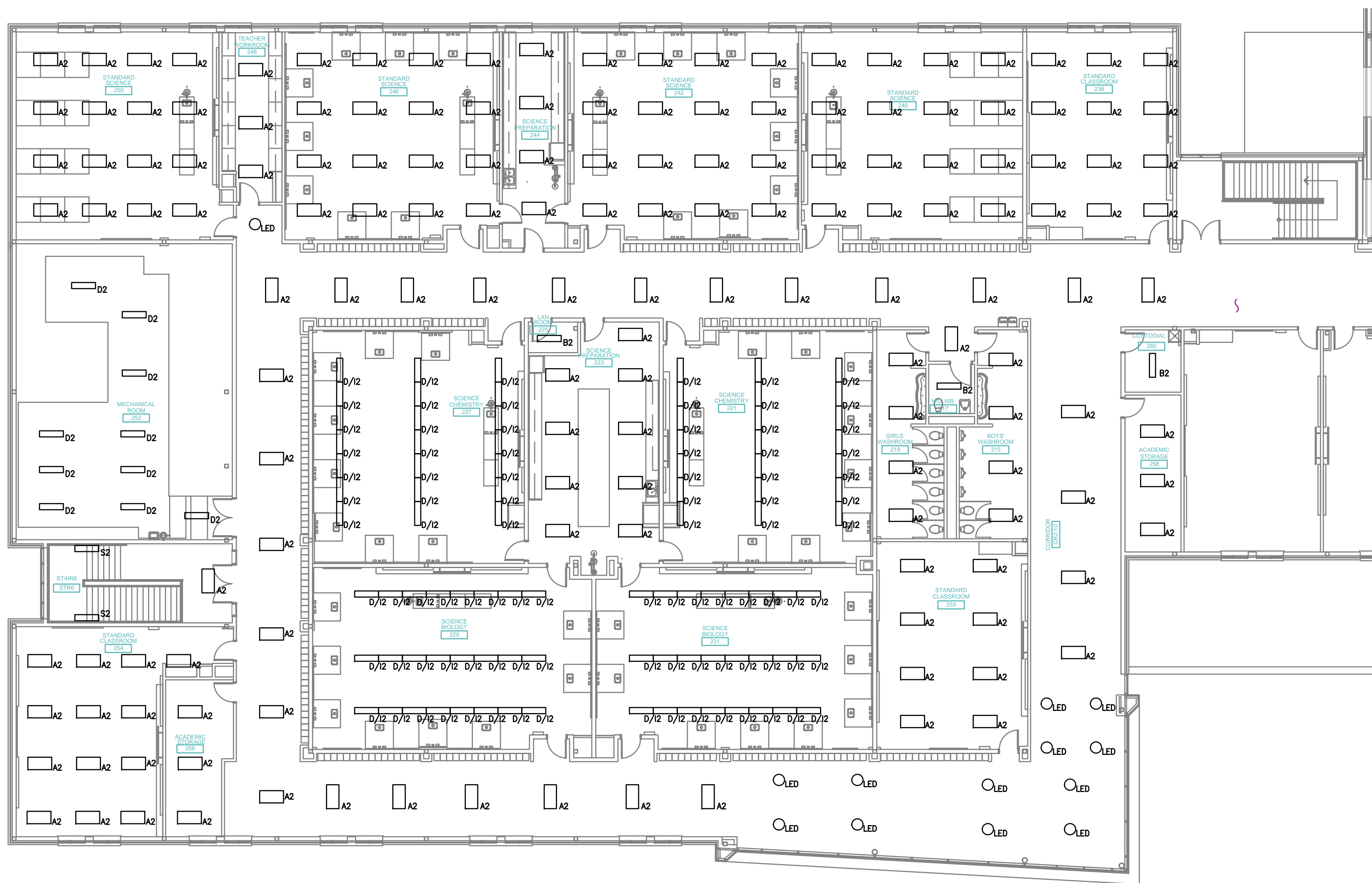
**Part Second Floor Plan
Area B Lighting**

Issued For:	SCCDSB	Drawn By:	BM	Date:	01.17.2017
		Checked By:	TM	Scale:	NTS

St. Patrick's Catholic High School
St. Clair Catholic District School Board

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

E2.8



Prepared By: Dynamic Energy Services



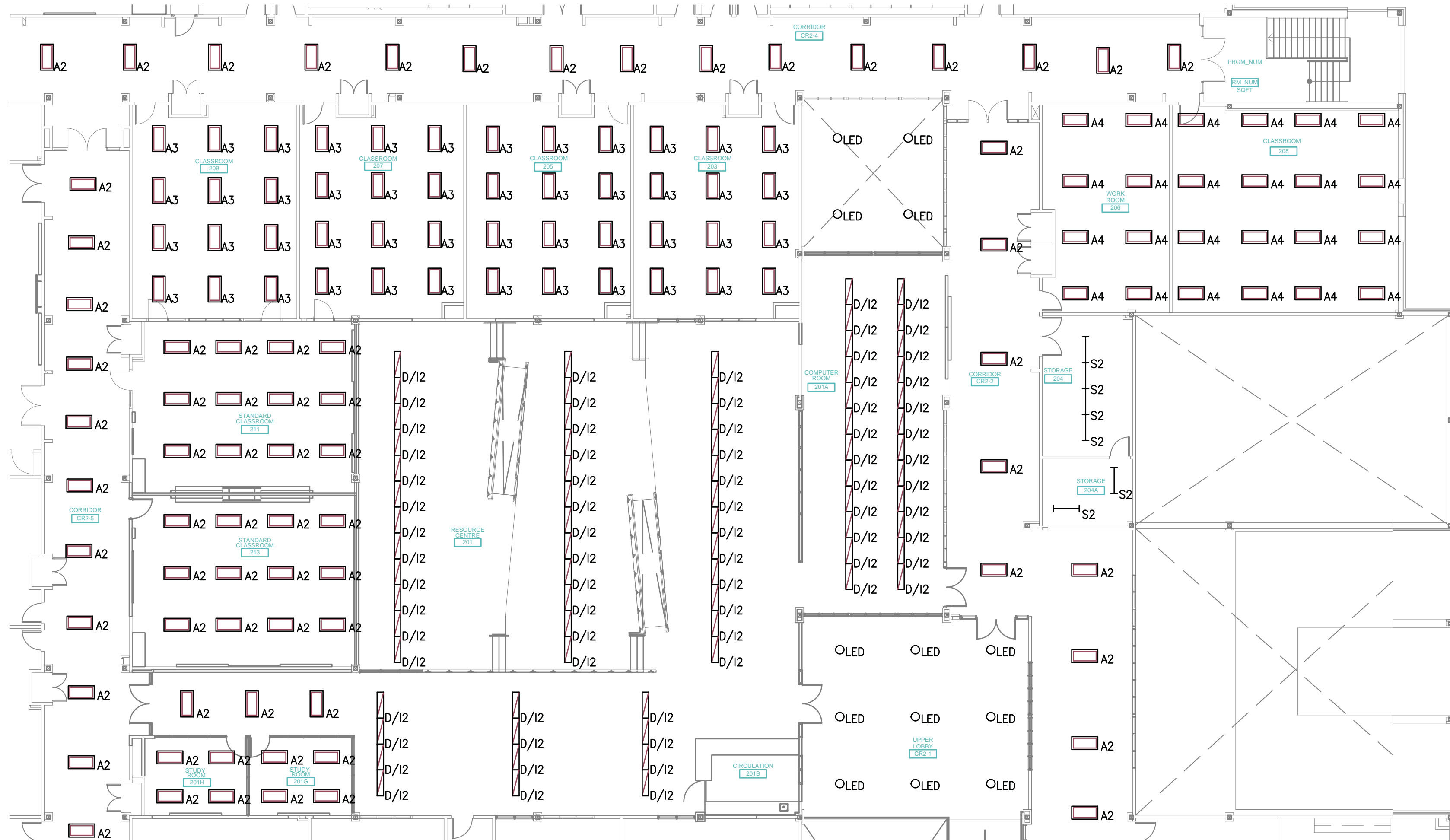
Part Second Floor Plan Area C Lighting

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
Checked By: TM Scale: NTS

St. Patrick's Catholic High School
St. Clair Catholic District School Board

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

E2.9



Prepared By: Dynamic Energy Services



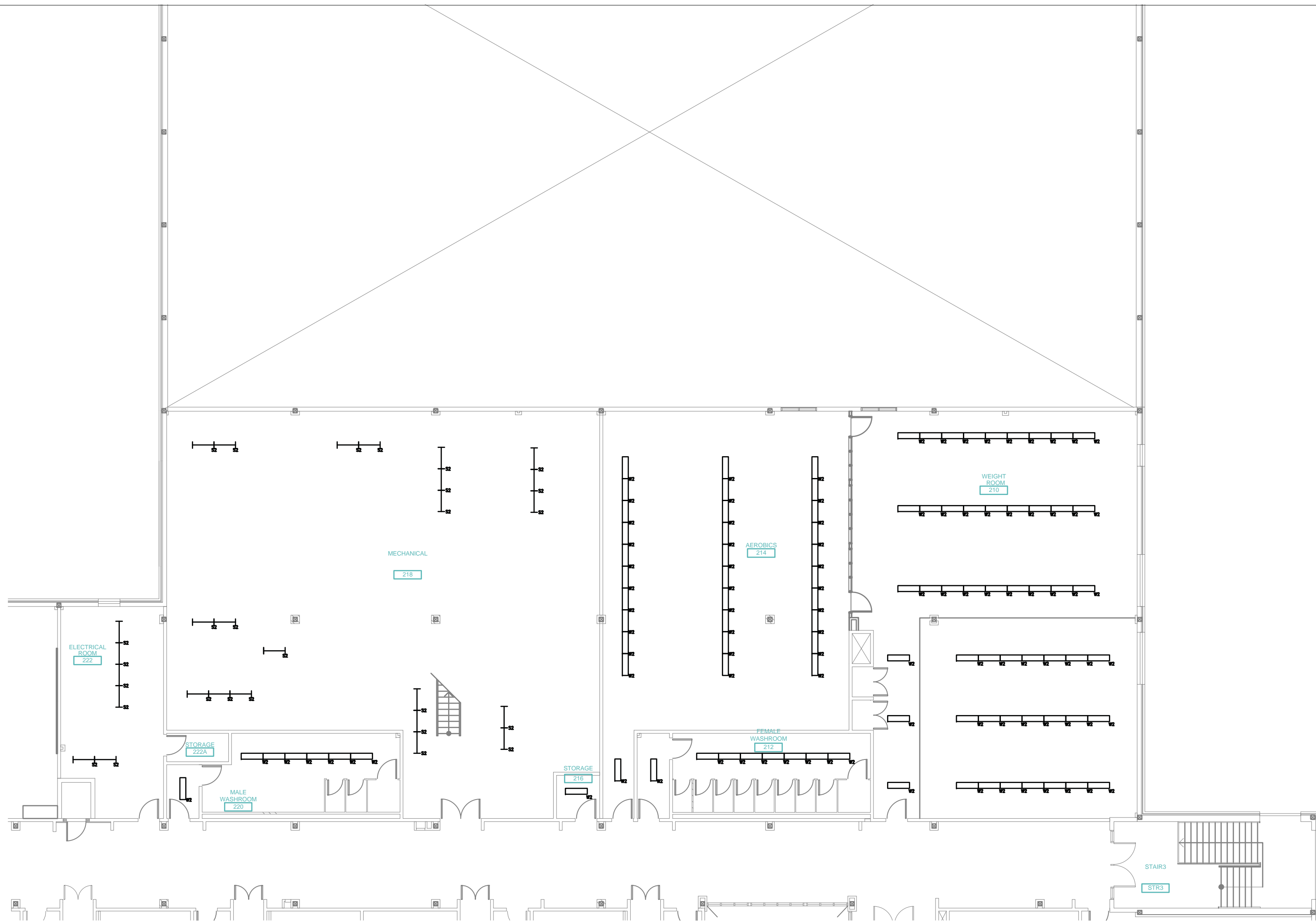
**Part Ground Floor Plan
Area D Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
Checked By: TM Scale: NTS

**St. Patrick's Catholic High School
St. Clair Catholic District School Board**

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

E2.10



Prepared By: Dynamic Energy Services



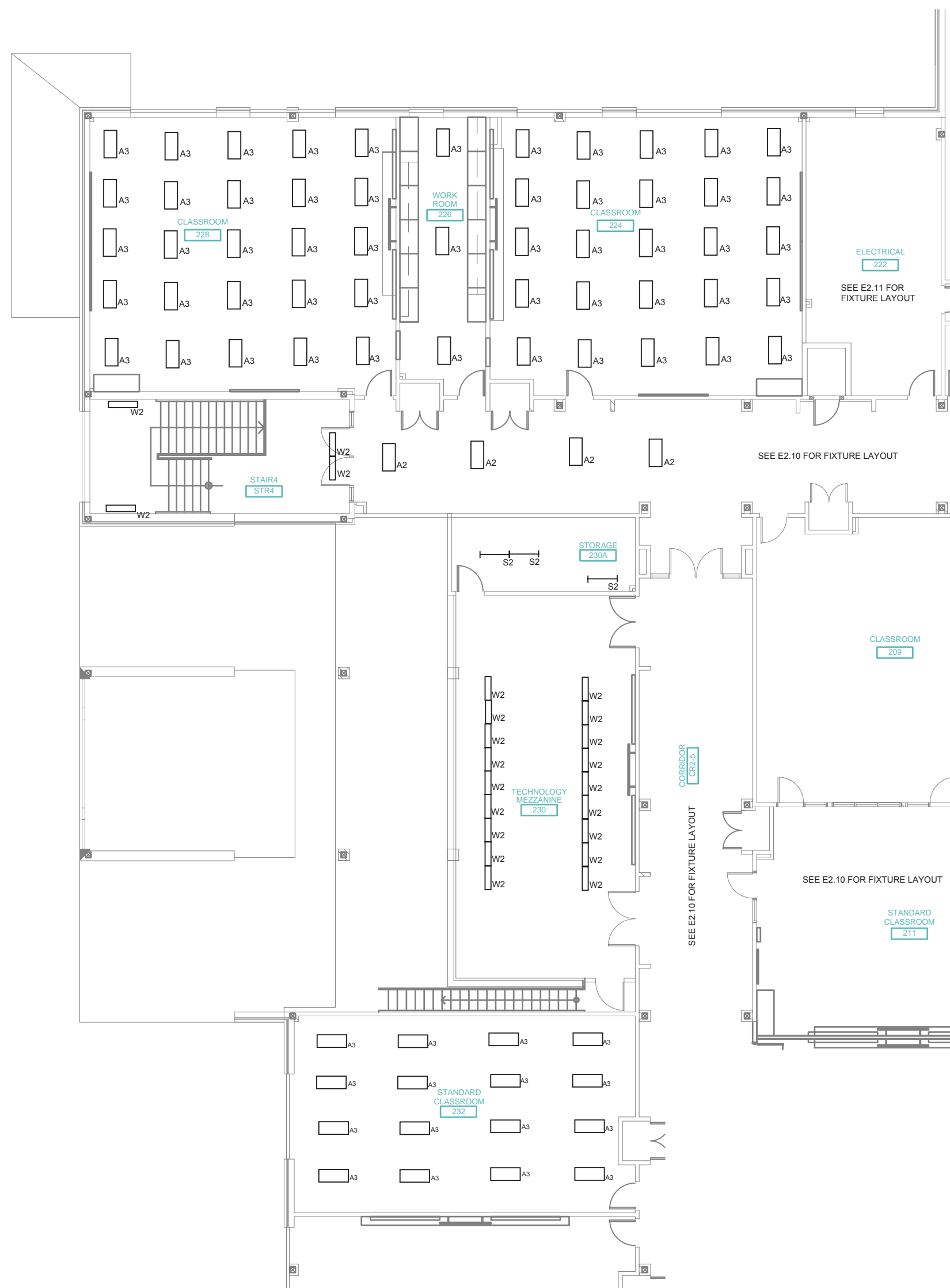
**Part Second Floor Plan
Area E Lighting**

Issued For:	SCCDSB	Drawn By:	BM	Date:	01.17.2017
		Checked By:	TM	Scale:	NTS

St. Patrick's Catholic High School
St. Clair Catholic District School Board

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

E2.11



Prepared By: Dynamic Energy Services



**Part Second Floor Plan
Area F Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.17.2017
Checked By: TM Scale: NTS

**St. Patrick's Catholic High School
St. Clair Catholic District School Board**

1001 The Rapids Pkwy, N7S 6K2
Sarnia, Ontario

E2.12

LUMINAIRE SCHEDULE								
TYPE	MANUFACTURER	MOUNTING		LAMPS	VOLTS	SYSTEM WAITS	EQUAL MANUFACTURERS	NOTES
		TYPE	HEIGHT					
A1	LITHONIA CAT# 2SPB-2-32-A12125-120 610mm(24") x 1220mm(48") SPECIFICATION GRADE TROFFER, 3mm (1/8") THICK ACRYLIC LENS	RECESSED	CEILING	2-28W T8	120	53W	CFI, COLUMBIA, THOMAS, WILLIAMS, VISIONEERING, PIONEER, COOPER	2
B1	LITHONIA CAT# SPB-232-A12125-120 305mm x 1220mm (12"x48") FLUORESCENT LUMINAIRE WITH K12 LENS	RECESSED	CEILING	2-28W T8	120		CFI, COLUMBIA, THOMAS, WILLIAMS, VISIONEERING, PIONEER	3
G	GOHAM CAT# EVO-40-14-6AR-LD-120 150mm(6") APERTURE, 1400 LUMEN LED DOWNLIGHT, MATTE DIFFUSE CONE, 0-10V DIMMABLE	RECESSED	CEILING	1400 LU LED	120	25W	MODA LIGHT, CANLYTE, PRESCOLITE, COOPER	2
L3	AXIS LIGHTING CAT# SL2HLED-B3-2KSL-1000-750-90-35-SM-4-4-W-120-D 1220mm LONG, DIRECT/INDIRECT, 3500K, SMOOTH LENS, 90CRI, LUTRON DRIVER FOR 0-10V	PENDANT	3048mm A.F.F.	1000up/750dn LU/FL LED	120	105W	METALUMEN, PEERLESS	
RR1	CLEAN AND RELAMP EXISTING 610mm x 1220mm FIXTURE	EXISTING RECESSED	CEILING	3-28W T8	120	EX		
RR2	CLEAN AND RELAMP EXISTING 610mm x 1220mm FIXTURE	EXISTING RECESSED	CEILING	2-28W T8	120	EX		

NOTES:
1. REFER TO ARCHITECTURAL REFLECTED CEILING DRAWINGS TO CONFIRM LUMINAIRE MOUNTING PRIOR TO ORDERING. SUPPLY APPROPRIATE MOUNTING CLIPS AND/OR TRIMS AS REQUIRED.
2. PROVIDE ALL ACCESSORIES AS REQUIRED.
3. CONFIRM RUN LENGTHS WITH SUBMITWORK SHOP DRAWINGS PRIOR TO ORDERING.
4. EQUAL MANUFACTURERS TO SUBMIT WORKING SAMPLES TO CONSULTANT MINIMUM OF 5 WORKING DAYS PRIOR TO TENDER CLOSING. SUBMIT; LUMINAIRE CUT WITH DETAILED SPECIFICATION, PICTURE, AND IES FILE VIA E-MAIL. INCOMPLETE SUBMITTAL WILL NOT BE CONSIDERED.
5. VERIFY FINISH WITH ARCHITECT.

MECHANICAL EQUIPMENT SCHEDULE													
ITEM	DESCRIPTION	LOCATION	hp	MCA	PHASE	VOLTS	STARTER/ CONTROL TYPE	FED FROM	BREAKER SIZE	POLES	CONDUCTOR SIZE	CONDUCTOR SIZE	NOTES
ACU-601	AIR CONDITIONING UNIT	CORRIDOR CR1-1		1.45	1	208	DS	EXISTING PANEL LP-C	15	2	2 #12	21mm	
ACU-602	AIR CONDITIONING UNIT	ROOM 1A		2.73	1	208	DS	EXISTING PANEL LP-C	15	2	2 #12	21mm	
ACU-603	AIR CONDITIONING UNIT	ROOM 1B		3.31	1	208	DS	EXISTING PANEL LP-C	15	2	2 #12	21mm	
BLR-501A	BOILER	MECH ROOM 205A	FHP		1	120	DS	EXISTING PANEL LP-F	15	1	2 #12	21mm	
BLR-501B	BOILER	MECH ROOM 205A	FHP		1	120	DS	EXISTING PANEL LP-F	15	1	2 #12	21mm	
CP-301A	CIRC. PUMP	MECH ROOM 205A	1/6		1	120	DS, FVNR	EXISTING PANEL LP-F	15	1	2 #12	21mm	
CP-301B	CIRC. PUMP	MECH ROOM 205A	1/6		1	120	DS, FVNR	EXISTING PANEL LP-F	15	1	2 #12	21mm	
CP-302	CIRC. PUMP	MECH ROOM 205A	FHP		1	120	DS, MAN	EXISTING PANEL LP-F	15	1	2 #12	21mm	
CP-303	CIRC. PUMP	MECH ROOM 205A	FHP		1	120	DS, MAN	EXISTING PANEL LP-F	15	1	2 #12	21mm	
CP-304	CIRC. PUMP	MECH ROOM 205A	FHP		1	120	DS, MAN	EXISTING PANEL LP-F	15	1	2 #12	21mm	
CP-305	CIRC. PUMP	MECH ROOM 205A	1/2		1	120	DS, FVNR	EXISTING PANEL LP-F	15	1	2 #12	21mm	
CU-611	CONDENSING UNIT	ON ROOF		34	3	208	DS, WP	EXISTING PANEL DP-1	40	3	3 #8	27mm	PROVIDE BREAKER TO SUIT EXISTING CUTLER HAMMER PANEL DP-1
DWH-501	DOMESTIC WATER HEATER	MECH ROOM 205A	FHP		1	120	DS	EXISTING PANEL LP-F	15	1	2 #12	21mm	
EF-1	EXHAUST FAN	STORAGE	FHP		1	120	DS	EXISTING PANEL LP-C	15	2	2 #12	21mm	
EF-2	EXHAUST FAN	EXISTING KITCHENETTE	FHP		1	120	DS	EXISTING PANEL LP-C	15	2	2 #12	21mm	
EF-3	EXHAUST FAN	ON ROOF	FHP		1	120	DS	EXISTING PANEL LP-E	15	2	2 #12	21mm	
ERV-1	ENERGY RECOVERY VENTILATOR	ON ROOF		7.6	1	208	DS, WP	EXISTING PANEL DP-1	15	2	2 #12	21mm	PROVIDE BREAKER TO SUIT EXISTING CUTLER HAMMER PANEL DP-1
TF-1	TRANSFER FAN	ROOM 100A	FHP		1	120	DS	EXISTING PANEL LP-C	15	2	2 #12	21mm	

NOTES:
1. DIVISION 16 TO OBTAIN COPIES OF MECHANICAL EQUIPMENT SHOP DRAWINGS AND COORDINATE ELECTRICAL SERVICES.
2. PROVIDE LOCAL NON-FUSED DISCONNECT SWITCHES AT MOTORS IN ACCORDANCE WITH SECTION 28-604 OF THE ONTARIO ELECTRICAL SAFETY CODE.
3. UNLESS INDICATED OTHERWISE ALL CONTROL WIRING IS BY DIVISION 15.
4. ALL VFD'S SHALL BE INSTALLED NEAR THE MOTORS CONTROLLED ON INDEPENDENT UNISTRUT SUPPORT AND OUTSIDE OF MCC'S UNLESS OTHERWISE NOTED.
5. UNLESS SHOWN OTHERWISE ON DRAWINGS, LOCATE MOTOR STARTERS ON WALL NEAR EQUIPMENT TO BE CONTROLLED. FOR ROOF MOUNTED EQUIPMENT OR EQUIPMENT IN CEILING SPACE, MOUNT STARTERS IN SERVICE ROOM ON WALL NEAR SOURCE POWER PANEL.

MOTOR CONTROL ABBREVIATIONS			
CON	CONTACTOR	FVNR	FULL VOLTAGE NON-REVERSING STARTER C/W H.O.A. SWITCH
COMB	COMBINATION STARTER	MAN	MANUAL STARTER
DC	DIRECT CONNECTION	MCA	MINIMUM CIRCUIT AMPACITY
DPS	DOUBLE-POLE SWITCH	MCC	MOTOR CONTROL CENTRE
DS	UN-FUSED DISCONNECT SWITCH	VFD	VARIABLE FREQUENCY DRIVE
FHP	FRACTIONAL HORSE POWER	WP	WATHER PROOF

ELECTRICAL LEGEND					
SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING
	FLUORESCENT LUMINAIRE - NORMAL POWER	SEE LUMINAIRE SCHEDULE		SMOKE DETECTOR	CEILING MOUNTED
	FLUORESCENT LUMINAIRE - NORMAL POWER	SEE LUMINAIRE SCHEDULE		135' RATE-OF-RISE/FIXED TEMPERATURE FIRE DETECTOR	CEILING MOUNTED
	INCANDESCENT/FLUORESCENT OR HID LUMINAIRE - NORMAL POWER	SEE LUMINAIRE SCHEDULE		DUCT SMOKE DETECTOR	AS NOTED
	EXIT SIGN c/w DUAL HEADS	WALL MOUNTED		FIRE ALARM CONTROL PANEL	WALL 1800mm (70") A.F.F. TO TOP OF UNIT
	EMERGENCY LIGHT REMOTE DUAL HEADS	CEILING MOUNTED		FIRE ALARM HORN	WALL 2000mm (80") A.F.F.
	EMERGENCY BATTERY c/w DUAL HEADS	WALL MOUNTED		FIRE ALARM HORN c/w VISUAL SIGNAL	WALL 2000mm (80") A.F.F.
	OCCUPANCY SENSOR	CEILING SURFACE MOUNTED		PULL STATION	1200mm (47 1/4") A.F.F.
	OCCUPANCY SENSOR/SWITCH	1195mm (47") A.F.F.		ADDRESSABLE CONTROL MODULE	WALL AS NOTED
	SINGLE POLE SWITCH	1195mm (47") A.F.F.		ADDRESSABLE ISOLATION MODULE	WALL AS NOTED
	THREE POSITION SPRING RETURN OVERLOAD SCREEN SWITCH	1195mm (47") A.F.F.	COMMUNICATIONS		
	15/20 AMP 120 VOLT 3 WIRE GROUNDED DUPLEX RECEPTACLE CSA 5-20R	460mm (18") A.F.F.		TELEPHONE OUTLET	460mm (18") A.F.F.
	15/20 AMP 120 VOLT 3 WIRE GROUNDED DUPLEX RECEPTACLE	FLOOR MOUNTED		DATA AND TELEPHONE OUTLET	460mm (18") A.F.F.
	TWO 15/20 AMP 120 VOLT 3 WIRE GROUNDED DUPLEX RECEPTACLES UNDER COMMON PLATE - NORMAL POWER	460mm (18") A.F.F.		DATA OUTLET	460mm (18") A.F.F.
	TWO 15/20 AMP 120 VOLT 3 WIRE GROUNDED DUPLEX RECEPTACLES UNDER COMMON PLATE - NORMAL POWER	FLOOR MOUNTED		DATA OUTLET - TWO JACKS (NUMBER DENOTES WHICH DATA CLOSET TO TERMINATE CABLES IN)	460mm (18") A.F.F.
	DIRECT POWER CONNECTION	AS NOTED		DATA OUTLET - TWO JACKS (NUMBER DENOTES WHICH DATA CLOSET TO TERMINATE CABLES IN)	FLOOR MOUNTED
	DIRECT POWER CONNECTION	FLOOR MOUNTED		SINGLE DEVICE BOX C/W BLANK COVER PLATE AND 3/4" CONDUIT TO ACCESSIBLE CEILING SPACE	460mm (18") A.F.F.
	MOTOR	FLOOR MOUNTED		SINGLE DEVICE BOX C/W BLANK COVER PLATE AND 3/4" CONDUIT TO ACCESSIBLE CEILING SPACE	FLOOR MOUNTED
	NONFUSED DISCONNECT SWITCH			MICROPHONE OUTLET	CEILING MOUNTED
	ELECTRICAL PANEL			SOUND SYSTEM SPEAKER	CEILING MOUNTED
	BARRIER FREE PUSH BUTTON			VOLUME CONTROL	CEILING MOUNTED
			SECURITY SYSTEMS		
				DOOR POSITION SWITCH - CONCEALED	TOP OF DOOR FRAME
				KEY SWITCH	1070mm (42") A.F.F.
				MOTION DETECTOR	WALL AT CEILING
				CAMERA	AS NOTED

ABBREVIATIONS			
C	CONDUIT	PH	PHASE
CL	FLUSH CEILING MOUNTED	REL	IF DASHED - EXISTING TO BE RELOCATED
EX	EXISTING TO REMAIN	REM	IF SOLID - EXISTING IN NEW LOCATION
GFCI	GROUND FAULT DEVICE	REP	EXISTING TO BE REMOVED
NEW	NEW DEVICE	RR	EXISTING TO BE REPLACED WITH NEW
OC	ABOVE COUNTER - 230mm (9")		REMOVE AND REINSTALL
P	POLE		

ELECTRICAL DRAWING LIST	
E1	ELECTRICAL LEGEND, SCHEDULES, DETAILS AND DRAWING LIST
E2	GROUND AND SECOND FLOOR PLANS LIGHTING AND FIRE ALARM
E3	GROUND AND SECOND FLOOR PLANS POWER AND SYSTEMS
E4	GROUND AND SECOND FLOOR PLANS ELECTRICAL DEMOLITION
E5	ELECTRICAL DETAILS

Note there are some additional symbols related to the lighting that are used in the set of drawings for the CEC that are not represented in the set of symbols provided in drawing 000. We have provided this drawing with its set of symbols to assist the contractor in identifying any additional details.



ISSUED FOR CONSTRUCTION
12 JUNE 2015
THIS DRAWING HAS BEEN UPDATED TO INCLUDE THE REVISIONS SHOWN TO REFLECT THE REVISIONS IN ANY WAY.
ISSUED FOR BULLETIN #1 / 4

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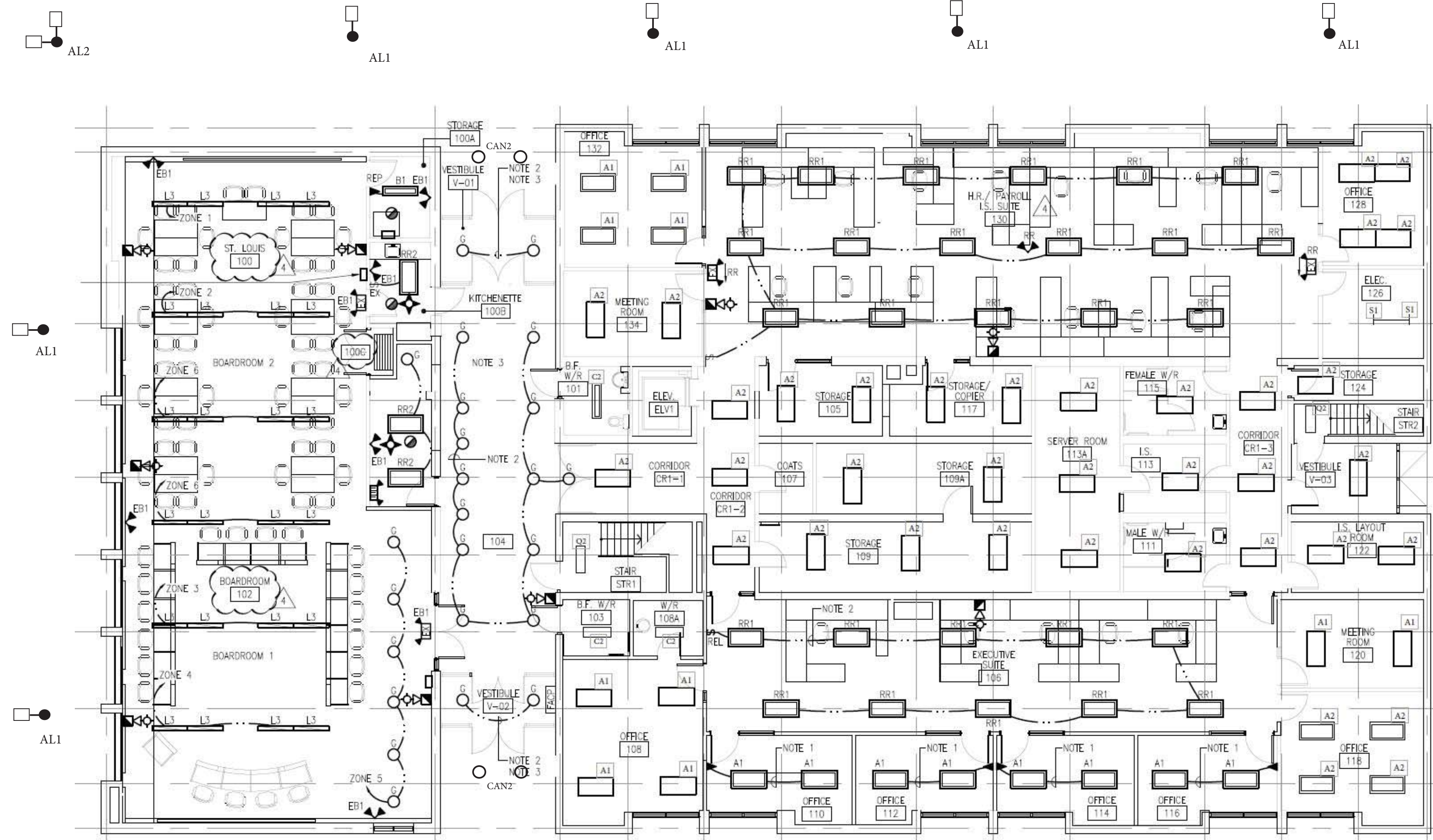
21 MAY 2015 ISSUED FOR TENDER
20 MAY 2015 AS PER APPENDIX 2 / 2
02 JUNE 2015 AS PER APPENDIX 3 / 3



Catholic Education Centre
420 Creek Street, Wallborough, Ontario

Interior Alterations
ELECTRICAL LEGEND, SCHEDULES, DETAILS AND DRAWING LIST

Project No.: 7660
Drawn By: ALU
Revised: MAY 2015



Prepared By: Dynamic Energy Services



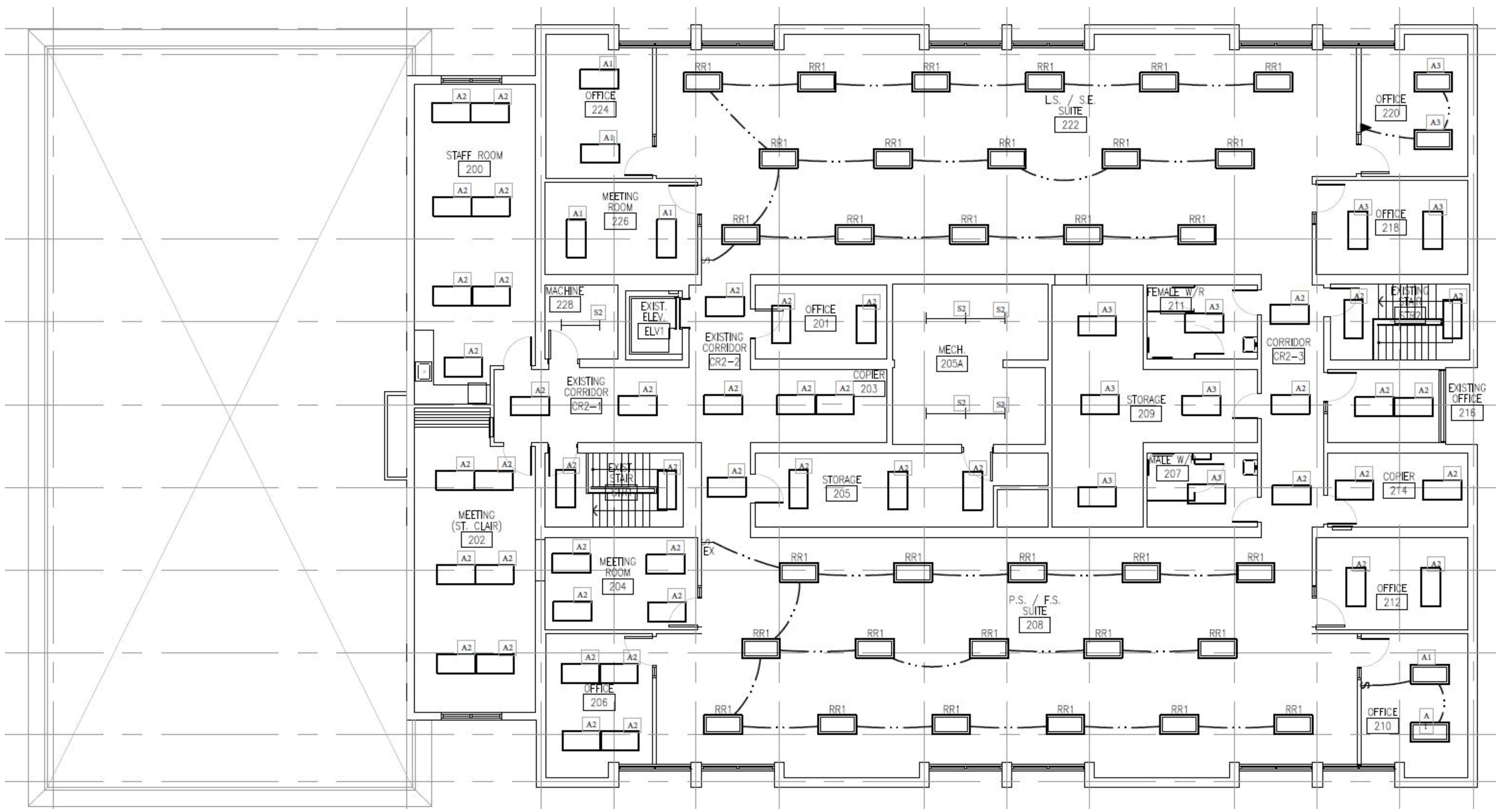
**Ground Floor Plan
Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.25.2017
Checked By: TM Scale: NTS

**Catholic Education Center
St. Clair Catholic District School Board**

420 Creek Street, N8A 4C4

Wallaceburg, Ontario



Prepared By: Dynamic Energy Services



**Second Floor Plan
Lighting**

Issued For: SCCDSB Drawn By: BM Date: 01.25.2017
Checked By: TM Scale: NTS

**Catholic Education Center
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