



INSTRUCTIONS TO BIDDERS

Date: May 5, 2016

BID PACKAGE #: CP1616

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 #: CP1616 – 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 **May 18, 2016 @ 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 Scope 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 May 5, 2016
- 3.2** Tender Pricing Form – Section 00430
- 3.3** Lighting Retrofit Initiative document (general instructions, specifications, warranties, etc.)
- 3.4** Appendix A – Design Drawings
- 3.5** Appendix B – Site Retrofit Summary
- 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.butler@st-clair.net

No later than 48 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 Paul Lernout (Tel: 519-360-6262) to schedule site visits.

13. TIMING OF PROJECT

A purchase order is expected to be issued by May 31, 2016.
Phase 1 work on this Project must be completed by August 31, 2016.
Phase 2 work on this Project must be completed by August 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

LIGHTING RETROFIT INITIATIVE - P1 & P2

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DIVISION 100200 GENERAL INSTRUCTIONS

1.1 SITE LOCATION(S):

- | | | |
|----|---|----------|
| 1. | Christ the King
227 Thomas Ave.,
Wallaceburg, ON
N8A 4C4 | Site 612 |
| 2. | Georges P Vanier
20 Cecile Avenue
Chatham, ON
N7M 2C3 | Site 614 |
| 3. | Monsignor Uyen
255 Lark Street
Chatham, ON
N7L 1G9 | Site 618 |
| 4. | Our Lady of Fatima
545 Baldoon Road,
Chatham, ON
N7L 5A9 | Site 619 |
| 5. | Sacred Heart
434 John Street
Port Lambton, ON
NOP 2B0 | Site 622 |
| 6. | St. Anne
183 Snow Avenue,
Blenheim, ON
NOP 1A0 | Site 626 |
| 7. | St. Anne
1000 The Rapids Parkway
Sarnia, ON
N7S 6K3 | Site 627 |
| 8. | St. John Fischer
44 Main Street N.,
Forest, ON
NON 1J0 | Site 632 |
| 9. | St. Joseph
535 Birchbank Drive,
Corunna, ON | Site 634 |

- | | | |
|-----|--|----------|
| 10. | NON 1G0
St. Joseph
43 St. Clair Street
Tilbury, ON
NOP 2L0 | Site 636 |
| 11. | St. Michael
1930 Wildwood Drive,
Bright's Grove, ON
NON 1C0 | Site 639 |
| 12. | St. Michael
25 Maple Street,
Ridgetown, ON
NOP 2C0 | Site 640 |
| 13. | Good Shepherd
4 Edith Street,
Thamesville, ON
NOP 2K0 | Site 642 |
| 14. | St. Peter Canisius
424 Victoria Street,
Watford, ON
NOM 2S0 | Site 643 |
| 15. | St. Philip
420 Queen Street,
Petrolia, ON
NON 1R0 | Site 645 |
| 16. | Ursuline
85 Grand Avenue W.,
Chatham, ON
N7L 1B6 | Site 725 |

1.2 SITE PLANS / DESIGN DRAWINGS

- .1 Provided in Appendix A – Design Drawings.

1.3 SITE RETROFIT SUMMARY

- .1 Provided in Appendix B – Site Retrofit Summary.
- .2 Appendix B provides a per school summary of the retrofit plan. 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 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 phases 1 and 2 combined.

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 Phase 1 work on this Project to be substantially complete by August 31, 2016.
- .2 Phase 2 Work on this Project to be substantially complete by August 31, 2017.
- .3 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 palletes 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.
- .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 1 Sites.
- .6 Sum Total Cost for Phase 2 Sites.
- .7 The Grand Total Project Cost shall be the Sum of Phase 1 and Phase 2 costs including HST.
- .8 Pricing to include all related costs including labour, material, permits, recycling, tools, equipment, overhead, and profit and represent the Final Cost to the Project.

Exterior Lighting Retrofit Project

Section 00430

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	Christ the King (Site 612)				
2	Georges P Vanier (Site 614)				
3	Our Lady of Fatima (Site 619)				
4	St. Anne - Blenheim (Site 626)				
5	St. Joseph – Tilbury (Site 636)				
6	St. Michael – Ridgetown (Site 640)				
7	Good Shepherd (Site 642)				
8	Ursuline College (Site 725)				
TOTAL COST PHASE 1					\$
SEPARATE PRICE #1: COST TO BOND PHASE 1					\$
HST					\$
PH1-T	TOTAL COST PHASE 1 INCLUDING HST				\$
PHASE 2					
9	Monsignor Uyen (Site 618)				
10	Sacred Heart (Site 622)				
11	St. Anne - Sarnia (Site 627)				
12	St. John Fischer (Site 632)				
13	St. Joseph - Corunna (Site 634)				
14	St. Michael - Brights Grove (639)				
15	St. Peter Canisius (Site 643)				
16	St. Philip (Site 645)				
TOTAL COST PHASE 2					\$
SEPARATE PRICE #2: COST TO BOND PHASE 2					\$
HST					\$
PH2-T	TOTAL COST PHASE 2 INCLUDING HST				\$
17	GRAND TOTAL PROJECT COST (PH1-T + PH2-T)				\$

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 row in this case is defined as across the width of the Gymnasium as opposed to the length of the room. Width shall be the smaller of the two floor plan dimensions.
- .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 3-way switches as detailed in Section 1.2.11. Test, demonstrate, confirm and commission system to the satisfaction of SCCDSB.
- .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.
- .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.

Exterior Lighting Retrofit Project

Section 01010

- .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.

1.2 PROJECT IMPLEMENTATION

- .1 This project shall be implemented in two separate phases of work in the following schools. Phase 1 work shall be completed during the 2016 fiscal year ending August 31 2016 and Phase 2 shall be completed during the 2017 fiscal year beginning September 1 2016 and ending August 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.

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.

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- .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

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- .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 LENSE 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 manufacture'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, G, Q, S, V, W
 - .1 These retrofits involve the installation of LED T8 Lamps
 - .2 LED T8 Replacement Lamps shall be compatible with instant start electronic T8 ballasts with input voltage of Universal 120-277V and 347V.
 - .3 LED T8 lamps must not be operated by line voltage at the medium bi-pin socket.
 - .4 LED T8 Replacement Lamps shall have a rated life (L₇₀ Rating) of 50,000 Hours minimum.
 - .5 Lamp shall be 4100°K (+/- 100°K) of CCT and shall have a CRI of 80 or more.
 - .6 LED 2ft T8 8W Replacement Lamps shall be rated for 1100 Lumens Minimum.
 - .7 LED 3ft T8 12W Replacement Lamps shall be rated for 1600 Lumens Minimum.
 - .8 LED 4ft 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 LED12T8/L24/F/841/SUB/G5
 - .16 Representative Product: SYLVANIA LED12T8/L36/F/841/SUB/G5
 - .17 Representative Product: SYLVANIA LED12T8/L48/F/841/SUB/G5
 - .18 Representative Product: SYLVANIA LED15T8/L48/F/841/SUB/G5
 - .19 Representative Product: SYLVANIA LED15T8/U/F/841/SUB/G5
 - .20 *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.
 - .4 Socket bracket KIT to be made by a company that will provide CSA approval of the product.
 - .5 Approved Manufacturer: BJ Take

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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*

- .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 Lamp Watts, 10.5 (PL4V), 8.5 (PL4H)
 - .4 Life, 40,000hrs.
 - .5 Rotatable end cap for positioning.
 - .6 ULc rated.
 - .7 Representative Product: (PL4V) Philips 10.5PL-C/T LED/26V-3000 IF 4P
 - .8 Representative Product: (PL4H) Philips 8.5PL-C/T LED/26V-3000 IF 4P
 - .9 *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)
 - .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.
 - .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.

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- .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 Lense, 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 Lense, 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 NX-LED

- .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 D-LED-347

- .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, EATON ISS-E01-LED-347-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*

- .5 TYPE W-LED
 - .1 New LED Wall Light
 - .2 Input Power, 26W
 - .3 Lumens, 2,500lm
 - .4 Colour temperature, 4000K
 - .5 Construction, Die Cast Aluminum
 - .6 Dimmable Driver
 - .7 Lense, Clear Tempered Glass
 - .8 DLC Listed
 - .9 ULc Rated
 - .10 Representative Product, Rab Design VEK2LED52W-A4KWH
 - .11 *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
 - .1 Colour temperature, 5000K
 - .2 CRI, 83
 - .7 Heavy duty steel construction for Gymnasium application
 - .8 Mounting, holes for S-hook chain mount
 - .9 Lens, Frosted High-Impact
 - .10 Voltage, UNV or 347V
 - .11 Representative Product, BJ Take BLH-2-16L-ULT850-UNV-L25-W12
 - .12 Representative Product, BJ Take BLH-2'-16L-ULT850-347-L25-W12
 - .13 *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
 - .3 Colour temperature, 5000K
 - .4 CRI, 83
 - .7 Heavy duty steel construction for Gymnasium application
 - .8 Mounting, holes for S-hook chain mount
 - .9 Lens, Frosted High-Impact
 - .10 Voltage, UNV or 347V
 - .11 Representative Product, BJ Take BLH-2-20L-ULT850-UNV-L25-W12
 - .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 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
 - .5 Colour temperature, 5000K
 - .6 CRI, 83
 - .7 Heavy duty steel construction for Gymnasium application
 - .8 Mounting, holes for S-hook chain mount
 - .9 Lens, Frosted High-Impact
 - .10 Voltage, UNV or 347V
 - .11 Representative Product, BJ Take BLH-2-24L-ULT850-UNV-L25-W12
 - .12 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.

1.5 LIGHTING CONTROLS BY TYPE

- .1 TYPE 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 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

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- .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 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
 - .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 5 WALL SWITCH SENSOR
 - .1 Wall Switch PIR Detection
 - .2 Line Voltage Operation
 - .3 Coverage, 180° 28ft Radial
 - .4 Lense, 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 CN-1
 - .1 LED Canopy Light
 - .2 Input Power, 20W

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- .3 Lumens, 2,300lm
- .4 Colour temperature, 5000K
- .5 Construction, Die-Cast Aluminum
- .6 Lense, Vandal Resistant Polycarbonate
- .7 Photocell Control
- .8 DLC Listed
- .9 IP66 Rated
- .10 Suitable for operation between -40°C and +40°C
- .11 Representative Product, RAB VANLED-20-F-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 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 Lense, 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*

- .4 TYPE FL-2, FL-3
 - .1 LED Flood Light
 - .2 Input Power, 100W
 - .3 Lumens, 11,500lm
 - .4 Colour temperature, 5000K
 - .5 Construction, Die Cast Aluminum Housing
 - .6 Lense, Polycarbonate
 - .7 Mounting, Yoke (FL-1), Slipfitter (FL-2)
 - .8 IP65 Rated
 - .9 Suitable for operation between -40°C and +40°C
 - .10 DLC Listed
 - .11 ULc Rated
 - .12 Representative Product, (FL-2) RAB DESIGN RFL4-LED103-B-5K-W-BRZ-YK
 - .13 Representative Product, (FL-3) RAB DESIGN RFL4-LED103-B-5K-W-BRZ-YK
 - .14 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

- .5 TYPE WP1
 - .1 LED Wall Light
 - .2 Input Power, 20W
 - .3 Lumens, 1,800lm
 - .4 Colour temperature, 5000K
 - .5 Construction, Cast Aluminum
 - .6 Lense, Polycarbonate
 - .7 Photocell Control
 - .8 Wet Location Rated
 - .9 Energy Star Listed

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-
- .10 Suitable for operation between -40°C and +40°C
 - .11 ULc Rated
 - .12 Representative Product, RAB DESIGN DWL1-LED18-A-5K-BRZ
 - .13 *or Approved Equivalent, submit data showing performance and features equal to representative product as detailed in Sec. 16010, item 1.6 Alternates*

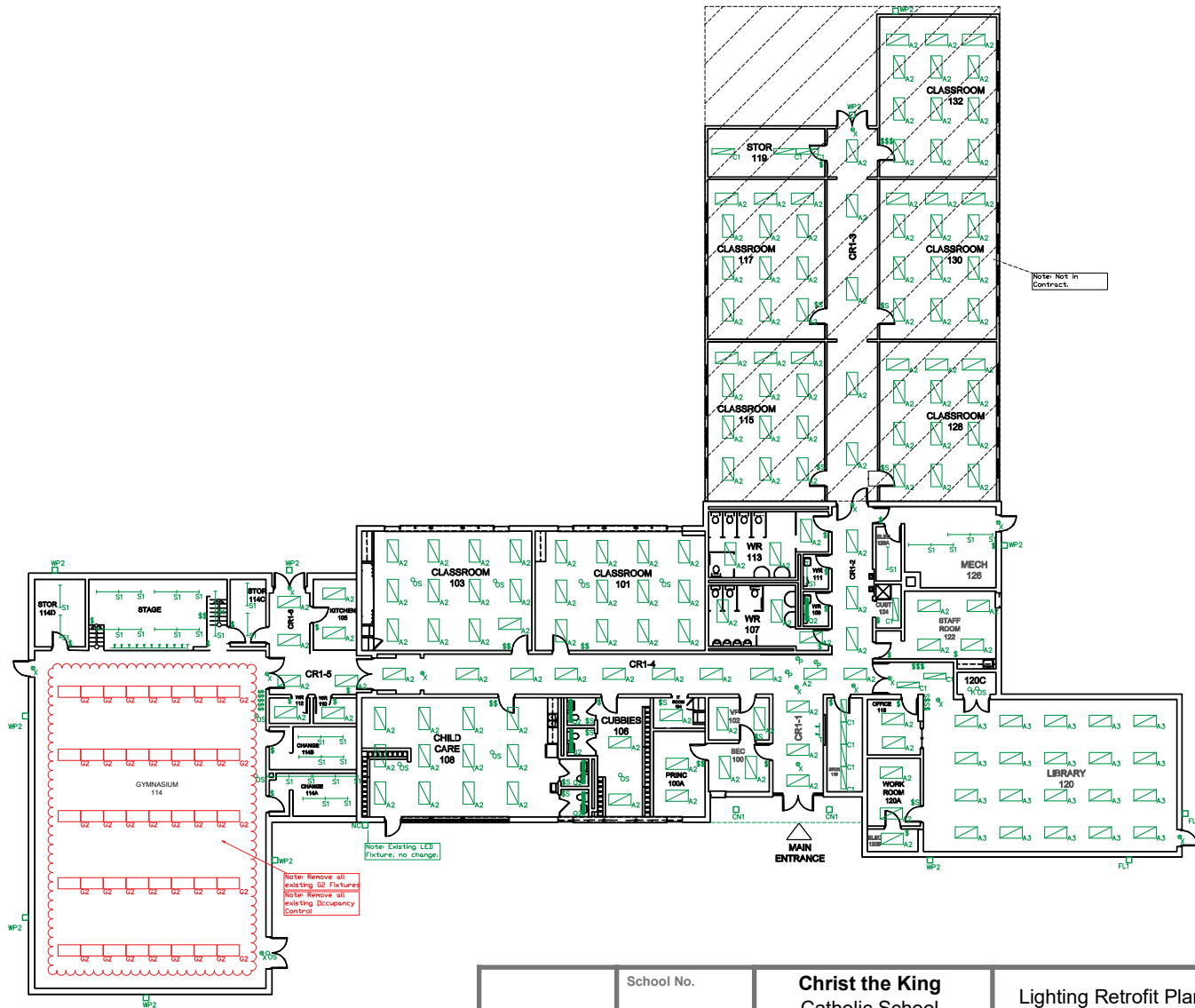
 - .6 TYPE WP2, WP2-347, WP3, WP5
 - .1 LED Wall Pack
 - .2 Input Power, 20W (WP2), 30W (WP3), 40W (WP5)
 - .3 Lumens, 1,600lm (WP2), 2,800lm (WP3), 4,400lm (WP5)
 - .4 Colour temperature, 5000K
 - .5 Construction, Die Cast Aluminum
 - .6 Lense, Clear Tempered Glass
 - .7 Photo Control
 - .8 IP65 Rated
 - .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
 - .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 – DESIGN DRAWINGS

Print Instructions:

Recommended print size for ease of viewing is 24" x 36" (Arch size D) for all schools except Ursuline College. Ursuline College views best at the 36" x 48" (Arch size E)

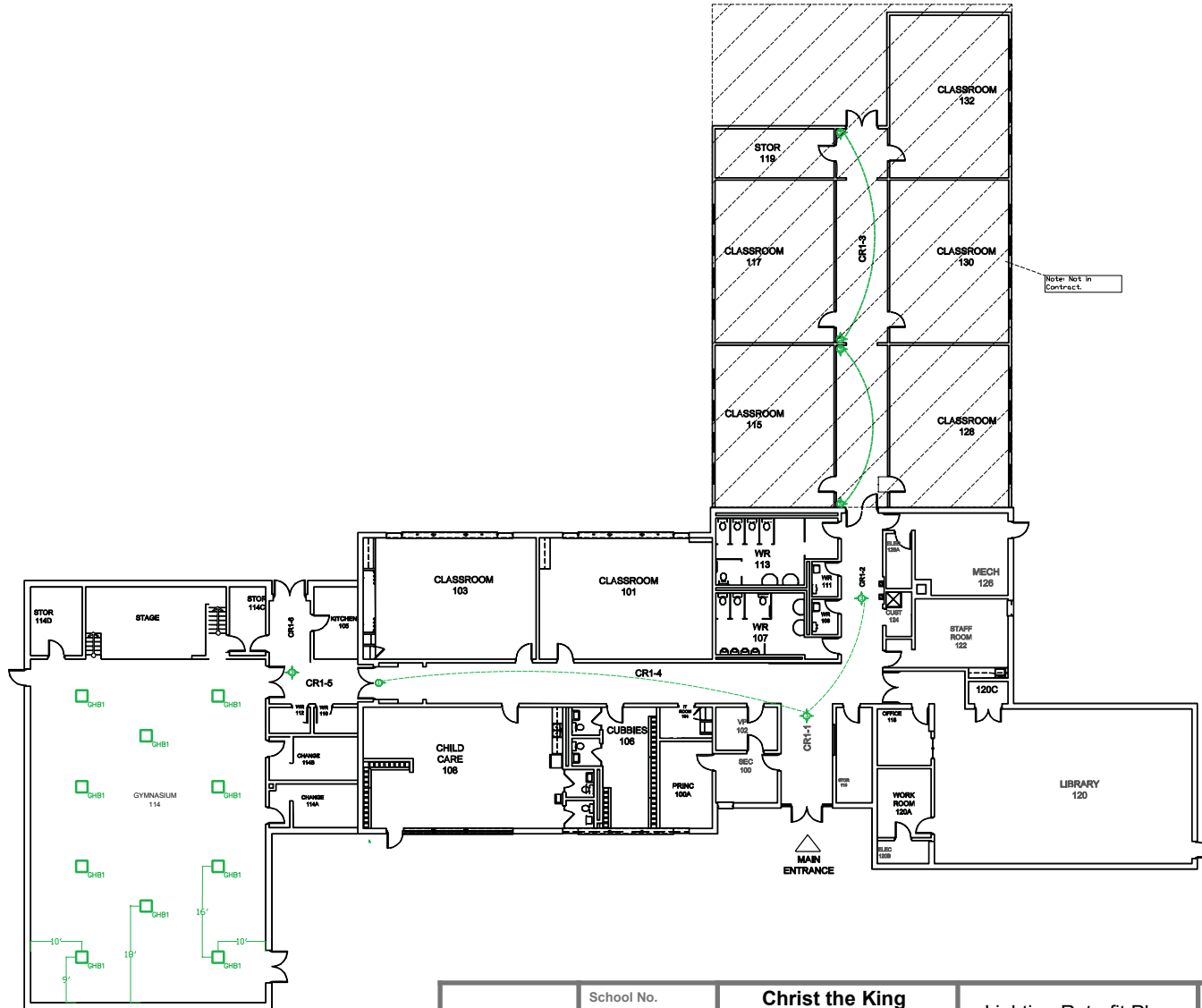
Print in Black and White only for best viewing results



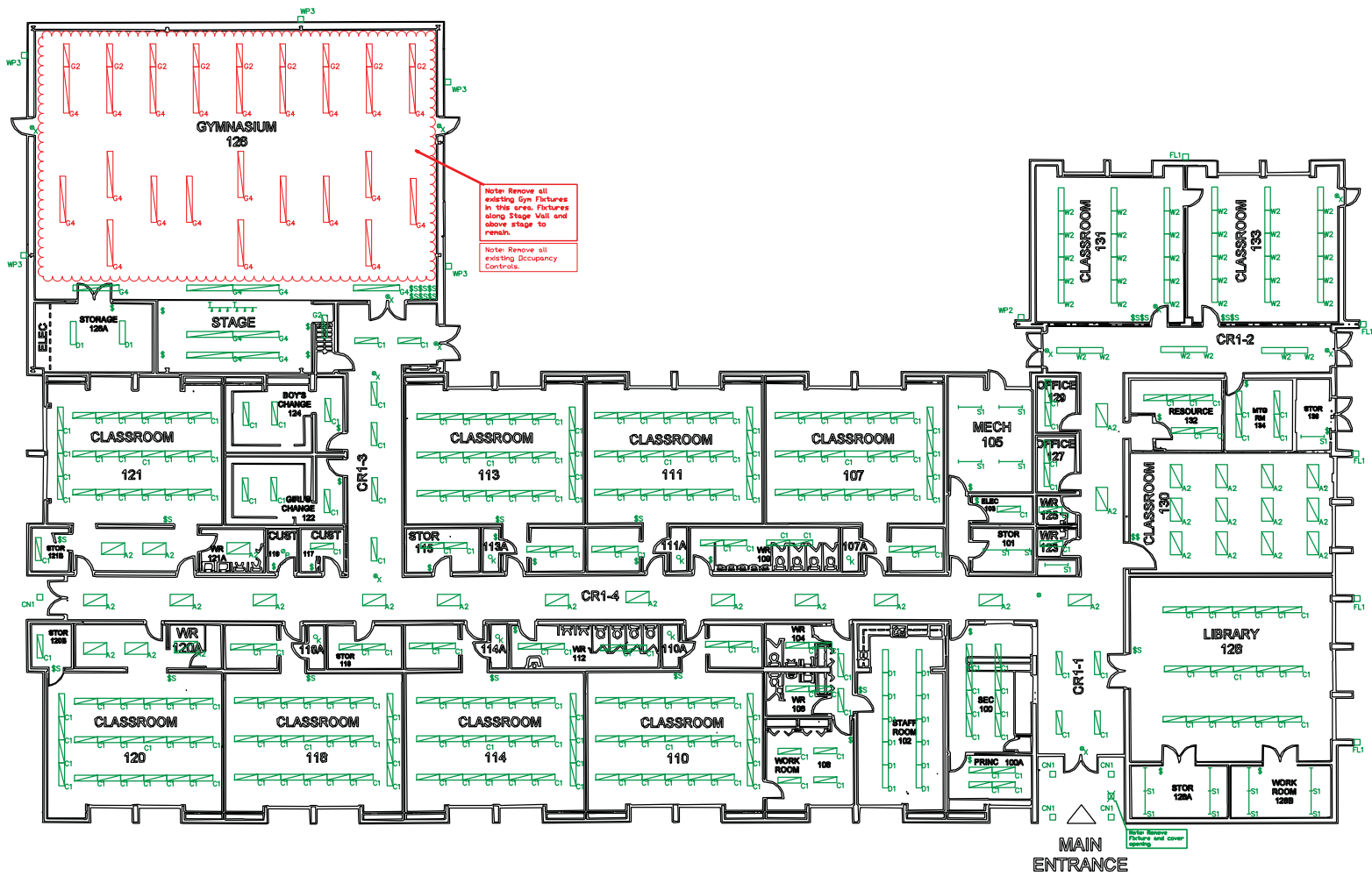
Note: Not in Contract.

Note: Remove all existing LED fixtures, no change.
 Note: Remove all existing Occupancy Controls.

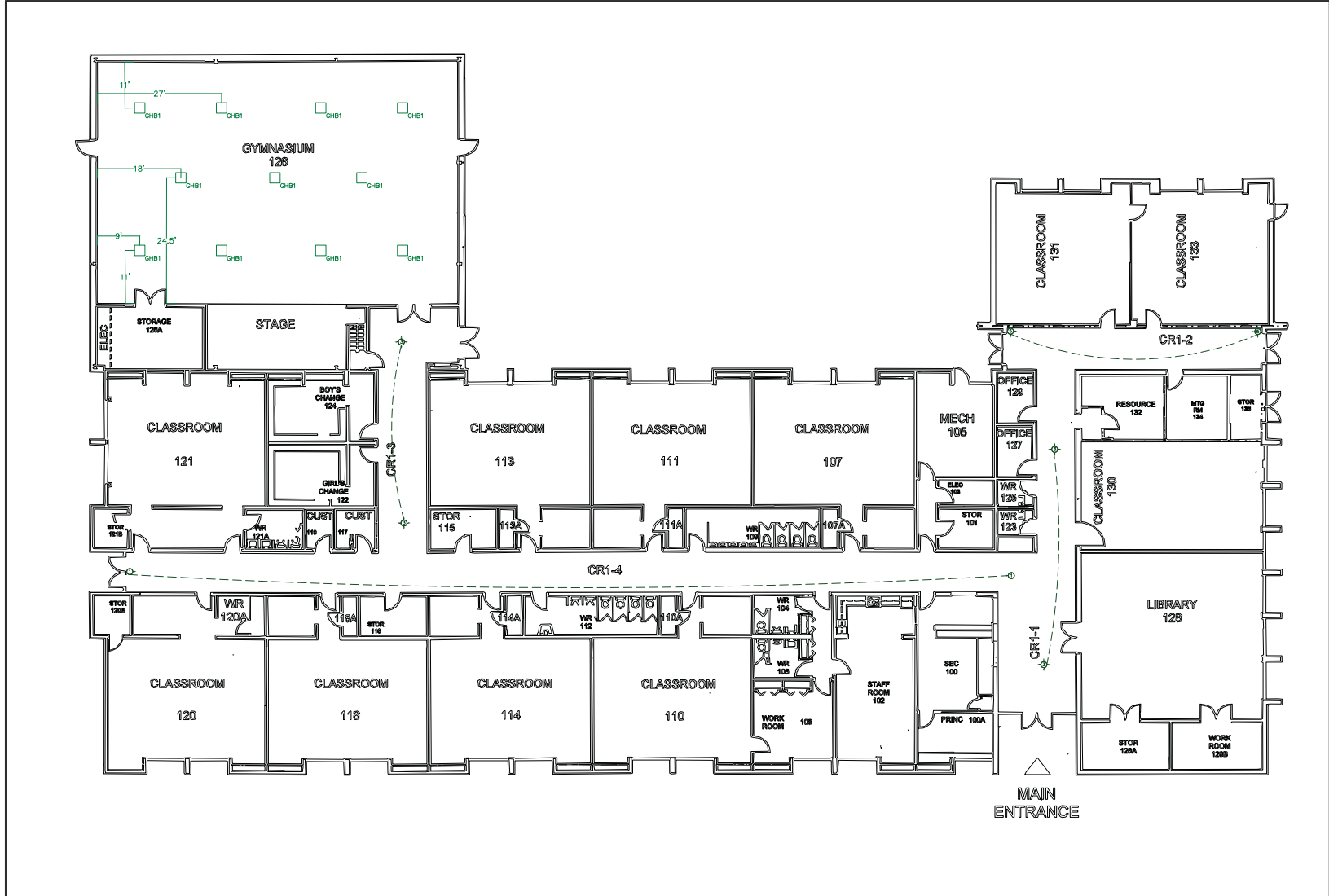
Issued for Tender	School No.	Christ the King Catholic School	Lighting Retrofit Plan	Dwg No.
	612	227 Thomas Ave Wallaceburg, ON N8A 2B9	Retrofits and Fixture Deletions	612-1
			Date: 04.15.2016	Scale: NTS



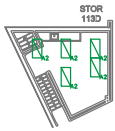
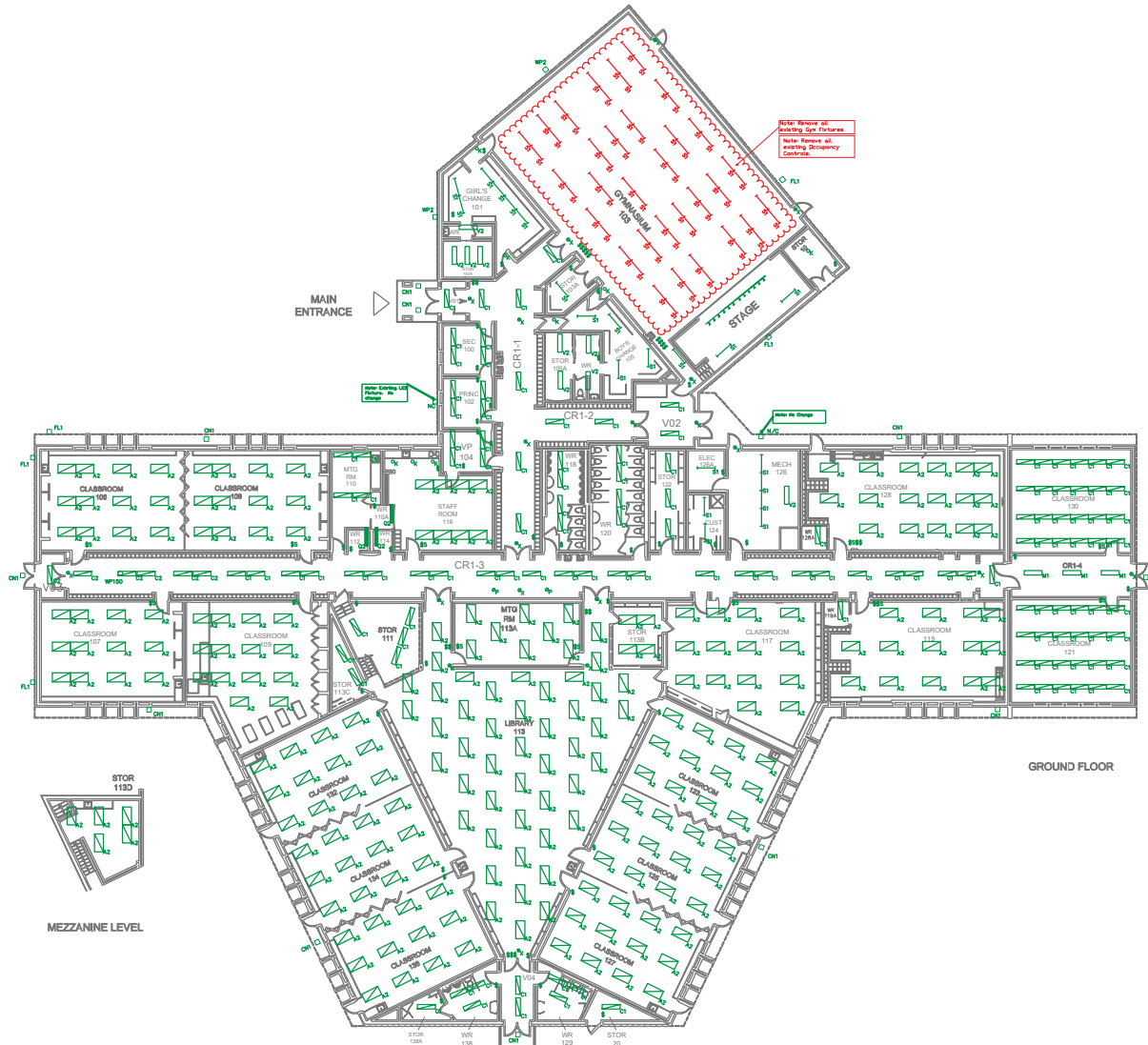
Issued for Tender	School No.	Christ the King Catholic School	Lighting Retrofit Plan	Dwg No.
	612	227 Thomas Ave Wallaceburg, ON N8A 2B9	Controls and New Gym Fixtures	612-2
			Date: 04.14.2016	Scale: NTS



Issued for Tender	School No.	Georges P. Vanier Catholic School	Lighting Retrofit Plan	Dwg No.
	614	20 Cecile Ave Chatham, ON N7M 2C3	Retrofits and Fixture Deletions	614-1
			Date: 04.19.2016	Scale: NTS



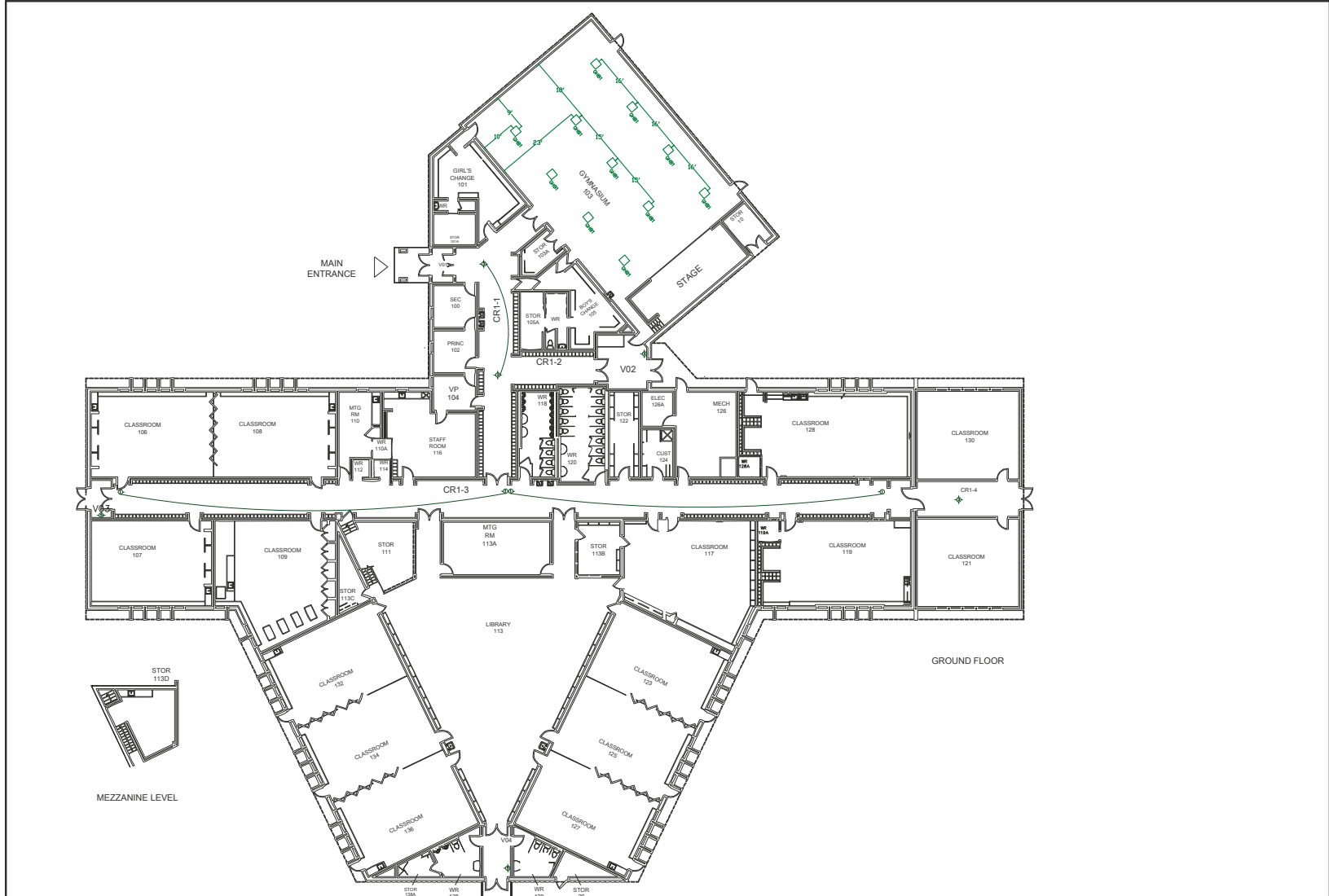
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	614	20 Cecile Ave Chatham, ON N7M 2C3	Controls and New Gym Fixtures	
		Date: 04.14.2016	Scale: NTS	



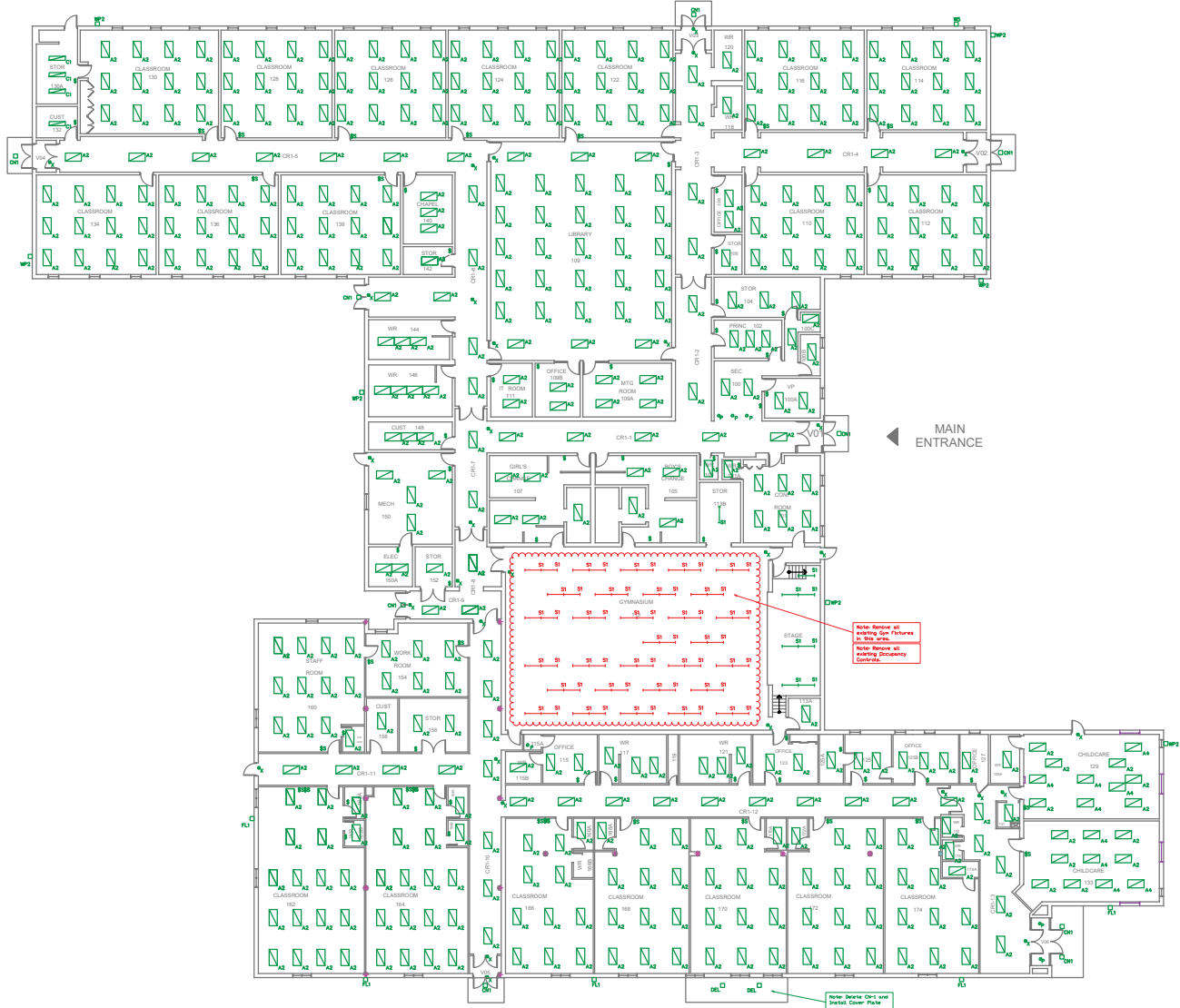
MEZZANINE LEVEL

GROUND FLOOR

Issued for Tender	School No.	Monsignor Uyen Catholic School	Lighting Retrofit Plan		Dwg No. 618-1
	618		Retrofits and Fixture Deletions		
	255 Lark St Chatham, ON N7L 1G9		Date: 04.15.2016	Scale: NTS	



618	Monsignor Uyen Catholic School	Lighting Retrofit Plan		618-2
	255 Lark St Chatham, ON N7L 1G9	Controls and New Gym Fixtures		
		Date: 04.08.2016	Scale: NTS	



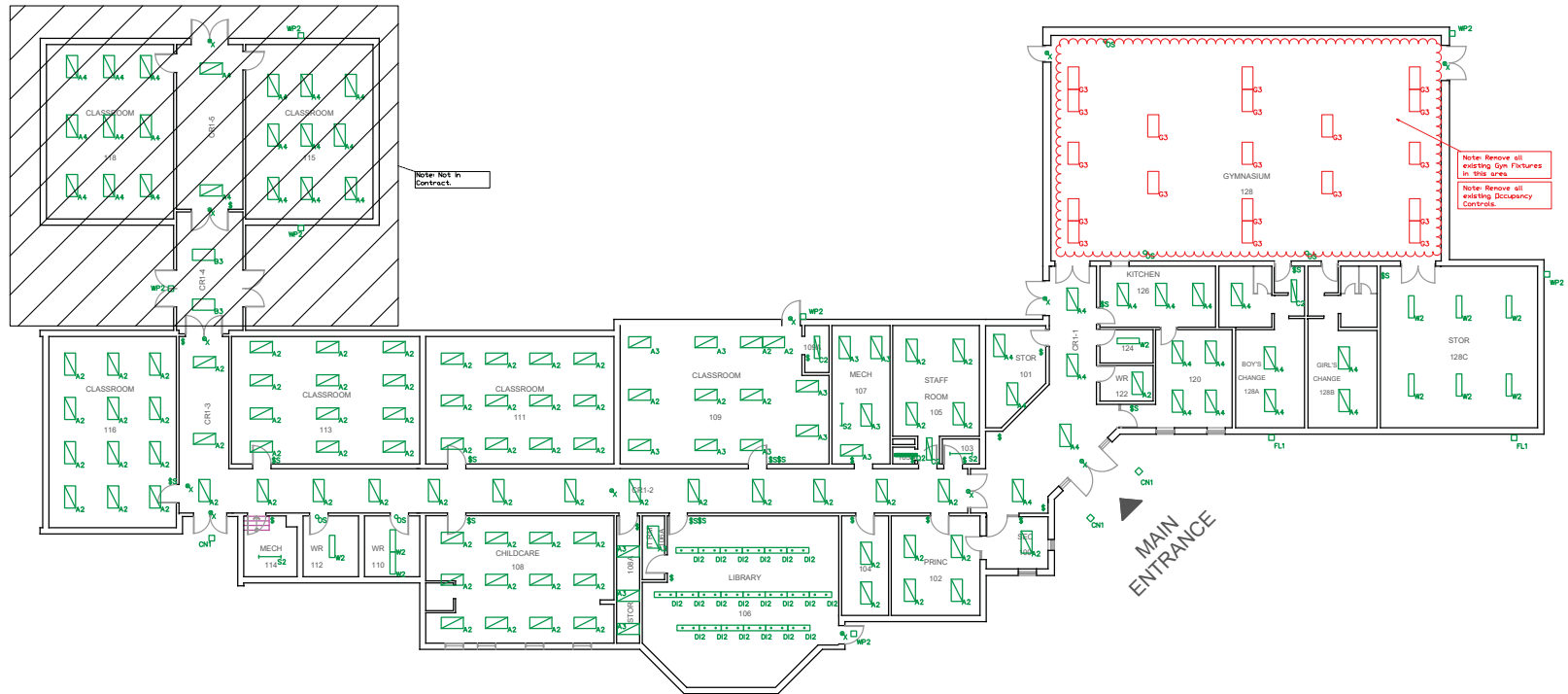
Issued for Tender	School No.	Our Lady of Fatima Catholic School	Lighting Retrofit Plan	Dwg No. 619-1
	619	545 Baldoon Rd Chatham, ON N7M 5L9	Retrofits and Fixture Deletions	
			Date: 04.15.2016	Scale: NTS



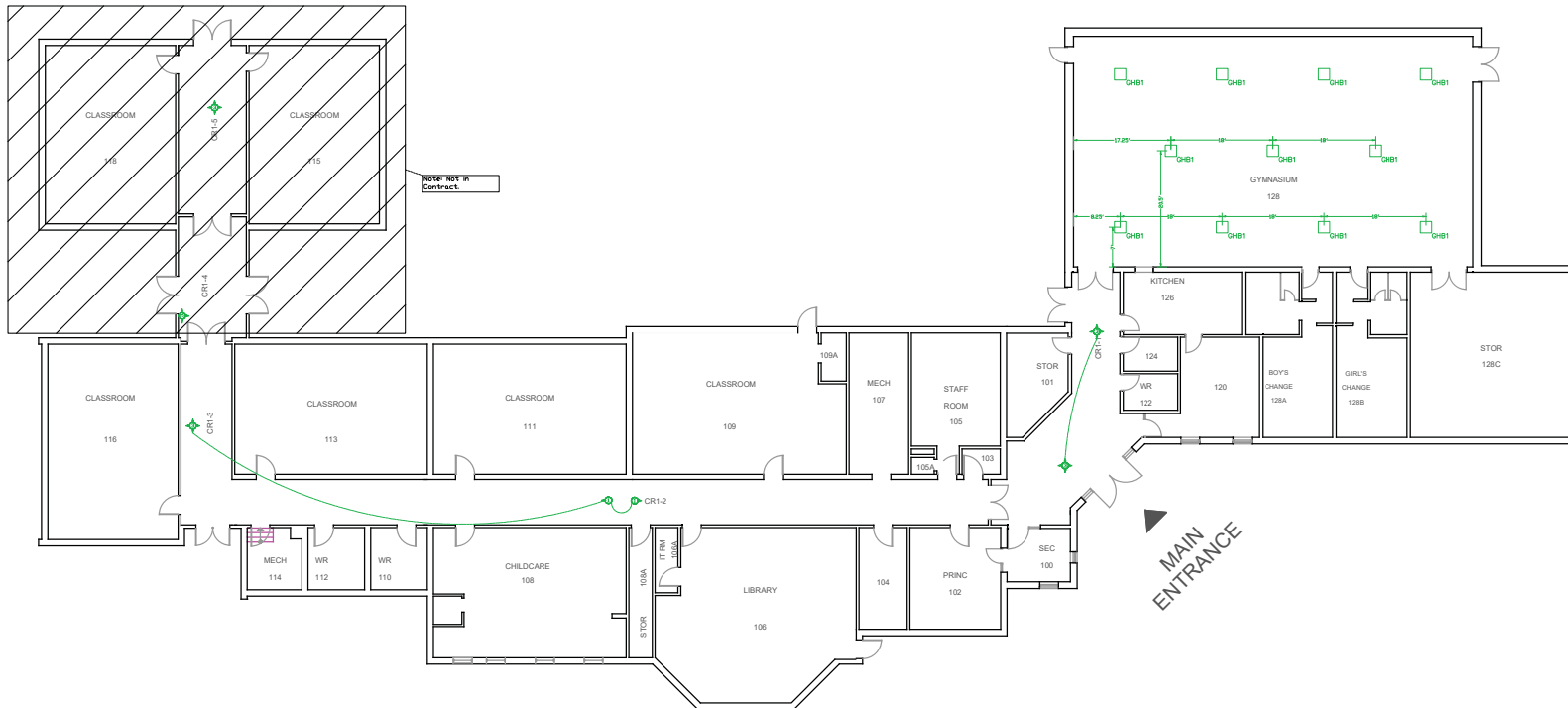
NOTE:
Control fixture to match the
24-0"

MAIN ENTRANCE

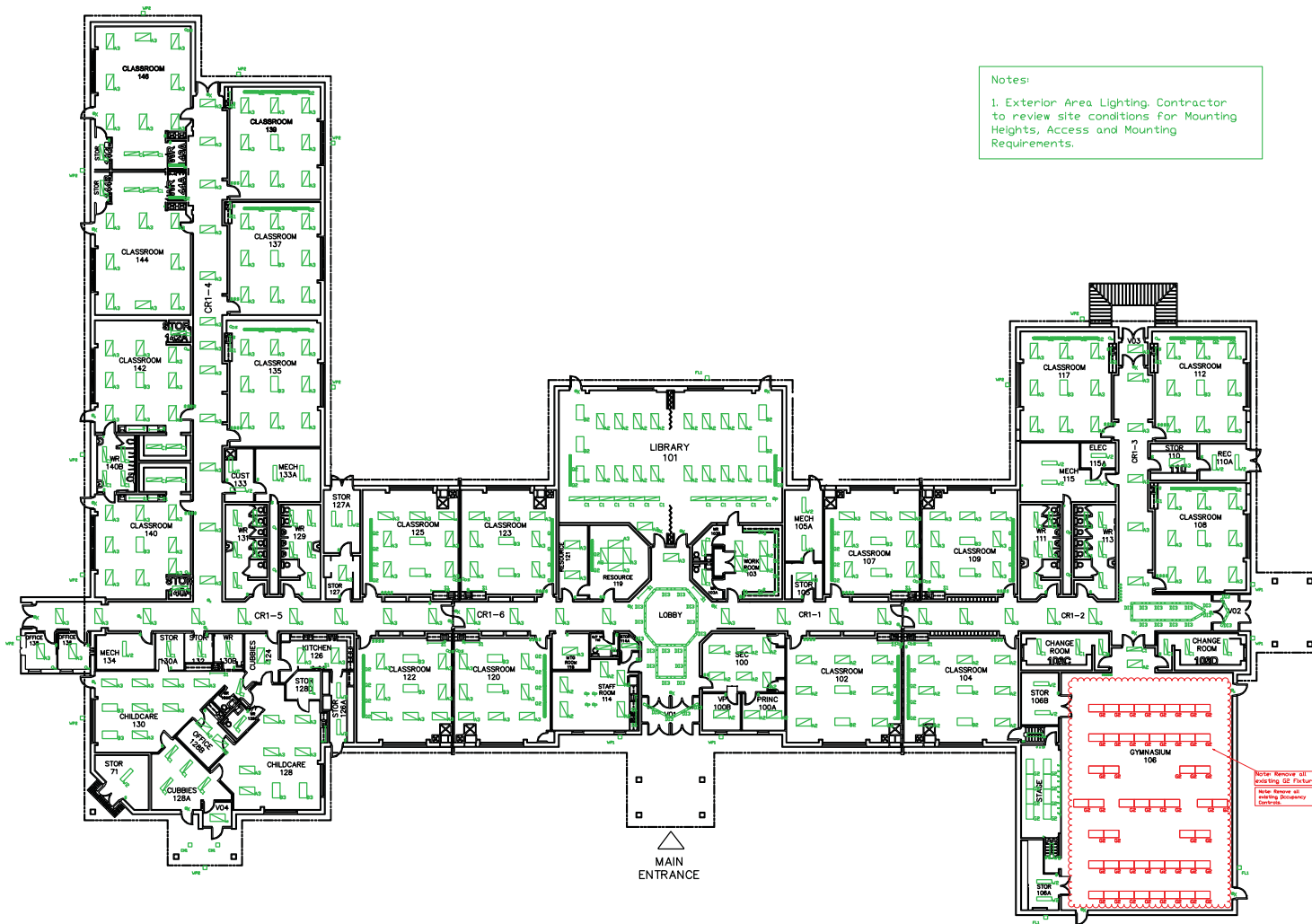
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	619	545 Baldoon Rd Chatham, ON N7M 5L9	Controls and New Gym Fixtures	
			Date: 04.14.2016	Scale: NTS



Issued for Tender	School No.	Sacred Heart Catholic School	Lighting Retrofit Plan	Dwg No. 622-1
	622	434 John Street Port Lambton, ON, N0P 2B0	Retrofits and Fixture Deletions	
			Date: 04.14.2016	Scale: NTS



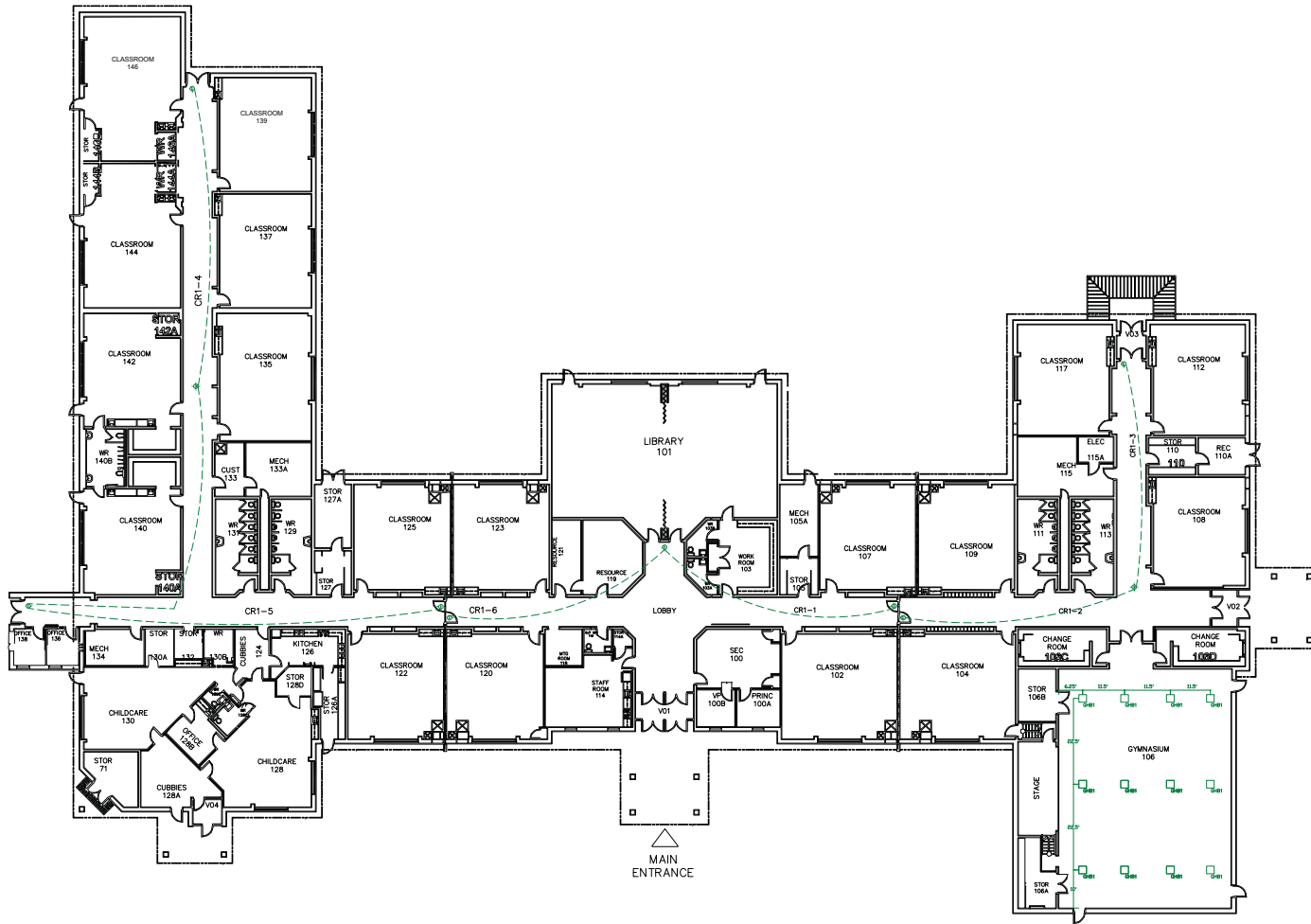
Issued for Tender	School No.	Sacred Heart Catholic School	Lighting Retrofit Plan		Dwg No.
	622		434 John Street Port Lambton, ON, N0P 2B0	Controls and New Gym Fixtures	
			Date: 04.14.2016	Scale: NTS	



Notes:
 1. Exterior Area Lighting Contractor to review site conditions for Mounting Heights, Access and Mounting Requirements.

MAIN ENTRANCE

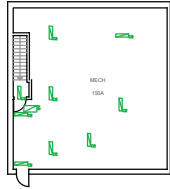
Issued for Tender	School No.	St. Anne Catholic School	Lighting Retrofit Plan		Dwg No.
	626	183 Snow Avenue Blenheim, ON, N0P 1A0	Retrofits and Fixture Deletions		626-1
			Date: 04,14,2016	Scale: NTS	



Issued for Tender	626	St. Anne Catholic School		Lighting Retrofit Plan		Dwg No. 626-2
		183 Snow Avenue Blenheim, ON, N0P 1A0		Controls and New Gym Fixtures		
			Date: 04.15.2016	Scale: NTS		



MAIN ENTRANCE



SECOND FLOOR

GROUND FLOOR

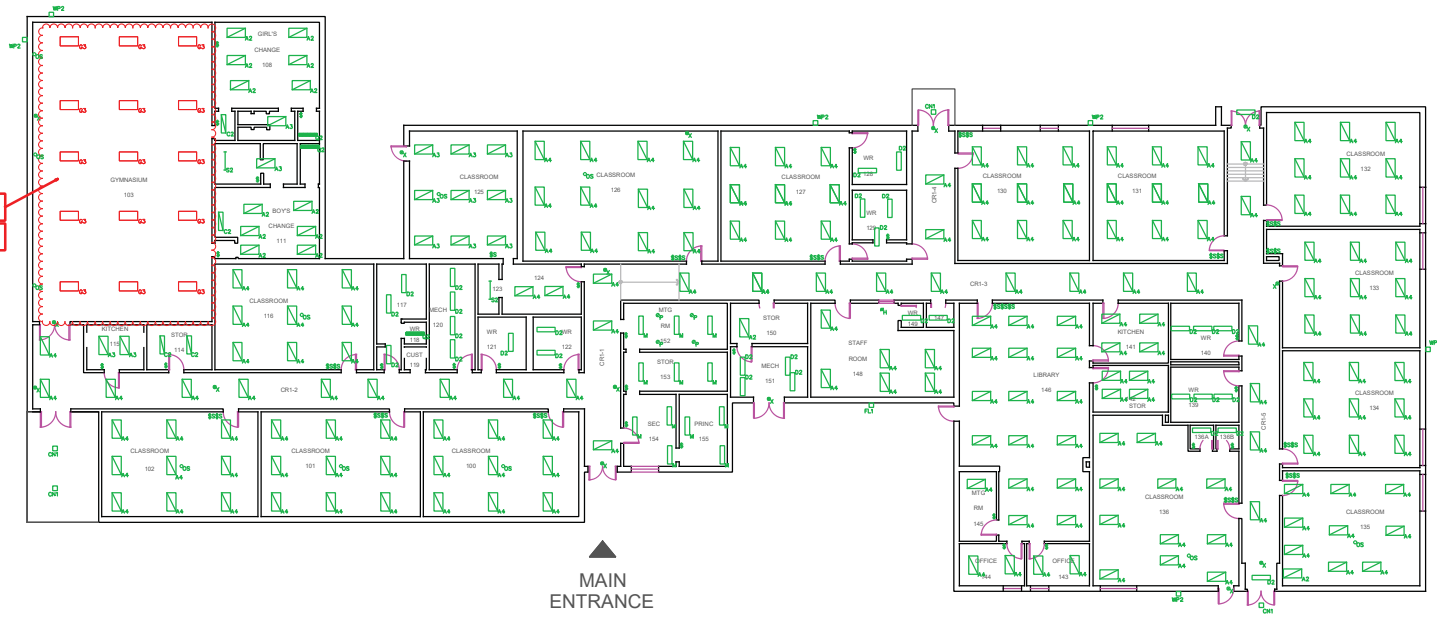
Issued for Tender	School No.	St Anne (Sarnia) Catholic School	Lighting Retrofit Plan		Dwg No.
	627		1000 Rapids Parkway Sarnia, ON N7S 6K3	Retrofits and Fixture Deletions	
			Date: 04.15.2016	Scale: NTS	



GROUND FLOOR

SECOND FLOOR

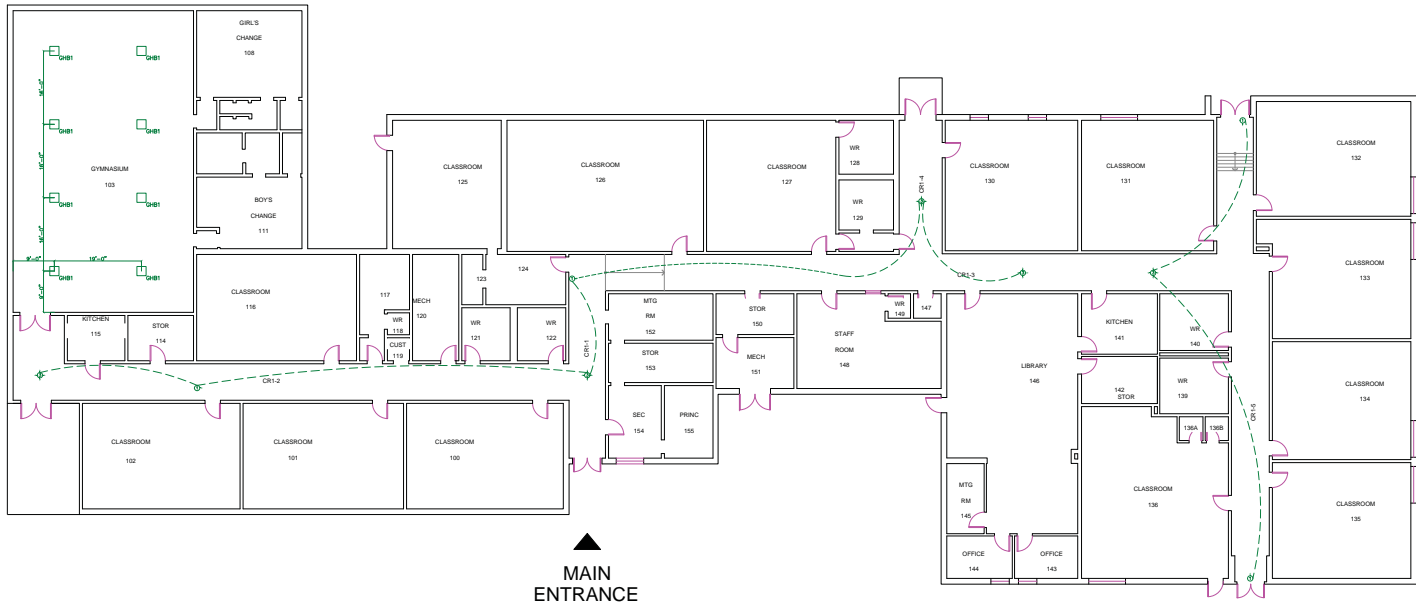
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	627		1000 Rapids Parkway Sarnia, ON N7S 6K3	Controls and New Gym Fixtures	
			Date: 04.15.2016	Scale: NTS	



Note: Remove all existing G3 Fixtures
 Note: Remove all existing Occupancy Controls

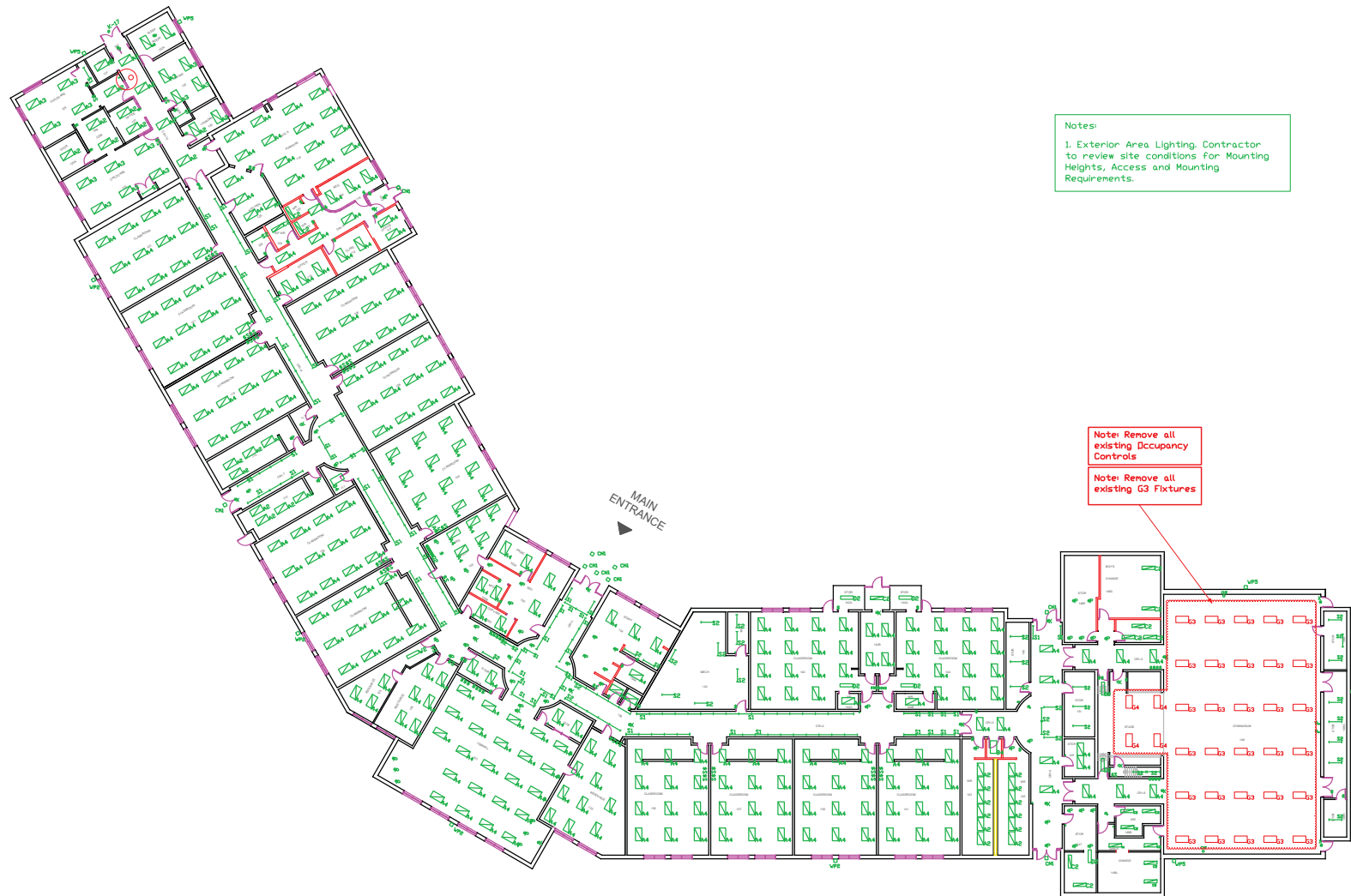
▲
 MAIN
 ENTRANCE

Issued for Tender	School No.	St John Fisher Catholic School	Lighting Retrofit Plan	Dwg No.
	632	44 Main St North Forest, ON N0N 1J0	Retrofits and Fixture Deletions	632-1
			Date: 04.14.2016	Scale: NTS



▲
MAIN
ENTRANCE

Issued for Tender	School No.	St John Fisher Catholic School	Lighting Retrofit Plan		Dwg No. 632-2
	632	44 Main St North Forest, ON N0N 1J0	Controls and New Gym Fixtures		
			Date: 04.15.2016	Scale: NTS	

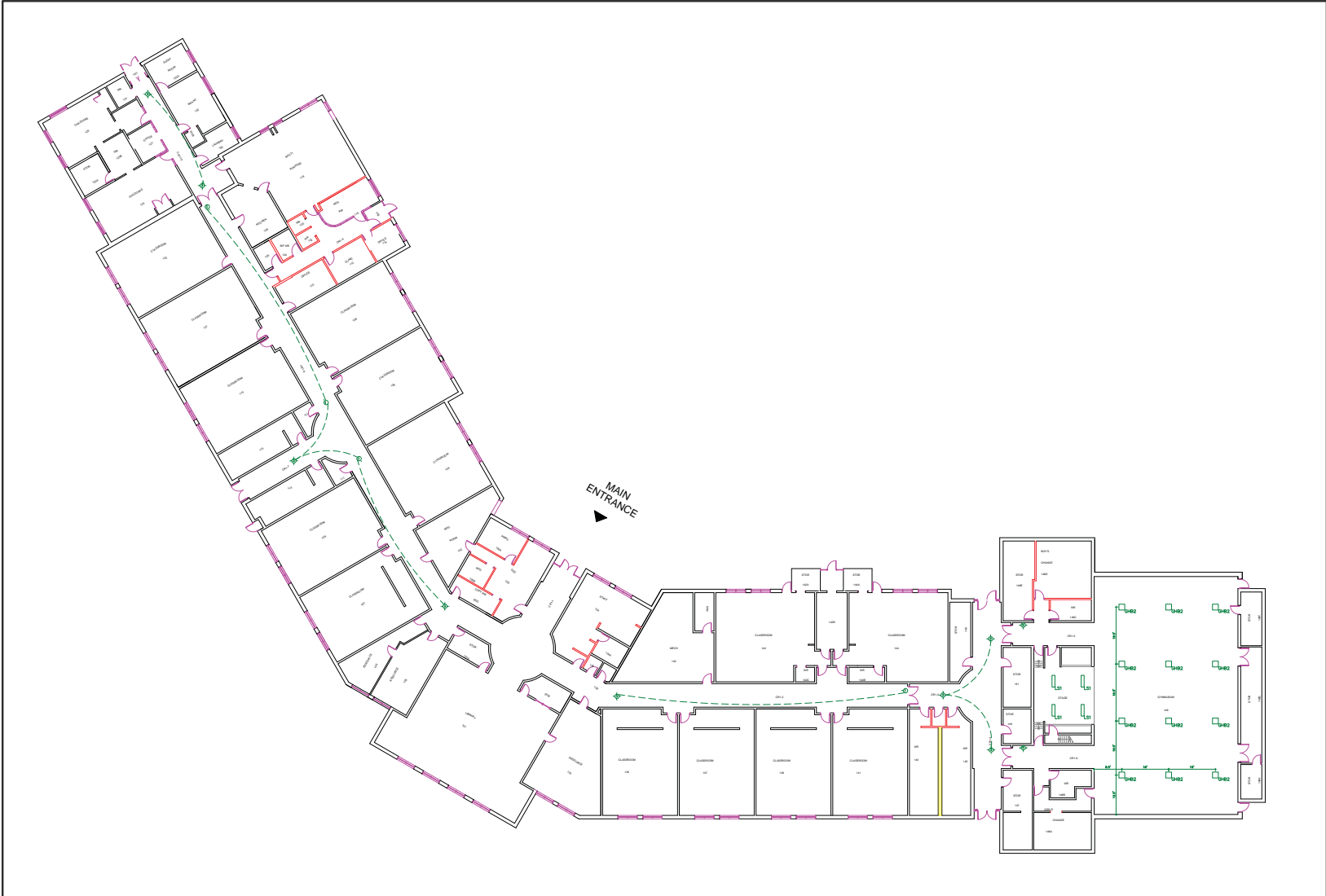


Notes:
 1. Exterior Area Lighting, Contractor to review site conditions for Mounting Heights, Access and Mounting Requirements.

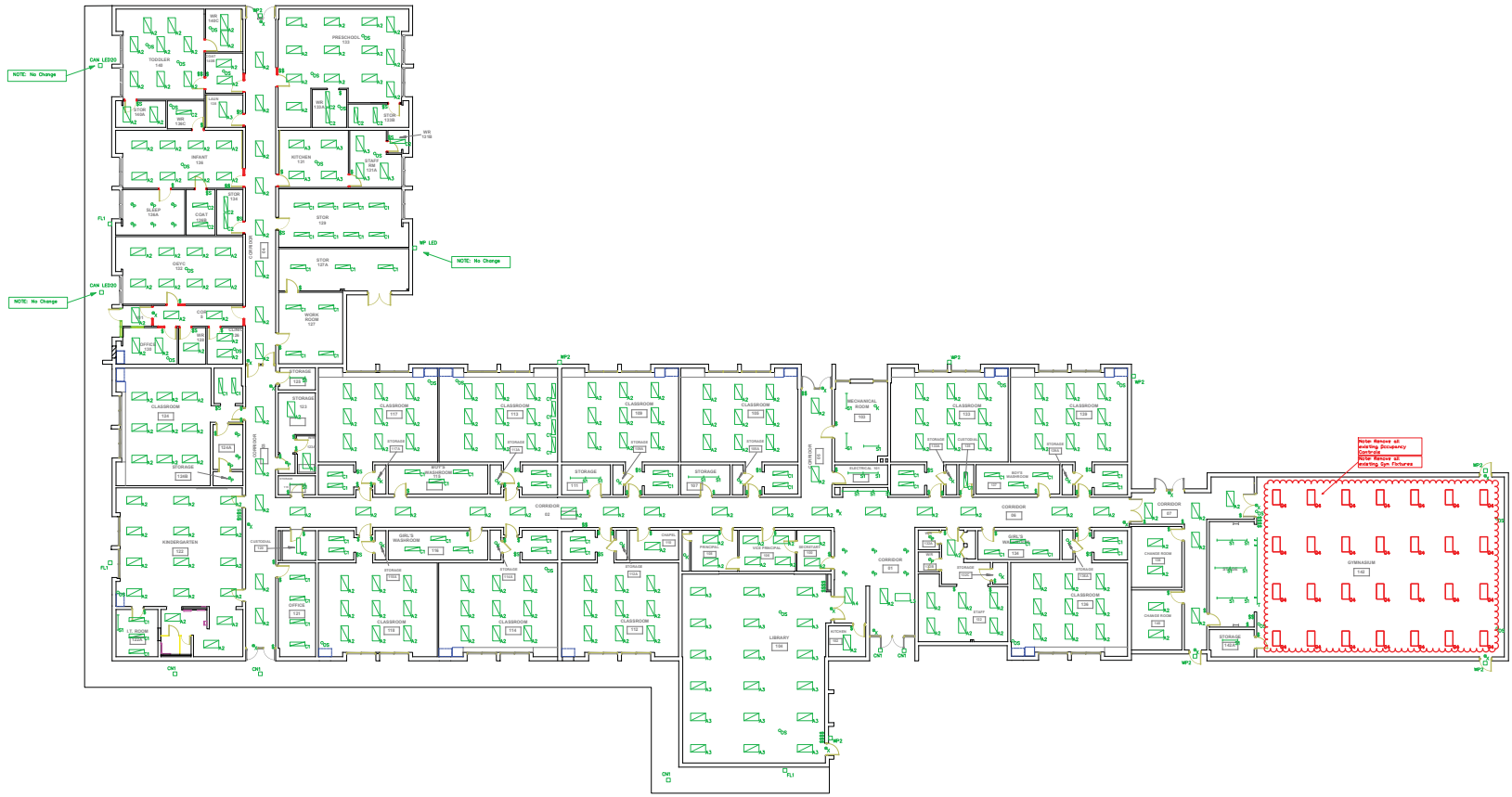
Note: Remove all existing Occupancy Controls

Note: Remove all existing G3 Fixtures

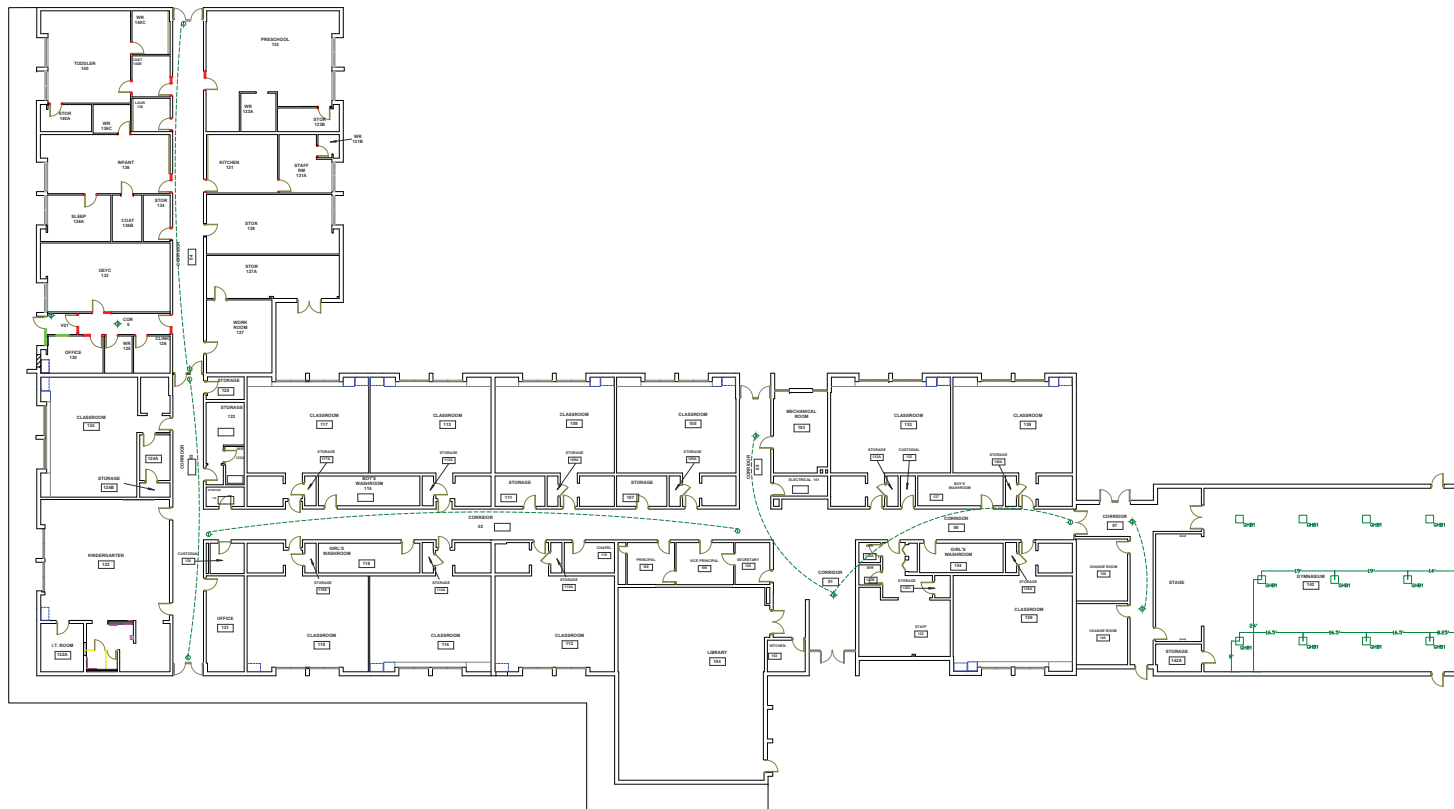
Issued for Tender	School No.	St. Joseph (Corunna) Catholic School	Lighting Retrofit Plan		Dwg No. 634-1
	634	535 Birchbank Drive Corunna, ON N0N 1G0	Retrofits and Fixture Deletions		
			Date: 04.15.2016	Scale: NTS	



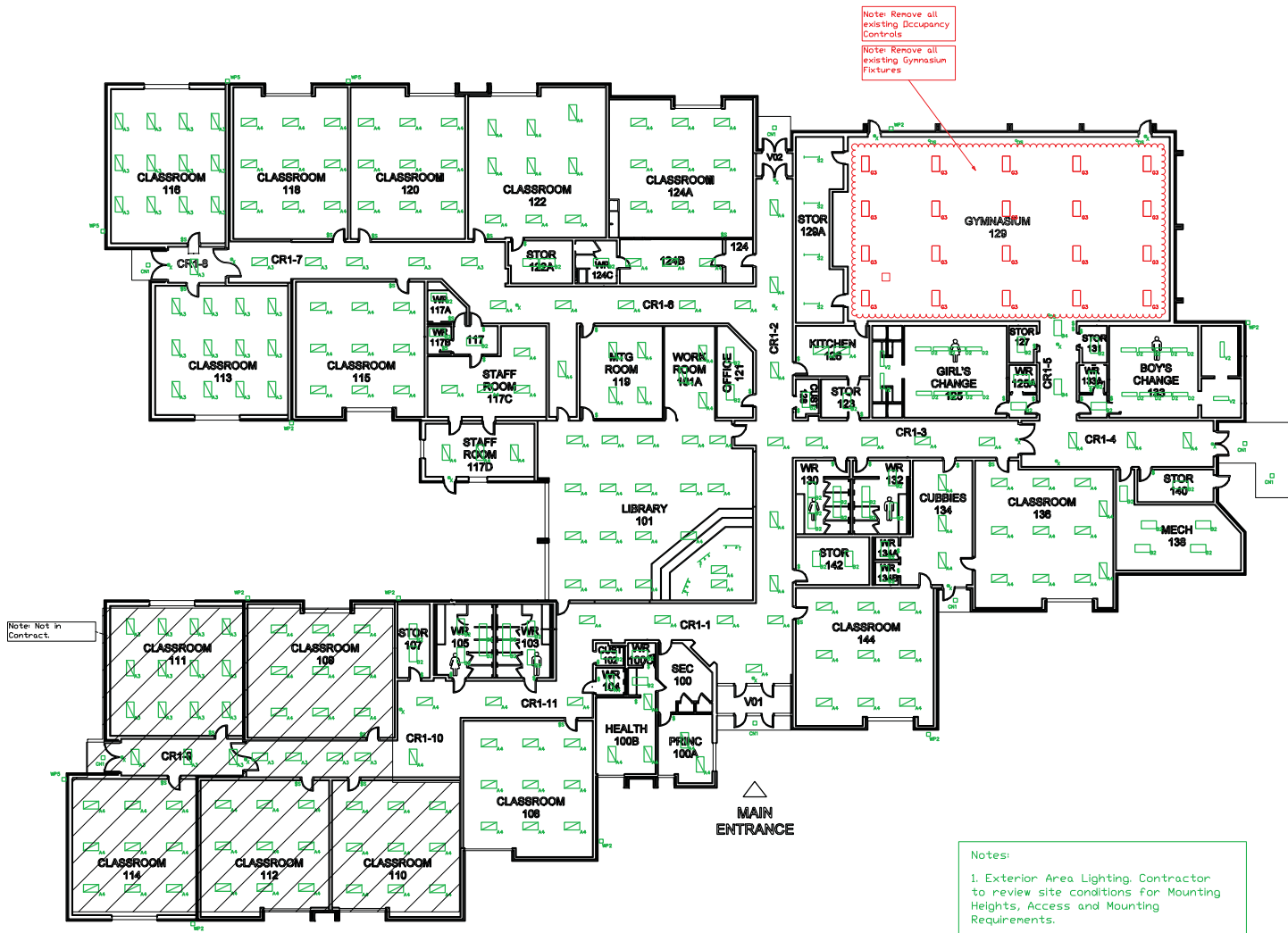
Issued for Tender	School No.	St. Joseph (Corunna) Catholic School	Lighting Retrofit Plan		Dwg No.
	634	535 Birchbank Drive Corunna, ON N0N 1G0	Controls and New Gym Fixtures		634-2
			Date: 04.15.2016	Scale: NTS	



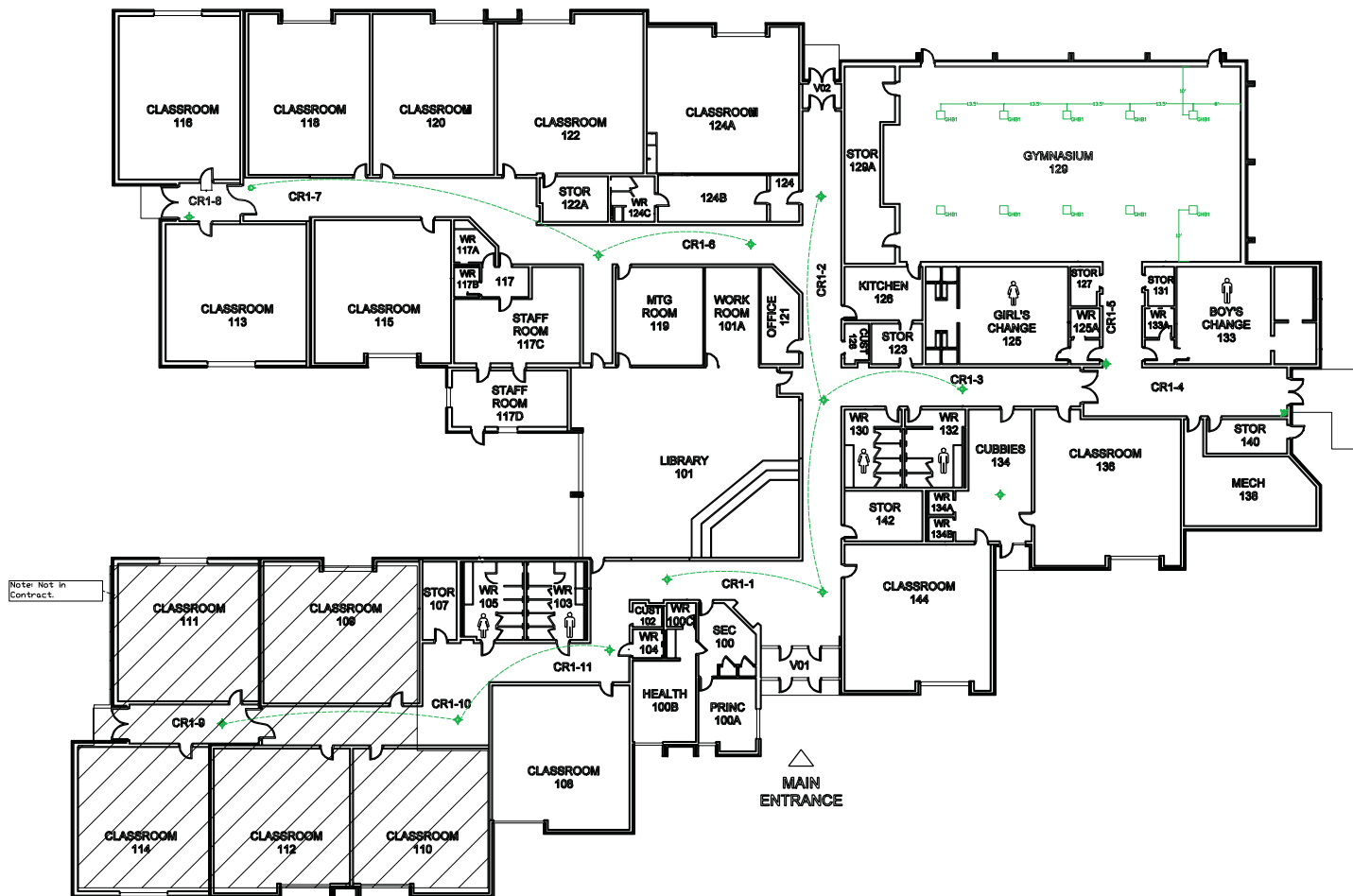
Issued for Tender	School No.	St Joseph Catholic School	Lighting Retrofit Plan		Dwg No.
	636		Retrofits and Fixture Deletions		
	43 St. Clair St Tilbury, ON N0P 2L0		Date: 04.15.2016	Scale: NTS	



Issued for Tender	School No.	St Joseph Catholic School	Lighting Retrofit Plan		Dwg No. 636-2
	636	43 St. Clair St Tilbury, ON N0P 2L0	Controls and New Gym Fixtures		
			Date: 04.15.2016	Scale: NTS	

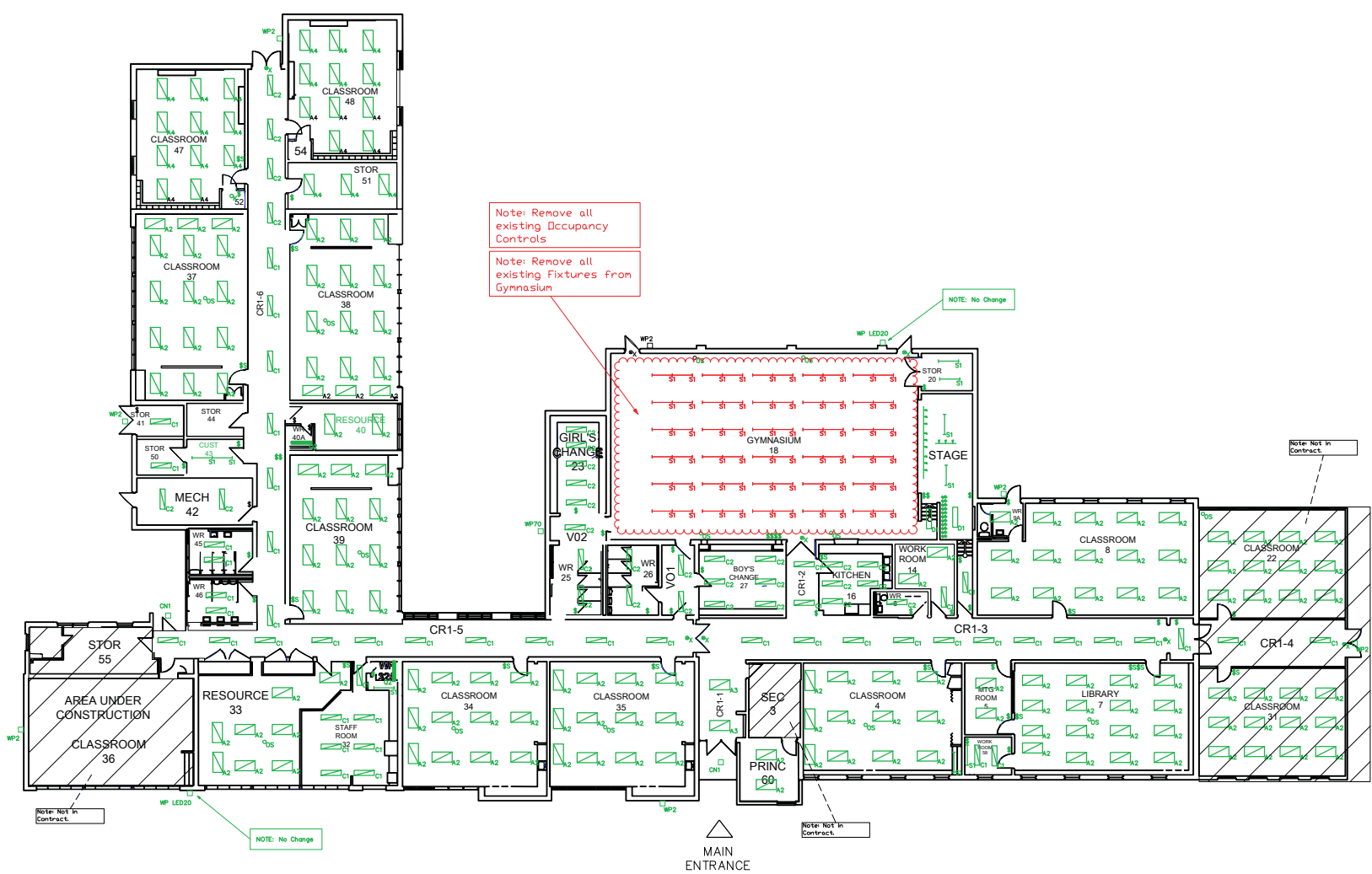


Issued for Tender	School No.	St Michael Catholic School	Lighting Retrofit Plan	Dwg No.
	639	1930 Wildwood Dr Brights Grove, ON N0N 1C0	Retrofits and Fixture Deletions	639-1
			Date: 04.15.2016	Scale: NTS



Note: Not in Contract.

Issued for Tender	School No.	St Michael Catholic School	Lighting Retrofit Plan		Dwg No.
	639	1930 Wildwood Dr Brights Grove, ON N0N 1C0	Controls and New Gym Fixtures		639-2
			Date: 04.15.2016	Scale: NTS	



Note: Remove all existing Occupancy Controls

Note: Remove all existing Fixtures from Gymnasium

NOTE: No Change

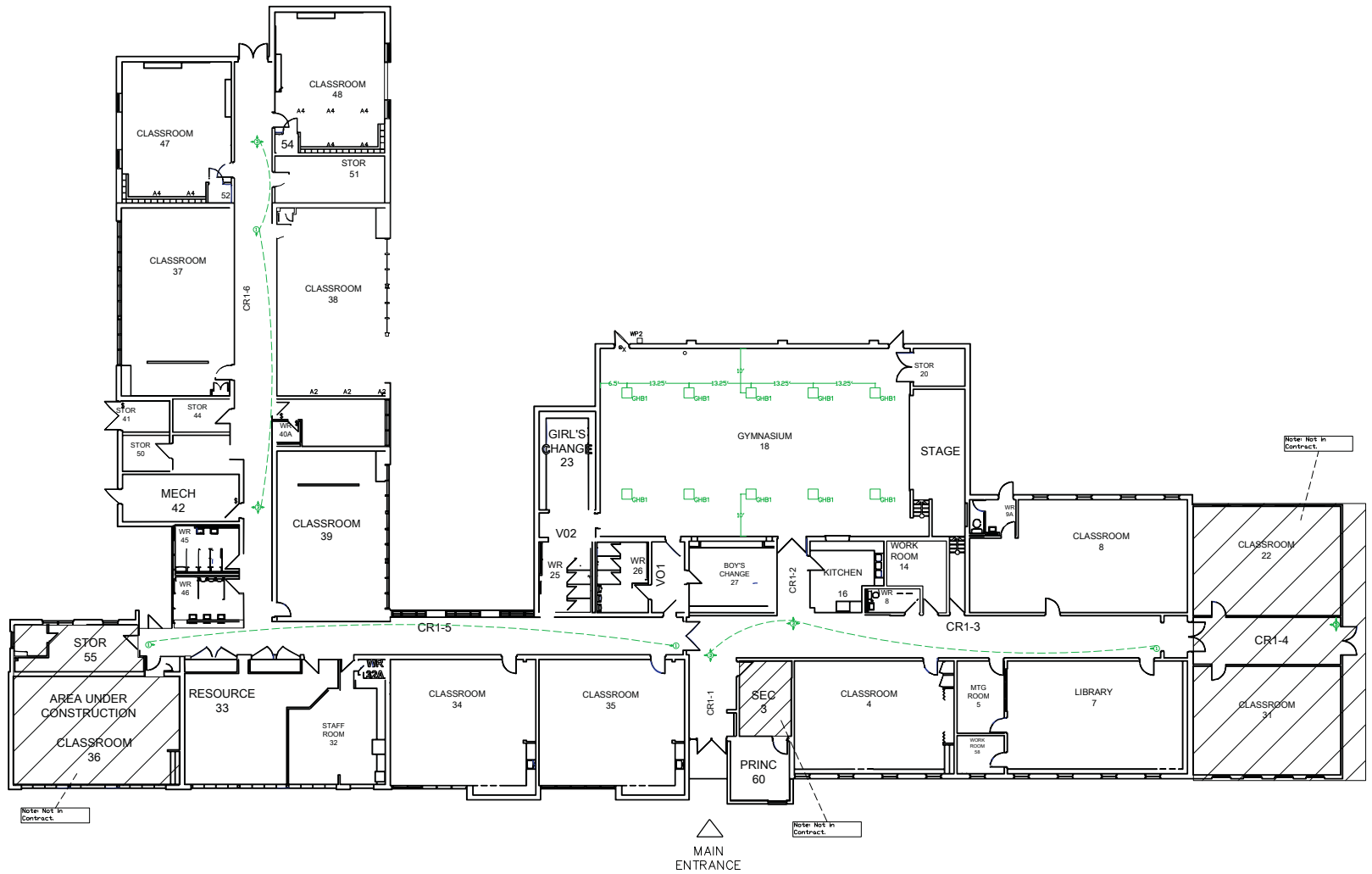
Note: Not in Contract

Note: Not in Contract

NOTE: No Change

Note: Not in Contract

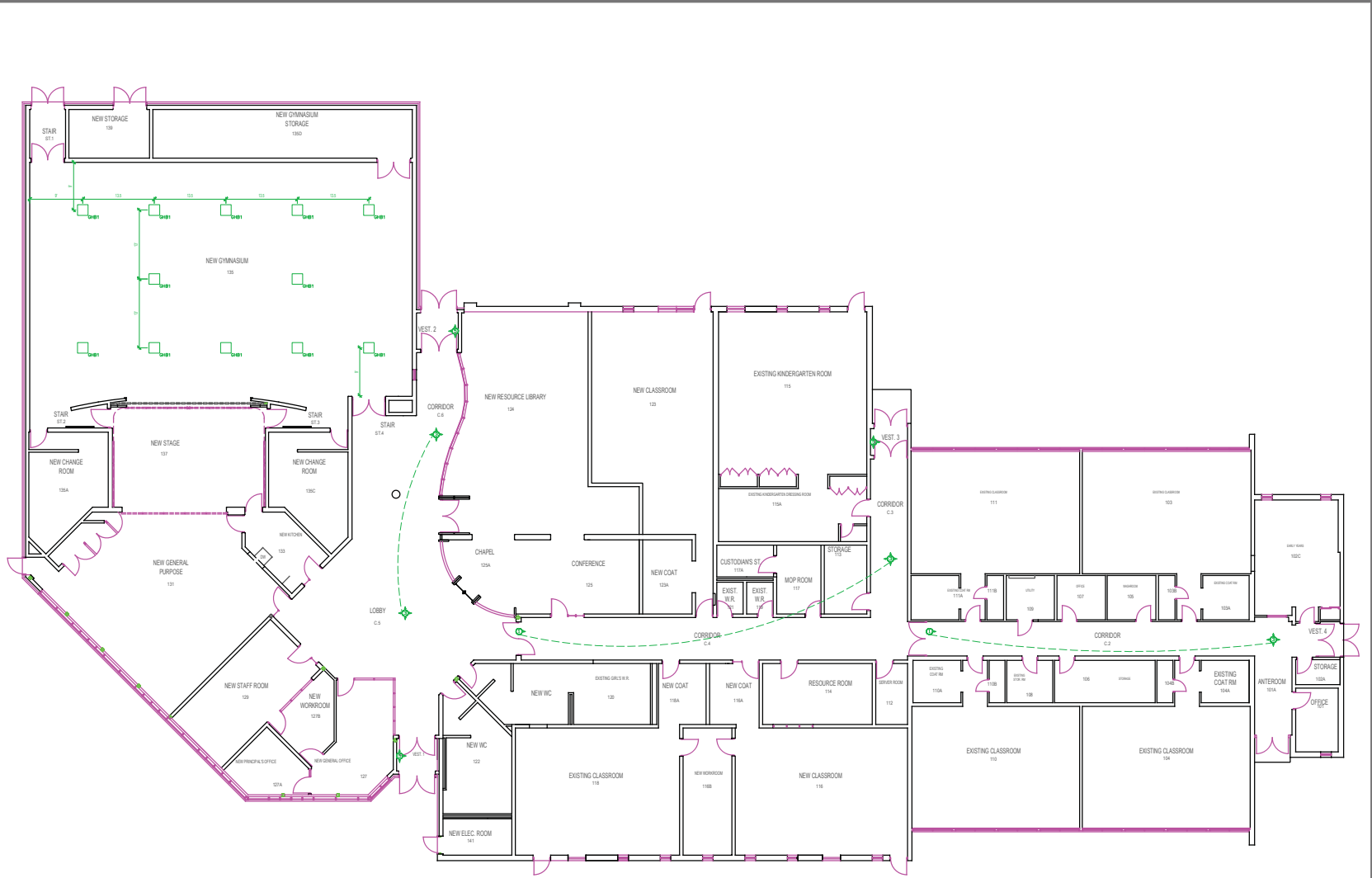
Issued for Tender	School No.	St Michael Catholic School	Lighting Retrofit Plan		Dwg No.
	640	25 Maple St Ridgetown, ON N0P 2C0	Retrofits and Fixture Deletions		640-1
			Date: 04.14.2016	Scale: NTS	



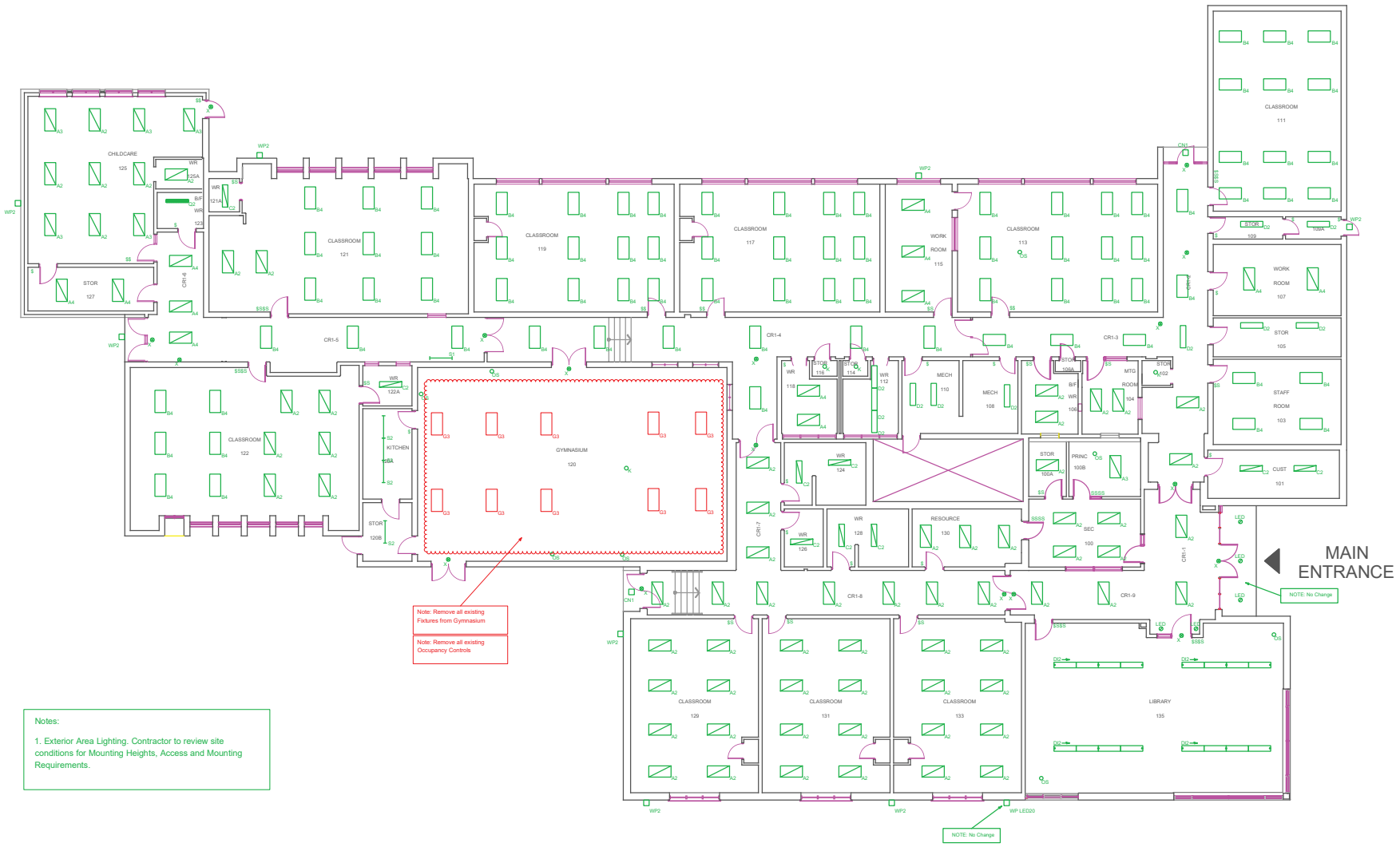
Issued for Tender	School No.	St Michael Catholic School	Lighting Retrofit Plan		Dwg No.
	640	25 Maple St Ridgetown, ON N0P 2C0	Controls and New Gym Fixtures		640-2
			Date: 04.15.2016	Scale: NTS	



Issued for Tender	School No.	Good Shepherd Catholic School	Lighting Retrofit Plan	Dwg No.
	642	4 Edith St Thamesville, ON N0P 2K0	Retrofits and Fixture Deletions	642-1
			Date: 04.15.2016	Scale: NTS



Issued for Tender	School No.	Good Shepherd Catholic School	Lighting Retrofit Plan		Dwg No.
	642		Controls and New Gym Fixtures		
		4 Edith St Thamesville, ON N0P 2K0	Date: 04.15.2016	Scale: NTS	



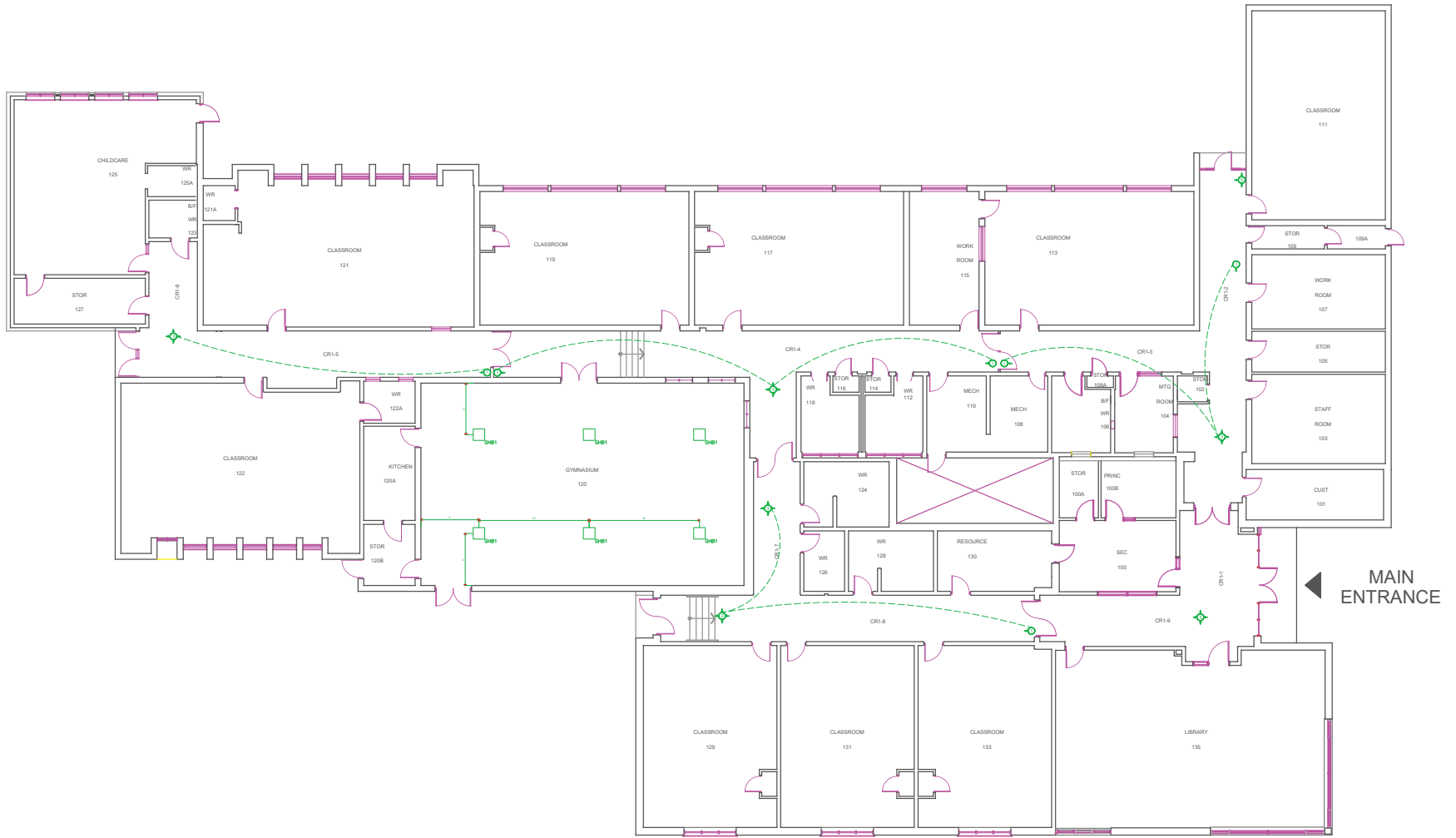
Notes:
 1. Exterior Area Lighting, Contractor to review site conditions for Mounting Heights, Access and Mounting Requirements.

Note: Remove all existing Fixtures from Gymnasium
 Note: Remove all existing Occupancy Controls

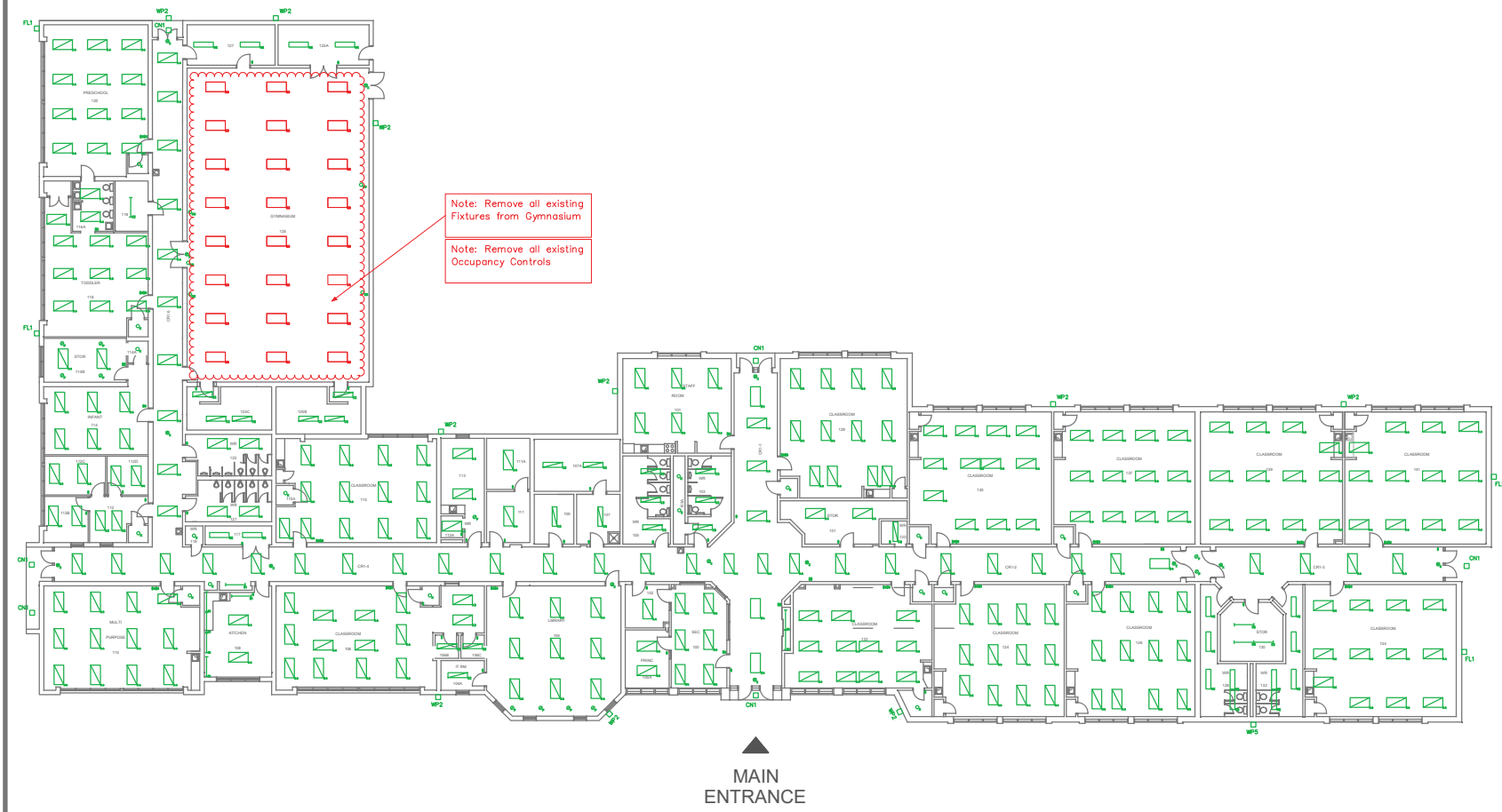
MAIN ENTRANCE
 NOTE: No Change

NOTE: No Change

643	St Peter Canisius Catholic School	Lighting Retrofit Plan		643-1
	424 Victoria St Waford, ON N0M 2S0	Retrofits and Fixture Deletions		
		Date: 04.08.2016	Scale: NTS	



643	St Peter Canisius Catholic School	Lighting Retrofit Plan		643-2
	424 Victoria St Watford, ON N0M 2S0	Controls and New Gym Fixtures		
		Date: 04,08,2016	Scale: NTS	



Issued for Tender	School No.	St Philip Catholic School	Lighting Retrofit Plan		Dwg No.
	645	4137 Victoria Avenue Petrolia, ON N0N 1R0	Retrofits and Fixture Deletions		645-1
			Date: 04.14.2016	Scale: NTS	



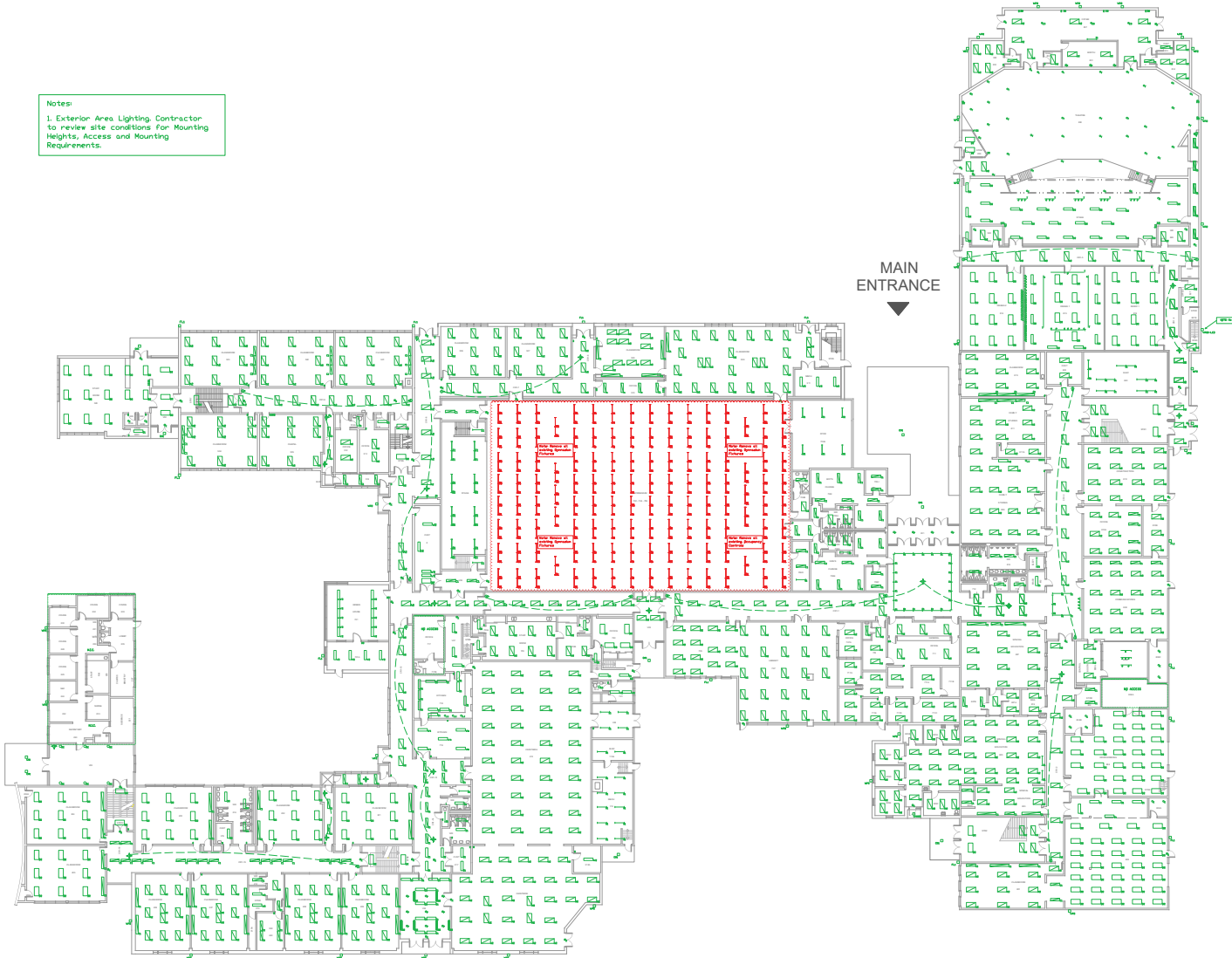
▲
MAIN
ENTRANCE

Issued for Tender	School No.	St Philip Catholic School	Lighting Retrofit Plan		Dwg No.
	645		417 Victoria Avenue Petrolia, ON N0N 1R0	Controls and New Gym Fixtures	
			Date: 04.15.2016	Scale: NTS	

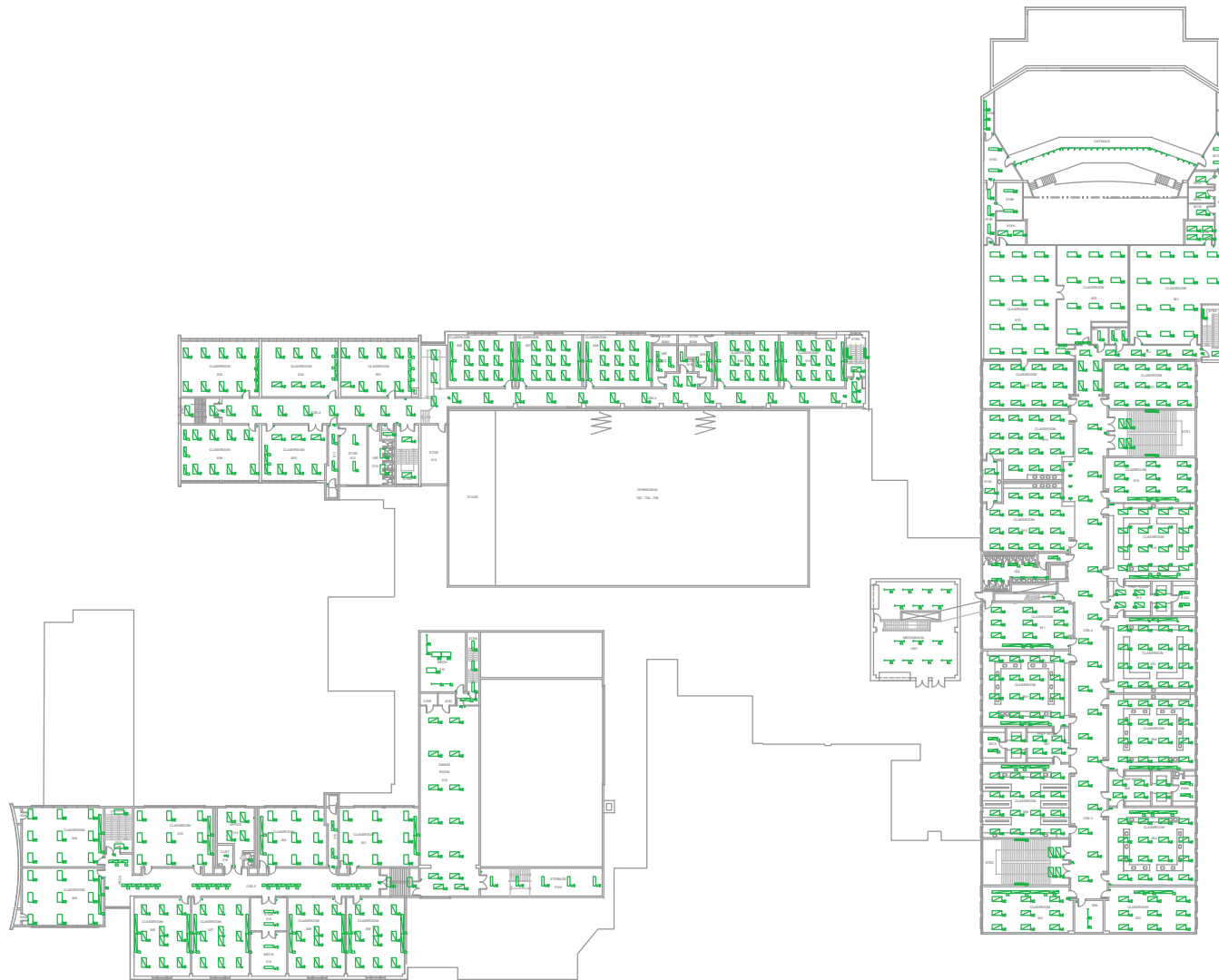


Issued for Tender	School No.	Ursuline College Catholic	Lighting Retrofit Plan		Dwg No.
	725	Secondary School	Retrofits and Fixture Deletions		
	Basement	85 Grand Avenue West	Date: 04.19.2016	Scale: NTS	
		Chatham, ON, N7L 1B6			

Notes:
 1. Exterior Area Lighting Contractor
 to review site conditions for Mounting
 Heights, Access and Mounting
 Requirements.



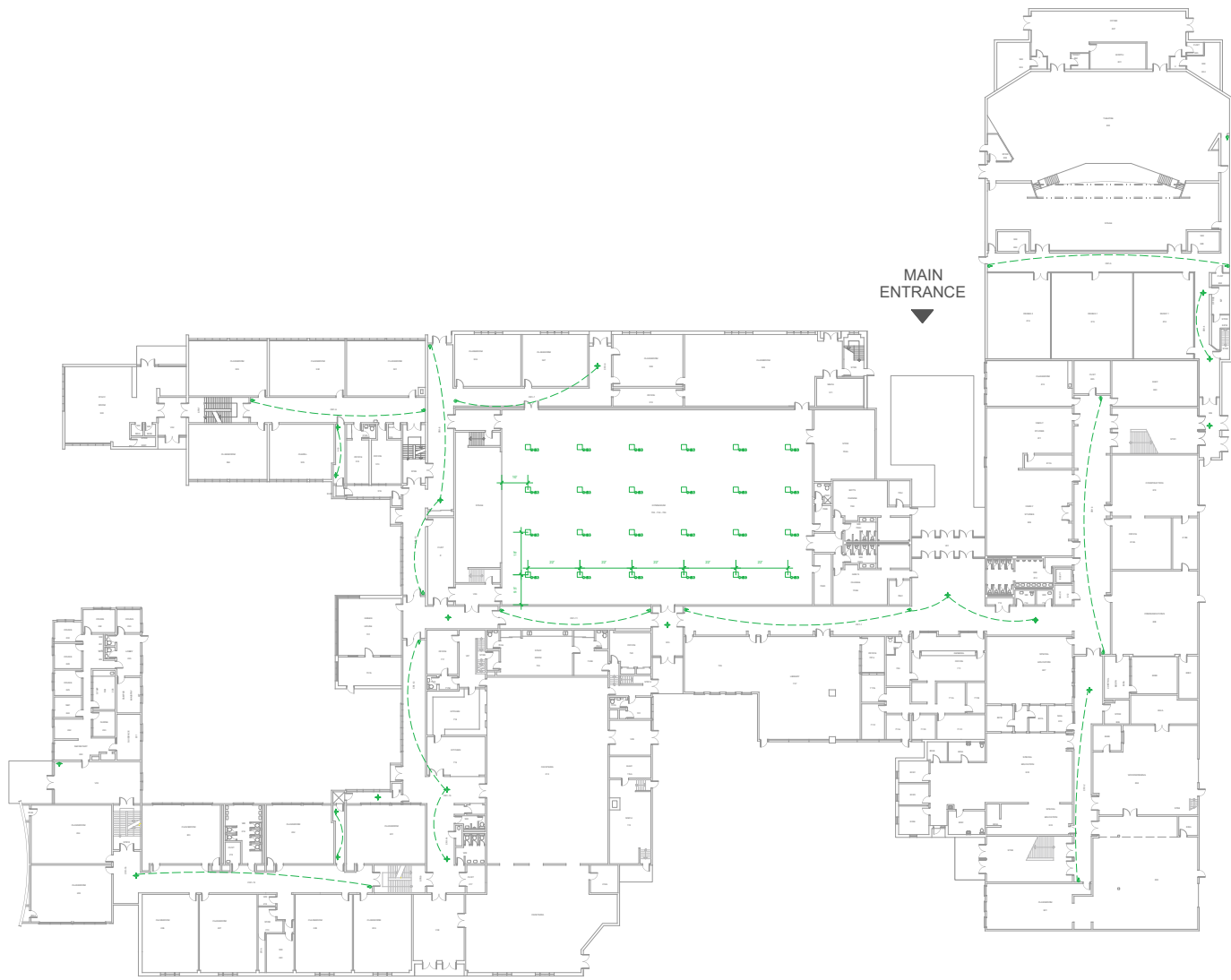
Issued for Tender	School No.	Ursuline College Catholic	Lighting Retrofit Plan	Dwg No.
	725	Secondary School		
	Ground Floor	85 Grand Avenue West	Retrofits and Fixture Deletions	725-2
		Chatham, ON, N7L 1B6	Date: 04.20.2016 Scale: NTS	



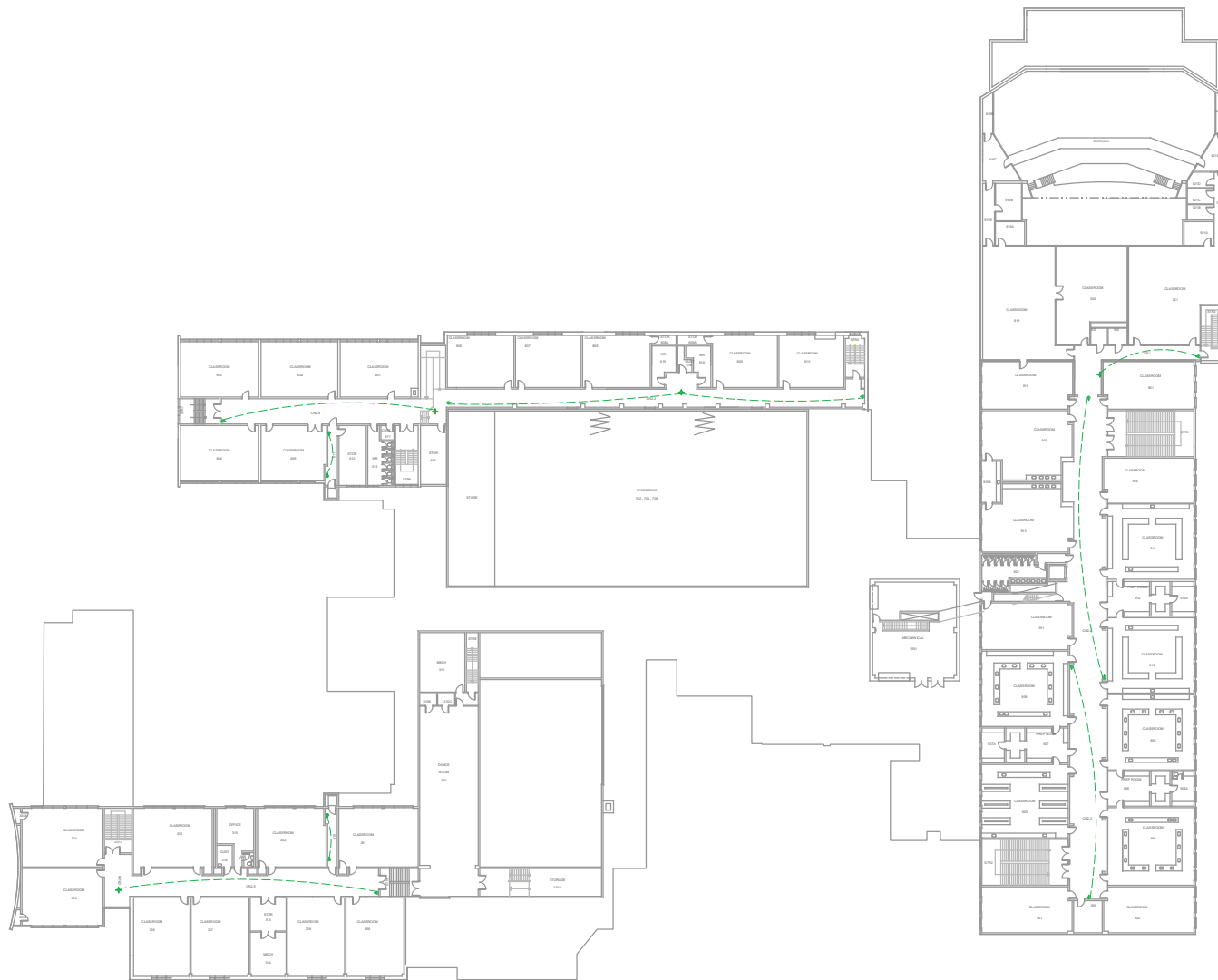
Issued for Tender	School No.	Ursuline College Catholic	Lighting Retrofit Plan		Dwg No.
	725	Secondary School			
	Second Floor	85 Grand Avenue West	Retrofits and Fixture Deletions		725-3
		Chatham, ON, N7L 1B6	Date: 04.19.2016	Scale: NTS	



Issued for Tender	School No.	Ursuline College Catholic Secondary School	Lighting Retrofit Plan		Dwg No.
	725 Basement		85 Grand Avenue West Chatham, ON, N7L 1B6	Lighting Controls	
			Date: 04.19.2016	Scale: NTS	



Issued for Tender	School No.	Ursuline College Catholic	Lighting Retrofit Plan	Dwg No.
	725	Secondary School		Controls and New Gym Fixtures
	Ground Floor	85 Grand Avenue West Chatham, ON, N7L 1B6	Date: 04.20.2016	



Issued for Tender	School No.	Ursuline College Catholic Secondary School	Lighting Retrofit Plan		Dwg No.
	725 Second Floor		85 Grand Avenue West Chatham, ON, N7L 1B6	Controls	725-6
			Date: 04.20.2016	Scale: NTS	

APPENDIX B – SITE RETROFIT SUMMARY

APPENDIX B - OVERVIEW

Appendix B provides a per school summary of the retrofit plan.

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.

Total costs are to be copied to the Pricing Form in Section 00430, Item 1.2

Site Retrofit Summary

612 - Christ The King

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	84		
A3 to A2-KIT	Retrofit existing 3 lamp fixture to 2 T8LED lamps and a new electronic 120V Low Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	20		
C1 to C1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	0		
C1 to C1+BG	Retrofit existing tandem wired 1x4' fixtures (with master fixture housing ballast) with 1 T8LED lamp and 1 new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded appropriate sized conductors plus an added ground wire complete with protective grommets or chase nipples as required by code.	7		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	2		
G2 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	40		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	3		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	10		
P1 to R-7	Relamp existing compact fluorescent downlight with in 1 new type 7W PAR LED lamp as detailed in 16500	3		
Q1 to Q1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
Q2 to Q2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	4		
Q-LED to N/C	No change to existing LED fixture	1		
R to R-17	Relamp existing compact fluorescent downlight with in 1 new type 17W PAR LED lamp as detailed in 16500	10		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
S2-T to S2-T	Retrofit two lamp 8' fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	14		
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	2		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	10		
WP-LED to N/C	No change to existing LED fixture	1		
X to NX-LED	Replace existing incandescent or compact fluorescent Exit Sign with new Exit sign fixture as detailed in 16500	8		
X-LED to N/C	No change to existing LED Exit sign fixtures	8		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	1		
OS-3	Install 360-degree PIR occupancy sensor	3		
OS-5	Install wall-switch PIR occupancy sensor	0		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	8		

Site Retrofit Summary

614 - Georges P Vanier

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	32		
C1 to C1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	35		
C1 to C1+BG	Retrofit existing tandem wired 1x4' fixtures (with master fixture housing ballast) with 1 T8LED lamp and 1 new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded appropriate sized conductors plus an added ground wire complete with protective grommets or chase nipples as required by code.	254		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	6		
CN1 to DEL	Delete exterior Canopy HID Light, make safe electrical feeds and cover electrical box and/or opening with an appropriate cover plate	1		
G2 to G2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
G3 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	9		
G4 to G4	Retrofit four lamp gym fixture with 4 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	4		
G4-T to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	25		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	6		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	11		
Q2 to Q2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
RC2 to FM-13	Replace existing surface mount compact fluorescent fixture with new LED FM-13 type fixture as detailed in 16500	1		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
S2-T to S2-T	Retrofit two lamp 8' fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	4		
SPC to N/C	No change to specialize lumanaires	6		
W2 to W2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	30		
W4-T to W4-T	Retrofit four lamp fixture with 4 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	7		
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	2		
WP to WP1	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	3		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	1		
WP to WP3	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	5		
X to NX-LED	Replace existing incandescent or compact fluorescent Exit Sign with new Exit sign fixture as detailed in 16500	2		
X-LED to N/C	No change to existing LED Exit sign fixtures	9		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	2		
OS-3	Install 360-degree PIR occupancy sensor	4		
OS-5	Install wall-switch PIR occupancy sensor	2		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	3		

Site Retrofit Summary

619 - Our Lady of Fatima

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	74		
A2 to A2-BBX	and new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded to an acceptable sized amoured BX grounded conductor	318		
A4 to A2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	19		
C1 to C1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	34		
C1 to C1+BG	Retrofit existing tandem wired 1x4' fixtures (with master fixture housing ballast) with 1 T8LED lamp and 1 new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded appropriate sized conductors plus an added ground wire complete with protective grommets or chase nipples as required by code.	20		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	9		
CN1 to DEL	Delete exterior Canopy HID Light, make safe electrical feeds and cover electrical box and/or opening with an appropriate cover plate	2		
G2-T to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	30		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	1		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	10		
P1 to K	Relamp existing incandescent lamp is pot light with 1 new K type LED lamp as detailed in 16500	4		
Q1 to Q1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	5		
R to R-11	Relamp existing compact fluorescent downlight with in 1 new type 11W BR LED lamp as detailed in 16500	11		
RC2 to FM-13	Replace existing surface mount compact fluorescent fixture with new LED FM-13 type fixture as detailed in 16500	7		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	9		
S1(2') to S1(2')	Retrofit one lamp 2' fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
S2-T to S2-T	Retrofit two lamp 8' fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	3		
V2 to V2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	5		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	7		
WP to WP5	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	1		
X to NX-LED	Replace existing incandescent or compact fluorescent Exit Sign with new Exit sign fixture as detailed in 16500	3		
X-LED to N/C	No change to existing LED Exit sign fixtures	26		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	8		
OS-3	Install 360-degree PIR occupancy sensor	6		
OS-4	Install wide view PIR occupancy sensor	3		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	19		

Site Retrofit Summary

626 - St Anne (Blenheim)

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	53		
A3 to A3	Retrofit three lamp fixture with 3 T8LED lamps and new electronic, 347V Low Ballast Factor ballast as detailed in 16500	192		
AL1 to AL1	Replace exterior Area Lights types AL1, AL3 and AL4 with LED types AL1, AL3 and AL4 as detailed in 16500	15		
AL4 to AL4	Replace exterior Area Lights types AL1, AL3 and AL4 with LED types AL1, AL3 and AL4 as detailed in 16500	3		
B2 to B2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	10		
B3 to B3	Retrofit three lamp fixture with 3 T8LED lamps and new electronic, 347V Low Ballast Factor ballast as detailed in 16500	26		
C1 to C1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	69		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	2		
DI3(4') to DI3(4')	Retrofit three lamp fixture with 4' T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	35		
E2U to E2U	Retrofit two lamp fixture with 2 T8LED U6" lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
G2 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	48		
G2 to G2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	8		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	4		
K4 to K4	Relamp existing four lamp incandescent fixture with 4 new K type LED lamps as detailed in 16500	1		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	12		
OS to N/C	No change to existing occupancy controls	18		
P1 to K	Relamp existing incandescent lamp is pot light with 1 new K type LED lamp as detailed in 16500	1		
P1 to R-17	Relamp existing compact fluorescent downlight with in 1 new type 17W PAR LED lamp as detailed in 16500	1		
Q2 to Q2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
R to R-17	Relamp existing compact fluorescent downlight with in 1 new type 17W PAR LED lamp as detailed in 16500	15		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
S1(2') to S1(2')	Retrofit one lamp 2' fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	32		
W2 to W2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	26		
WP to WP1	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	4		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	12		
WP to WP5	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	3		
WW2-T to WW2-T	Retrofit two lamp 8' fixture with 2 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	62		
X-LED to N/C	No change to existing LED Exit sign fixtures	29		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	9		
OS-3	Install 360-degree PIR occupancy sensor	2		
			Sub Total	

Site Retrofit Summary

626 - St Anne (Blenheim) Cont'd

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	19		

Site Retrofit Summary

636 - St Joseph (Tilbury)

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	224		
A3 to A2-KIT	Retrofit existing 3 lamp fixture to 2 T8LED lamps and a new electronic 120V Low Ballast Factor ballast and a socket alingment bracket KIT as to space the lamps equally within the fixture.	28		
A4 to A2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alingment bracket KIT as to space the lamps equally within the fixture.	1		
C1 to C1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	53		
C1 to C1+BG	Retrofit existing tandem wired 1x4' fixtures (with master fixture housing ballast) with 1 T8LED lamp and 1 new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satelite fixture to be upgraded appropriate sized condutors plus an added ground wire complete with protective grommets or chase nipples as required by code.	12		
C2 to C2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	10		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	5		
G4 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	28		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	12		
K-LED to N/C	No change to existing LED fixture	1		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	11		
OS to N/C	No change to existing occupancy controls	12		
P-LED to N/C	No change to existing LED fixture	6		
R to R-17	Relamp existing compact fluorescent downlight with in 1 new type 17W PAR LED lamp as detailed in 16500	3		
RC2 to FM-13	Replace existing surface mount compact fluorescent fixture with new LED FM-13 type fixture as detailed in 16500	13		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	8		
S1(2) to S1(2)	Retrofit one lamp 2' fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
S1(3) to S1(3')	Retrofit one lamp 3' fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	3		
S2-T to S2-T	Retrofit two lamp 8' fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	6		
SPC to N/C	No change to specialize lumanaires	2		
W2 to W2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	2		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	8		
WP-LED to N/C	No change to existing LED fixture	1		
X-LED to N/C	No change to existing LED Exit sign fixtures	17		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	7		
OS-3	Install 360-degree PIR occupancy sensor	4		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	19		

Site Retrofit Summary

640 - St Michael (Ridgetown)

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	125		
A3 to A2-KIT	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	6		
A4 to A2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alingment bracket KIT as to space the lamps equally within the fixture.	25		
C1 to C1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	17		
C1 to C1+BG	Retrofit existing tandem wired 1x4' fixtures (with master fixture housing ballast) with 1 T8LED lamp and 1 new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded appropriate sized condutors plus an added ground wire complete with protective grommets or chase nipples as required by code.	32		
C2 to C2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	26		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	2		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	2		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	10		
OS to N/C	No change to existing occupancy controls	12		
Q1 to Q1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
R to R-17	Relamp existing compact fluorescent downlight with in 1 new type 17W PAR LED lamp as detailed in 16500	14		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	6		
S1(2') to S1(2')	Retrofit one lamp 2' fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	8		
S2-T to DEL	Delete existing strip/gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	30		
S2-T to S2-T	Retrofit two lamp 8' fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	7		
WP-LED to N/C	No change to existing LED fixture	1		
X to NX-LED	Replace existing incandescent or compact fluorescent Exit Sign with new Exit sign fixture as detailed in 16500	4		
X-LED to N/C	No change to existing LED Exit sign fixtures	4		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	4		
OS-3	Install 360-degree PIR occupancy sensor	4		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switches	Replace Toggle Switch with Keyed Switch	8		

Site Retrofit Summary

642 - Good Shepherd

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
A2 to A2-BBX	Retrofit existing tandem wired 2x4 fixtures (with master fixture housing the ballast) with 2 T8LED lamps and new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded to an acceptable sized amoured BX grounded conductor	32		
A3 to A2-KIT	Retrofit existing 3 lamp fixture to 2 T8LED lamps and a new electronic 120V Low Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	39		
B3 to B2-KIT	Retrofit existing 3 lamp fixture to 2 T8LED lamps and a new electronic 120V Low Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	4		
C1 to C1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	45		
C1 to C1+BG	Retrofit existing tandem wired 1x4' fixtures (with master fixture housing ballast) with 1 T8LED lamp and 1 new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded appropriate sized conductors plus an added ground wire complete with protective grommets or chase nipples as required by code.	92		
C2 to C2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	49		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	4		
DI2(4') to DI2(4')	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	9		
G4 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	36		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	12		
KW2 to KW2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	12		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	12		
OS to N/C	No change to existing occupancy controls	2		
P1 to K	Relamp existing incandescent lamp is pot light with 1 new K type LED lamp as detailed in 16500	14		
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	12		
Q1 to Q1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	3		
R to R-17	Relamp existing compact fluorescent downlight with in 1 new type 17W PAR LED lamp as detailed in 16500	12		
R to R-7	Relamp existing compact fluorescent downlight with in 1 new type 7W BR LED lamp as detailed in 16500	5		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	3		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	13		
W2 to W2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	19		
W-HID to W-LED	Replace wall mounted up light HID fixtures in lobby at Good Shepherd School with new LED wall light, aimed upward as detailed in 16500	4		
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	2		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in drawings and in 16500	8		
WP to WP5	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in drawings and in 16500	2		
X-LED to N/C	No change to existing LED Exit sign fixtures	17		
			Sub Total	

Site Retrofit Summary

642 - Good Shepherd Cont'd

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	2		
OS-3	Install 360-degree PIR occupancy sensor	4		
OS-5	Install wall-switch PIR occupancy sensor	3		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switches	Replace Toggle Switch with Keyed Switch	10		

Site Retrofit Summary

725 - Ursuline College

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	465		
A2 to A2-BBX	Retrofit existing tandem wired 2x4 fixtures (with master fixture housing the ballast) with 2 T8LED lamps and new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded to an acceptable sized amoured BX grounded conductor	898		
A3 to A2-KIT	Retrofit existing 3 lamp fixture to 2 T8LED lamps and a new electronic 120V Low Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	1		
AL4 to AL4	16500	7		
B2 to B2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	74		
C1 to C1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	157		
C1 to C1+BG	Retrofit existing tandem wired 1x4' fixtures (with master fixture housing ballast) with 1 T8LED lamp and 1 new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded appropriate sized conductors plus an added ground wire complete with protective grommets or chase nipples as required by code.	81		
C2 to C2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	40		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	8		
D2 to D2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	56		
FL2 to FL2	Replace exterior Area Lights types FL1, FL2 and FL3 with LED types FL1, FL2 and FL3 as detailed in 16500	1		
FL3 to FL3	Replace exterior Area Lights types FL1, FL2 and FL3 with LED types FL1, FL2 and FL3 as detailed in 16500	5		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	71		
K2 to K2	Relamp existing two lamp incandescent fixture with 2 new K type LED lamps as detailed in 16500	1		
KC-8 to N/C	No change to existing candelabra based decorative lamps	3		
MR-10 to MR-10	Relamp existing one lamp MR16 type track light with new 10W, 12V MR16 lamp as detailed in 16500	9		
MR-10 to N/C	No change to existing fixture	4		
NA to GHB3	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	24		
OOS to N/C	No change to existing occupancy controls	58		
P1 to K	Relamp existing incandescent lamp is pot light with 1 new K type LED lamp as detailed in 16500	21		
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	16		
Q1 to Q1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
Q2 to Q2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	26		
RC2 to FM-13	16500	11		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	89		
S2-T to DEL	conduits	114		
S2-T to S2-T	Retrofit two lamp 8' fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	20		
SPC to N/C	No change to specialize luminaires	151		
V2 to V2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	19		
W2 to W2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	21		
W4 to W4	Retrofit four lamp fixture with 4 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	5		

725 - Ursuline College Cont'd

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	13		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	28		
WP to WP5	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	1		
WW1 to WW1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	13		
WW2-T to WW2-T	Retrofit two lamp 8' fixture with 2 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	133		
X to NX-LED	16500	16		
X-LED to N/C	No change to existing LED Exit sign fixtures	69		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	29		
OS-3	Install 360-degree PIR occupancy sensor	18		
OS-5	Install wall-switch PIR occupancy sensor	14		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	59		

Site Retrofit Summary

618 - Monsignor Uyen

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
A2 to A2-BBX	Retrofit existing tandem wired 2x4 fixtures (with master fixture housing the ballast) with 2 T8LED lamps and new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded to an acceptable sized amoured BX grounded conductor	238		
C1 to C1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	38		
C1 to C1+BG	Retrofit existing tandem wired 1x4' fixtures (with master fixture housing ballast) with 1 T8LED lamp and 1 new electronic low ballast factor ballast in each fixture as detailed in 16500. Secondary wire between master and satellite fixture to be upgraded appropriate sized conductors plus an added ground wire complete with protective grommets or chase nipples as required by code.	100		
C2-LED to N/C	No change to existing LED fixture	3		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	10		
FL1 to FL1	Replace exterior Area Lights types FL1, FL2 and FL3 with LED types FL1, FL2 and FL3 as detailed in 16500	2		
FL-LED to N/C	No change to existing LED fixture	1		
K to FM-13	Replace existing surface mount fixture with new LED FM-13 type fixture as detailed in 16500	1		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	11		
P1 to K	Relamp existing incandescent lamp is pot light with 1 new K type LED lamp as detailed in 16500	2		
Q1(2') to Q1(2')	Retrofit one lamp 2' fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	3		
R to R-17	Relamp existing compact fluorescent downlight with in 1 new type 17W PAR LED lamp as detailed in 16500	11		
RC2 to FM-13	Replace existing surface mount compact fluorescent fixture with new LED FM-13 type fixture as detailed in 16500	7		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	10		
S2-T to DEL	Delete existing strip/gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	30		
S2-T to S2-T	Retrofit two lamp 8' fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	6		
SPC to N/C	No change to specialize luminaires	1		
V2 to V2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	9		
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	1		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	3		
WP to WP5	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	2		
X-LED to N/C	No change to existing LED Exit sign fixtures	21		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor			
OS-3	Install 360-degree PIR occupancy sensor			
OS-5	Install wall-switch PIR occupancy sensor			
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	16		

Site Retrofit Summary

622 - Sacred Heart

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	55		
A3 to A3	Retrofit three lamp fixture with 3 T8LED lamps and new electronic, 347V Low Ballast Factor ballast as detailed in 16500	10		
A4 to A2-KIT	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	40		
B4 to B2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alingment bracket KIT as to space the lamps equally within the fixture.	2		
C2 to C2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	5		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	3		
DI4(8') to DI4(8')	Retrofit four lamp fixture with four 4' T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	10		
FL-LED to N/C	No change to existing LED fixture	2		
G2 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	18		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	11		
Q2 to Q2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
SPC to N/C	No change to specialize lumanaires	6		
W2 to W2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	11		
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	2		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	4		
X-LED to N/C	No change to existing LED Exit sign fixtures	14		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	2		
OS-3	Install 360-degree PIR occupancy sensor	3		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	6		

Site Retrofit Summary

627 - St Anne (Samia)

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2-347 to A2-347	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 347V Low Ballast Factor ballast as detailed in 16500	67		
A3-347 to A2-KIT-347	Retrofit existing 3 lamp fixture to 2 T8LED lamps and a new electronic 347V Low Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	208		
A4-347 to A2-KIT-347	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 347V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	39		
AL4-347 to AL4-347	Replace exterior Area Lights types AL1, AL3 and AL4 with types AL1, AL3 and AL4 as detailed in 16500	9		
C2-347 to C2-347	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	55		
CN1-347 to CN1-347	Replace exterior 347V Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	3		
DI3(3')-347 to DI3(3')-347	Retrofit three lamp fixture with 3' T8LED lamps and new electronic, 347V Low Ballast Factor ballast as detailed in 16500	20		
DI3(4')-347 to DI3(4')-347	Retrofit three lamp fixture with 4' T8LED lamps and new electronic, 347V Low Ballast Factor ballast as detailed in 16500	54		
G2-347 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	62		
G2-347 to G2-347	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 347V Low Ballast Factor ballast as detailed in 16500	10		
NA to GHB1-347	Install new gymnasium 347V LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	11		
P1 to R-17	Relamp existing compact fluorescent downlight with in 1 new type 17W PAR LED lamp as detailed in 16500	3		
S2-347 to S2-347	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 347V Low Ballast Factor ballast as detailed in 16500	17		
W2-347 to W2-347	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 347V Low Ballast Factor ballast as detailed in 16500	11		
WP-347 to FL1-347	Replace exterior Wall Pack fixtures with new 347V LED flood lamp fixture type FL1 as detailed in 16500	1		
WP-250 to DL-LED-347	Replace wall mounted up/down light 347V HID fixtures in corridor CR1-1 at St. Annes School Samia with new LED Down Light wall light as detailed in 16500	14		
WP-347 to WP2-347	Replace exterior 347V Wall Pack fixtures with new LED Wall Pack fixtures type WP2 as detailed in in drawings and in 16500	19		
X-LED to N/C	No change to existing LED Exit sign fixtures	19		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	6		
OS-3	Install 360-degree PIR occupancy sensor	6		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	11		

Site Retrofit Summary

632 - St John Fisher

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	12		
A3 to A2-KIT	Retrofit existing 3 lamp fixture to 2 T8LED lamps and a new electronic 120V Low Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	13		
A4 to A2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	190		
C1-LED to N/C	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	12		
C2 to C2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	4		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	4		
D2 to D2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	32		
G3 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	15		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	1		
K2 to K2	Relamp existing two lamp incandescent fixture with 2 new K type LED lamps as detailed in 16500	1		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	8		
OS to N/C	No change to existing occupancy controls	3		
P1 to K	Relamp existing incandescent lamp is pot light with 1 new K type LED lamp as detailed in 16500	4		
Q2 to Q2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	3		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
W2 to W2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	1		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in drawings and in 16500	7		
X-LED to N/C	No change to existing LED Exit sign fixtures	18		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	4		
OS-3	Install 360-degree PIR occupancy sensor	5		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	11		

Site Retrofit Summary

634 - St Joseph (Corunna)

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	42		
A3 to A3	Retrofit three lamp fixture with 3 T8LED lamps and new electronic, 347V Low Ballast Factor ballast as detailed in 16500	14		
A4 to A2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	291		
AL1 to AL1	Replace exterior Area Lights types AL1, AL3 and AL4 with LED types AL1, AL3 and AL4 as detailed in 16500	4		
AL3 to AL3	Replace exterior Area Lights types AL1, AL3 and AL4 with LED types AL1, AL3 and AL4 as detailed in 16500	4		
B4 to B2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	2		
B4 to LS1	Replace 4 lamp box fixture with New LED Strip fixture LS1 as detailed in 16500.	4		
C2 to C2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	21		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	9		
D2 to D2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	6		
G3 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	30		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	3		
NA to GHB2	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	12		
P1 to K	Relamp existing incandescent lamp is pot light with 1 new K type LED lamp as detailed in 16500	12		
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	38		
P1 to PL4V	Relamp existing 4 pin compact fluorescent downlight with in 1 new PL4H type LED 4 pin vertical lamp as detailed in 16500	9		
Q1 to Q1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	151		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	24		
W2 to W2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	3		
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	4		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in drawings and in 16500	5		
X-LED to N/C	No change to existing LED Exit sign fixtures	27		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	4		
OS-3	Install 360-degree PIR occupancy sensor	8		
OS-5	Install wall-switch PIR occupancy sensor	2		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	16		

Site Retrofit Summary

639 - St Michael (Bright's Grove)

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A3 to A2-KIT	Retrofit existing 3 lamp fixture to 2 T8LED lamps and a new electronic 120V Low Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	42		
A4 to A2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	134		
B4 to B2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	2		
C2 to C2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	6		
D2 to D2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	64		
G3 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	20		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	10		
R to R-17	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	8		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	4		
V2 to V2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	3		
AL3 to AL3	Replace exterior Area Lights types AL1, AL3 and AL4 with LED types AL1, AL3 and AL4 as detailed in 16500	4		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in drawings and in 16500	12		
X-LED to N/C	No change to existing LED Exit sign fixtures	16		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	1		
OS-3	Install 360-degree PIR occupancy sensor	9		
OS-5	Install wall-switch PIR occupancy sensor	3		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switches	Replace Toggle Switch with Keyed Switch	10		

Site Retrofit Summary

643 - St Peter Canisius

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
A2 to A2-BBX	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	63		
A3 to A2-KIT	Retrofit existing 3 lamp fixture to 2 T8LED lamps and a new electronic 120V Low Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	6		
A4 to A2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	14		
AL3 to AL3	Replace exterior Area Lights types AL1, AL3 and AL4 with LED types AL1, AL3 and AL4 as detailed in 16500	2		
B4 to B2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	82		
C2 to C2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	9		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	2		
D2 to D2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	11		
DI2(4') to DI2(4')	Retrofit two lamp fixture with 4' T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	16		
G3 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	10		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	3		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	6		
P-LED to N/C	No change to existing LED fixture	5		
Q2 to Q2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	4		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in drawings and in 16500	8		
WP-LED to N/C	No change to existing LED fixture	1		
X to NX-LED	Replace existing incandescent or compact fluorescent Exit Sign with new Exit sign fixture as detailed in 16500	2		
X-LED to N/C	No change to existing LED Exit sign fixtures	14		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	5		
OS-3	Install 360-degree PIR occupancy sensor	6		
OS-5	Install wall-switch PIR occupancy sensor	1		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	10		

Site Retrofit Summary

645 - St Philip

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
A2 to A2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
A3 to A2-KIT	Retrofit existing 3 lamp fixture to 2 T8LED lamps and a new electronic 120V Low Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	2		
A4 to A2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	262		
B4 to B2-KIT	Retrofit existing 4 lamp fixture to 2 T8LED lamps and a new electronic 120V Normal Ballast Factor ballast and a socket alignment bracket KIT as to space the lamps equally within the fixture.	4		
C2 to C2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	17		
CN1 to CN1	Replace exterior Canopy HID Lights type CN1 LED Canopy Light as detailed in 16500	5		
D2 to D2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
G3 to DEL	Delete existing gym fixtures, remove all redundant wiring, conduits and occupancy controls and conduits	24		
K to K	Relamp existing one lamp keyless receptacle or incandescent fixture with 1 new K type LED lamp as detailed in 16500	18		
NA to GHB1	Install new gymnasium LED fixture type GHB1 as detailed in specifications complete with all new wiring and integrated occupancy controls as detailed in 16500.	10		
P1 to K	Relamp existing incandescent lamp is pot light with 1 new K type LED lamp as detailed in 16500	9		
P1 to PL4V	Relamp existing 4 pin compact fluorescent downlight with in 1 new PL4H type LED 4 pin vertical lamp as detailed in 16500	2		
S1 to S1	Retrofit one lamp fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	5		
S1(2') to S1(2')	Retrofit one lamp 2' fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	1		
S1(3') to S1(3')	Retrofit one lamp 3' fixture with 1 T8LED lamp and a new electronic, 120V Low Ballast Factor ballast as detailed in 16500	2		
S2 to S2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	3		
W2 to W2	Retrofit two lamp fixture with 2 T8LED lamps and new electronic, 120V Low Ballast Factor ballast as detailed in 16500	17		
WP to FL1	Replace exterior Wall Pack fixtures with new LED flood lamp fixture type FL1 as detailed in 16500	4		
WP to WP2	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	4		
WP to WP3	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	6		
WP to WP5	Replace exterior Wall Pack fixtures with new LED Wall Pack fixtures type WP1, WP2, WP3 and WP5 as detailed in in drawings and in 16500	1		
X to NX-LED	Replace existing incandescent or compact fluorescent Exit Sign with new Exit sign fixture as detailed in 16500	1		
X-LED to N/C	No change to existing LED Exit sign fixtures	13		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
OS-1	Install hallway PIR occupancy sensor	6		
OS-3	Install 360-degree PIR occupancy sensor	5		
OS-5	Install wall-switch PIR occupancy sensor	1		
			Sub Total	

Symbol	Description	Number of Retrofits	Unit Price	Extended Price
Keyed Switch	Replace Toggle Switch with Keyed Switch	13		