

SPECIFICATION

FOR

Tyne Valley Youth Centre

Fire Alarm System Replacement

Tyne Valley, Prince County, PEI

Project #3980-23015

Prepared by:

Richardson Associates (1993) Limited

Prepared For:

PEI Department of Transportation and Infrastructure

February 2nd, 2023

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1. GENERAL

- a) All bidders submitting tenders for this work shall first examine the site and all conditions thereon and/or therein. All tenders shall take into consideration all such conditions as may affect the work under this contract, no claims for extras resulting from conditions existing at the time of tender will be accepted by the Owner.

2. SITE VISIT

- a) **There will be a recommended site visit held, Thursday, February 9th, 2023, at 10:00am. Contractors are asked to meet outside the main entrance of the building.**

END

TIE Public Works and Planning is moving forward with our capital building repair and construction program and will be issuing tenders as follows:

We have developed modifications to the tender process to minimize everyone's potential exposure to COVID-19.

Tenders will continue to be advertised and posted to the PEI Government tender site:

<https://www.princeedwardisland.ca/en/tenders>

Sealed tenders will be received at the Security Desk at the main entrance to Jones Building, 11 Kent Street, Charlottetown, PEI, CIA 7N8 until **2 PM, Local Time, on Thursday, February 23rd, 2023**. Tenders are to be clearly marked to indicate the project being tendered on.

Tyne Valley Youth Centre – Fire Alarm System Replacement

Tyne Valley, Prince County, PE

Scope of Work:

1. Work to include the demolition of the existing fire alarm system and replacement with a new control panel and devices as well as any associated wiring.

Hard copies (paper copies) of tender documents will **not** be made available to bidders at this time. All tender documentation will only be available electronically. Electronic documents will be posted electronically to the Government tender page:

<https://www.princeedwardisland.ca/en/tenders>

Electronic documents will be issued to Construction Association of PEI (CAPEI) as well as to NB and NS Construction Associations. Addenda will only be posted to the Government tender site and issued to the Construction Associations. **It is the Contractor's responsibility to ensure that they have incorporated all addenda into their bid submission.**

- Tender envelopes must be clearly marked with the project Name.
- Tender documents will need to be received prior to 2PM on the date specified in the tender.
- No submissions will be accepted after that time.
- The tender opening will not be opened to the public.
- Tender envelopes will be opened immediately after the tender closing and there will be a representative of CAPEI present to witness the opening.

Refer to Instructions to Bidders for Bid Security and Contract Security requirements.

Lowest or any Tender will not necessarily be accepted.

Any additional information can be obtained by contacting **Daniel Williams at 902-368-5115 (O), 902-394-0788 (C) or fax 902-569-0590.**

END

1. GENERAL

COVID-19

- a) The parties acknowledge that the obligations of each party from time to time to meet certain terms and conditions of this Contract may be impeded by the COVID-19 pandemic and related issues. The parties agree to act in good faith by making all reasonable accommodations as the circumstances of the pandemic may require and each party will exercise reasonable efforts to comply with this Contract notwithstanding the effect of the pandemic. No party will require or encourage any person acting on its behalf to violate the terms of any public health directive or to perform any act which would place such person at a material risk of contracting the COVID-19 virus.
- b) This contractor acknowledges that any costs associated with Covid-19 construction protocol related to all required Health and Safety measures during the duration of this construction contract, as referenced in the Tender Documents, shall be included in the base bid for this Contract.
- c) COVID-19. Until further notice, and as directed by the Provincial Chief Public Health Office (CPHO), all works shall be conducted with the intent and spirit of the health directives given. As such, bidders shall include provisions within their bids to achieve social and physical distancing between all workers during travel times to and from the site, working, rest breaks, lunch breaks, etc. For more information related to CPHO and COVID – 19 refer to the following links provided by the Government of PEI, Federal Government of Canada and the Construction Association of PEI:
1. Government of PEI: www.princeedwardisland.ca/covid19
 2. Government of Canada: canada.ca/coronavirus
 3. CAPEI: www.capei.ca/
- d) In response to the current COVID -19 pandemic we will require all Contractors to:
- a. Develop a written work site specific Pandemic Preparedness plan based on the criteria in the CAPEI industry guide PANDEMIC PLANNING FOR THE CONSTRUCTION INDUSTRY – A GUIDE found at the following link:
https://capei.ca/member_access/LiveEditor/images/pdf/INDUSTRY_GUIDE_COVID_19.pdf

- b. Contractor will be responsible to complete and return the “COVID-19 Contractor Affidavit”, as part of the contract documents; it is not required to be submitted with the tender submission.
- e) The successful contractor shall have designated an on-site staff person with the authority to enforce the requirements of the ‘Pandemic Preparedness plan’ throughout the project(s) or until such directive is deferred by the CPHO. TIE will require that the Contractor develop a written site specific Pandemic Preparedness plan and have it available prior to the award of a tender.
- f) The Tender Documents including General Conditions of Contract, the Instructions to bidders, Specifications, Tender Form and Drawings are all complementary and shall be read together.
- g) Each Tenderer shall examine the Tender Documents as soon as possible after receipt thereof and should he or she discover any errors or omissions therein, he or she shall notify the Department as soon as possible and at least seven (7) days prior to the date set for receiving tenders so that further instructions and/or drawings may be issued to all Tenderers before the date set for receiving tenders.

2. ADDENDA

- a) Tenders may, during the tendering period, be advised by addenda of required additions to, deletions from, or alterations to the requirements of the tender documents. All such changes shall become an integral part of the Tender Documents and shall be allowed for in arriving at the fixed sum tender figure. Addenda will only be posted to the Government tender site and issued to the Construction Associations. **It is the Contractor’s responsibility to ensure that they have incorporated all addenda into their bid submission.**

3. BID AND CONTRACT SECURITY

BID SECURITY

- a) Each Tender submitted shall be accompanied by the following security:
 - .1 General Contract Tender less than or equal to Three Million (\$3,000,000.00) Dollars, including mechanical and electrical subcontract values:

A Bid Bond equal to at least ten percent (10%) of the Tender amount and a Letter of Surety from a bonding company guaranteeing to supply a Performance Bond in the amount of fifty percent (50%) of the total contract amount.

OR

A Security Deposit equal to at least ten percent (10%) of the Tender amount.

.2 General Contract Tender more than Three Million (\$3,000,000.00) Dollars, including mechanical and electrical subcontract values:

A Bid Bond equal to at least ten percent (10%) of the Tender amount and a Letter of Surety from a bonding company guaranteeing to supply a Performance Bond in the amount of fifty percent (50%) of the total contract amount and a Labour and Material Payment Bond in the amount of fifty percent (50%) of the total contract amount.

- b) .1 All Bonds and Letter of Surety, provided by General Contractors, made payable to the Owner.
- .2 Bonds and Letters of Surety supplied by the General Contractor to the Owner shall be from a recognized surety company, satisfactory to, and approved by the Owner.
- c) .1 Security Deposits, provided by General Contractors, must be in the form of a Certified Cheque or Bank Draft drawn on a Bank to which the Bank Act applies or a Credit Union, payable to “**Minister of Finance, Province of Prince Edward Island**”.

OR

- .2 Bond of the Government of Canada, unconditionally guaranteed, as to the principal and interest by the Government of Canada if such Bonds are:
 - (a) Payable to the bearer, or
 - (b) Accompanied by a duly executed instrument of transfer to the Owner, in the form prescribed by the Domestic Bonds of Canada Regulations, or
 - (c) Negotiated as to principal or as to principal and interest in the name of the Owner, pursuant to the Domestic Bonds of Canada Regulations.

- d) Security deposits submitted through the Bid Depository shall be accompanied by the Bid Security. The subcontractors shall advise General Contractors what form of bid security is being used and what form of contract security will be used.

CONTRACT SECURITY

- a) Upon award of a contract the Contractor is to provide the following contract security:

- .1 General Contract Tender less than or equal to Three Million (\$3,000,000.00) Dollars, including mechanical and electrical subcontract values:

A Performance Bond in the amount of fifty percent (50%) of the contract amount.

OR

A Security Deposit in an amount equal to at least ten percent (10%) of the contract amount.

- .2 General Contract Tender more than Three Million (\$3,000,000.00) Dollars, including mechanical and electrical subcontract values:

A Performance Bond and a Labour and Materials Payment Bond, each in the amount of fifty percent (50%) of the contract amount.

- b) .1 All bonds, provided by General Contractors, are to be made payable to the Owner.
.2 Bonds shall be from a recognized surety company, satisfactory, and approved by the Owner.
.3 If a Performance Bond is utilized, it shall be maintained in force for a period of not less than twelve (12) months after the issuance of the total Performance Certificate.
- c) .1 Security Deposits, provided by General Contractors, must be in the form of a Certified Cheque or Bank Draft drawn on a Bank to which the Bank Act applies or a Credit Union, payable to **“Minister of Finance, Province of Prince Edward Island”**.

OR

- .2 Bonds of the Government of Canada, unconditionally guaranteed, as to the principal and interest by the Government of Canada if such Bonds are:

(a) Payable to the bearer, or

- (b) Accompanied by a duly executed instrument of transfer to the Owner, in the form prescribed by the Domestic Bonds of Canada Regulations, or
- (c) Negotiated as to principal or as to principal and interest in the name of the Owner pursuant to the Domestic Bonds of Canada Regulations.
- (d) Contract security shall be provided at the expense of the Contractor, bonds shall be provided by an established surety company satisfactory to, and approved by the Owner. Certified Cheques or Bank Drafts shall be drawn on an account with a recognized financial institution.
- (e) Contract security submitted by subcontractors, to General Contractors, shall be in a form satisfactory to the General Contractor.

4. CONSTRUCTION SCHEDULE

- a) Work is to begin immediately following contract award unless indicated otherwise.
- b) The completion date for this project shall **May 31st, 2023**.
- c) Contractor to provide a construction schedule, safety policy, proof of insurance, and signed contract documents prior to starting work.

5. MATERIALS AND EQUALS

- a) Materials, plant and equipment are described and named specifically in the Specifications ONLY to describe types and qualities of materials, plant and equipment required.
- b) Suppliers or manufacturers wishing to have their material, plant or equipment approved as an equal shall submit complete technical information to the Consultant seven (7) days prior to the receipt of tenders. The Consultant shall review the material submitted and notify all prospective bidders of any materials, plant or equipment that have been accepted as equal.
- c) All bidders submitting a tender shall include in their tender amount only materials, plant or equipment as specified or that have been approved as an equal.

6. ALTERNATE PRODUCTS

- a) Approval may be given by the Consultant after the award of the Contract, on application in writing from the Contractor, for the substitution of a similar material, item or plant or equipment bearing another brand name or of other manufacture, subject to the following:
 - .1 Any top quality material or item of plant and equipment proposed as a substitute by the Contractor and considered by the Engineer to be of equal quality, value and price to that specified and suitable for the purpose intended, may be accepted as a substitute.
 - .2 Materials and items of plant and equipment which the Contractor proposes as substitutes and which are considered by the Engineer to be suitable for the purpose intended, but which are in their opinion of lesser value, quality and price than those specified will only be accepted as substitutes if reasonable credits are allowed for their use.
 - .3 Requests for alternates must be made by the Contractor well in advance of the time the item is to be ordered. The request shall be accompanied by sufficient information in the form of manufacturers literature, samples, and other data to permit proper investigation of the substitutes proposed.
- b) Bidders are requested to include information on alternates as an appendix to this tender. The information should indicate the proposed credit or extra, to the tender amount, and include sufficient data to allow the Consultant to evaluate the item proposed as an alternate.

7. SUPERVISION AND COORDINATION

- a) The Contractor shall be responsible for supervising and coordinating all aspects of the work.
- b) The Contractor shall include in their quotation all cost relative to supervising sub-Contractors, including those submitting tenders directly to the Owner, which form a portion of the complete project and shall be assigned to the successful General Contractor.

8. RESPONSIBILITY

- h) The Contractor shall be responsible to be fully familiar with the complete documents and shall include in their tender those items which are named, implied, or traditionally a part of the general contract work.

9. DEFINITIONS

In this specification the following terms shall have the definitions noted below:

OWNER: **Government of Prince Edward Island as represented by the Minister of Transportation and Infrastructure**

CONSULTANT: **Richardson Associates (1993) Limited**

10. SITE INSPECTOR

- a) There will be an Inspector representing the Department of Transportation and Infrastructure, Province of PEI. No work is to be covered without having received approval from the Inspector. The Inspector will have the authority to cause any part of the work to cease, should, in their opinion, there be a cause to do so.

This work shall be examined by the Department and approval granted to resume when a satisfactory solution has been found.

- b) The inspector does not have authority to authorize changes to work. He or she shall confer with the Consultant or Engineer who, if necessary will authorize any change.
- c) The fact that the inspector does not reject any work shall not remove the responsibility for completing all work as specified; from the Contractor.

11. OWNERS RIGHT TO TERMINATE CONTRACT

- a) The Owner reserves the right to remove the Contractor from the site if the work is not completed as specified in Paragraph 4. If the Contractor is removed, the Owner shall have the work completed and deduct the cost of this work from the amount owing the Contractor and their bid deposit.

12. SUB-CONTRACTORS

- a) Bidders shall include with their tender, in the space in **Section E – Contract Tender**, Appendix A, the name of each Subcontractor and/or Supplier, as designated, whose price has been included in their tender and who will perform the trade work. Substitution for another Subcontractor in the event that the listed Subcontractor is unable to do the work shall be subject to the approval of the Owner and contingent on evidence satisfactory to the Owner that the original

Subcontractor's price was legitimately carried in the Tender, and that the original Subcontractor is now incapable of carrying out the work required under the subcontract, or that he refuses to carry out the work and provides documented reasons for such incapability or refusal.

- b) The term "Own Forces," as a subcontractor, may be used by a Bidder where the Bidder is equipped to and in fact normally carries out the trade work using employees in the direct employment of the Contractor or a wholly owned subsidiary company. Other designations such as "Own Estimate" are unacceptable and may be cause for rejection of the tender by the Owner. **Carrying Subcontractor options next to identified work will not be acceptable.**
- c) When a Bidder indicates "Own Forces" as a subcontractor, the Bidder may be required to demonstrate to the Owner that he has the resources, experience and employees necessary, available and qualified to perform the trade work in a manner and quality satisfactory to fulfill the obligations of the Contract Documents and that the trade work is a normal and continual part of his business.
- d) A Bidder, whose tender is accepted, that included "Own Forces" for a subcontract will if requested, provide the Owner with payroll records verifying that the employees carrying out the "Own Forces" subcontract work are direct employees of the Contractor or of a wholly owned subsidiary company of the Contractor.
- e) All Sub-Contractors are advised to become familiar with all Specifications and Drawings. The General Contractor shall ensure that all sub-trades understand their entire responsibilities in order to complete the project. Sub-trade work may appear in various sections of Specifications and on various drawings.

13. GUARANTEES

- a) The Contractor shall be required to guarantee the work of this Contract for a period of twelve (12) months after the Owner's acceptance of the work, against improper or defective materials and workmanship, and shall repair and make good at their own expense any damage to the building and contents through any of the above causes during this period. Any contract omissions and/or deficiencies reported to the Contractor within twelve (12) months after acceptance of the work shall be made good by the Contractor at their own expense.
- b) Notwithstanding the above, the bidder's attention is directed to the fact that certain individual items on this project may be required to be guaranteed by the manufacturer for periods in excess of twelve (12) months. These specific requirements are to be found in various sections of the Specifications for this project.

14. ACCEPTANCE / REJECTION OF TENDERS

- a) Bids shall remain open to acceptance and irrevocable for a period of **30 days** after the bid closing date.
- b) The Owner reserves the right to reject any and all tenders.
- c) Each bidder shall be prepared, if so requested by the Owner, prior to the award of the Contract to present evidence of their experience, qualifications and financial ability to carry out the terms of the Contract.

15. CONSULTANT'S INTERPRETATION

- a) The Consultant's interpretation of plans and specifications shall be final. Should the Contractor have any doubt as to interpretation, he or she shall refer to the Consultant for clarification before submitting their tender. No allowances or extras will be made for misinterpretation of plans and specifications by the Contractor.

16. PERMITS, REGULATIONS AND TAXES

- a) All permits and fees required for the proper completion and inspection of the work herein specified will be paid for by the Contractor. Except the building permit which will be paid for by the Owner. All applicable taxes shall be included in the tender price, excluding the Harmonized Sales Tax. The Contractor, as per current Provincial Regulations, shall include on all invoices the Harmonized Sales Tax as an additional line item. This would be in addition to the tender amount which does not include HST.
- b) The work shall be completed to the satisfaction of the Consultant and local inspecting authorities.
- c) In the absence of any provisions contained herein, the applicable Provincial Codes or the National Building Code shall govern in that order.
- d) The latest edition of the Canadian Electrical Code shall govern all Electrical work, whether prewired and/or assembled remote from the site or not.
- e) All equipment supplied or installed shall be CSA approved for the intended use.

- f) All materials, components and equipment as well as construction methods shall comply with the latest edition of the National Building Code and all other applicable codes or regulations.
- g) The latest edition of the PEI Occupational Health and Safety Act and Regulations shall govern safe construction practices.

17. EXISTING CONDITIONS

- a) Bidders will be held to have examined the Tender Documents, to have visited the site and to have informed themselves as to existing conditions and limitations.
- b) If in the performance of the contract, subsurface or latent conditions at the site are found to be materially different from those indicated by the drawings and specifications, or unknown conditions not usually inherent in work of the character shown and specified, the attention of the Consultant shall be called immediately in writing to such conditions before they are disturbed. Upon such notice, or upon their own observation of such conditions, the Consultant shall promptly make such changes in the drawings and specifications as he or she finds necessary to conform to the different conditions and any increase or decrease in the cost shall be adjusted as provided under “Changes in the Work”.

18. RECEIPT AND OPENING OF TENDERS

- a) Tenders will be opened at the time and place stated in the tender call. The officer whose duty it is to open them will decide when the specified time has arrived. No responsibility will attach to any officer for the premature opening of a bid not properly addressed and identified.

19. AWARD OF CONTRACT

- a) Bids shall remain open to acceptance and irrevocable for a period of 30 days after the bid closing date.
- b) In making the decision to award the Contract pursuant to this invitation to tender, the Owner may take into account:
 - a. The history of work performance of each bidder on similar or different types of work in prior Contracts with the Owner.
 - b. The bidder’s qualifications to perform the Work, the quality of the Bidder’s past work, the bidder’s financial capability to do the Work and the competence of the Bidder.

- c) If the tender is accepted the Contract will be awarded as promptly after the opening of bids as is possible. The selection of the tender that is accepted shall be at the sole discretion of the Owner.
- d) Each bidder shall be prepared, if so requested by the Owner, prior to the award of the Contract to present evidence of their experience, qualifications and financial ability to carry out the terms of the Contract.

20. TENDER SUBMISSION

- a) Tenders must be submitted on the form included with this specification. This form must be completely filled out in ink, or be typewritten with the signature in longhand. The completed forms shall be without interlineations, alteration or erasures.
- b) The tender, together with the Tender Security described in this section must be addressed and delivered in a sealed envelope marked “Tender” and bearing the name of the Contractor submitting the tender, together with identification indicating the name of the project.
- c) Tenders will be received at the place and time indicated in the tender call. Late tenders will not be accepted and will be returned unopened to the tenderer.
- d) Amendments to the submitted offer will be permitted if received in writing prior to tender closing and if endorsed by the same party or parties who signed and sealed the offer. Amendments submitted by fax will be accepted, if received prior to tender closing. (Fax (902) 569-0590).
- e) The receipt of addenda for the project shall be acknowledged by filling in the addendum number and date of issue for each addendum on the appropriate line in the tender form. These lines shall be initialed by the person signing the tender after they have been filled in.
- f) Any appendices to the tender form requesting information on suppliers, sub-contractors or alternate prices shall be filled in for the tender to be considered complete.

21. TAXES

- a) All tenders submitted shall EXCLUDE the Harmonized Sales Tax.

22. CONFIDENTIALITY AND FREEDOM OF INFORMATION (Effective November 1, 2002)

- a) By submitting your bid, you agree to disclosure of the information supplied, subject to the provisions of the Freedom of Information and Protection of Privacy (FOIPP) Act.

- b) Anything submitted in your bid that you consider to be “confidential information” because of its proprietary nature should be marked as “CONFIDENTIAL”, and will be subject to appropriate consideration under the Freedom of Information and Protection of Privacy Act.
- c) During the delivery and installation of goods and/or services, you may have access to confidential or personal information. Should this occur, you must ensure that such information is not released to any third party or unauthorized individual.
- d) Any information provided on this contract may be subject to release under the Freedom of Information and Protection of Privacy Act. You will be consulted prior to the release of any information.

END

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1. DEFINITIONS

- a) The Contract Documents shall include instructions to Tenderers, General Conditions, Supplementary General Conditions, Specifications, Drawings, Tender Form and the signed agreement.
- b) The Owner, the Contractor and the Consultant are those names as such in the Agreement and Specifications.
- c) The term 'Subcontractor' includes only a person, firm or corporation having a contract for the execution of a part or parts of the work included in the Contract, and a person, firm or corporation furnishing material called for in the Contract and worked to a special design according to the Drawings or Specifications, but does not include one who merely furnishes material not so worked.
- d) The term 'work' includes all labour, materials and services required, as shown or described in the contract, documents, supplied and installed or erected complete at the place of building.
- e) The term 'Other Contractor' means any person, firm or corporation employed by or having a contract directly or indirectly with the Owner otherwise than through the Contractor.
- f) The place of building is the designated site or location of the completed work.
- g) The law of the place of building shall govern the work.
- h) For the purpose of contract signing authority, the Director is the Director of the Public Works and Planning Division of the PEI Department of Transportation and Infrastructure.

2. DOCUMENTS

- a) The Contract Documents shall be signed in duplicate by the Owner and Contractor. The Contract Documents are complementary and what is called for by any one shall be as binding as if call for by all. The intention of the documents is to include all labour and materials reasonably necessary for the proper execution of the work. It is not intended however, that materials or work not covered by or properly inferable from any heading, section or trade in the specifications shall be supplied unless shown on the drawings. Descriptions of materials or work in words which so applied have well known technical or trade meanings shall be held to refer to such recognized standards. Should the specification conflict with the drawings, the specifications shall govern. In the case of discrepancies between drawings, those of larger scale, or if the scales are the same, those of later date shall govern.

All drawings and specifications shall be interpreted in conformity with the agreement and these General Conditions which shall govern.

3. DETAIL DRAWINGS & INSTRUCTIONS

- a) The Consultant shall furnish as necessary for the execution of the work, additional instructions, by means of drawings or otherwise. All such additional instructions shall be consistent with the Contract Documents. The work shall be executed in conformity therewith and the Contractor shall do no work without such additional instructions. In giving such additional instructions, the Consultant shall have authority to make minor changes in the work, not inconsistent with the Contract.

If either the Contractor or the Consultant so request, they shall jointly prepare a schedule, subject to change from time to time in accordance with the progress of the work fixing the dates at which the various detail drawings will be required and the Consultant shall furnish them in accordance with this schedule, and on like request, a schedule shall be prepared, fixing the dates for the submission of shop drawings, for the beginning of manufacture and installation of materials and for the completion of the various parts of the work.

4. COPIES FURNISHED

- a) The Consultant shall furnish to the Contractor, without charge, as many copies of all Drawings and Specifications as are reasonably necessary for the proper execution of the work.

5. SHOP DRAWINGS

- a) The Contractor shall furnish to the Consultant, at proper times, all shop and setting drawings or diagrams which the Consultant may deem necessary in order to clarify the details of the work. The Contractor shall make any changes in such drawings or diagrams which the Consultant may require consistent with the Contract, and shall submit sufficient copies of the revised prints to the Consultant for approval – all but one of which shall be returned to the Contractor if approved by the Consultant. When submitting such shop and setting drawings, the Contractor shall notify the Consultant in writing of changes made therein from the Consultant's Drawings or Specification. The Consultant's approval of such drawings or of the revised drawings shall not relieve the Contractor from responsibility for errors made by the Contractor therein or for changes made from the Consultant's Drawings or Specifications not covered by the Contractor's written notification to the Consultant.

6. DRAWINGS AND SPECIFICATIONS ON THE WORK

- a) The Contractor shall keep one copy of all Drawings, Specifications and approved shop drawing on the work, in good order, available to the Consultant and to his or her representatives.

7. OWNERSHIP OF DRAWINGS AND MODELS

- a) All drawings, specifications and copies thereof and all models furnished by the Consultant are property of the Owner. They are not to be used on other work and, with the exception of the signed contract set of the Drawings and Specifications, are to be returned to him or her on request on the completion of the work. Any models furnished by the Contractor or the Owner are the property of the Owner.

8. SAMPLES

- a) The Contractor shall furnish for the Consultant's approval such samples as he or she may reasonably require. The work shall be in accordance with approved samples.

9. MATERIAL TESTS AND MIX DESIGNS

- a) The Contractor shall furnish for the Consultant's approval such material tests and mix designs as he or she may reasonable require. The cost of providing the foregoing beyond the extent called for in the specification shall be charged to the Owner. The work shall be in accordance with approved material tests and mix designs.

10. CONSULTANT AND CONTRACTOR

- a) The Consultant is, in the first instance, the interpreter of the Contract and the judge of its performance; he or she shall use his or her powers under the Contract to enforce its faithful performance by both parties hereto. The Contractor shall, however, have complete control, subject to Article 12, of his or her organization. In case of the termination of the employment of the Consultant, the Owner shall appoint any Consultant whose status under the Contract shall be that of the former Consultant.

11. THE CONSULTANT'S DECISION

- a) The Consultant shall decide on questions arising under the Contract Documents, whether as to the performance of the work or the interpretation of the Specifications and drawings, but should the Contractor hold such decisions to be at variance with the Contract Documents or to involve changes in the work already built, fixed, ordered or in hand in excess of the contract, or to be given in error, he or she shall notify the Consultant before proceeding to carry them out.

In the event of the Consultant and the Contractor failing to agree as to such excess or error and the Consultant deciding to carry out such disputed work, the Contractor shall act according to such decision. Any question of excess of cost due to the aforesaid cause may be decided in the manner hereinafter provided in Article 43.

12. SUPERINTENDENCE

- a) The Contractor shall keep on the work, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Consultant. The superintendent shall not be changed except with the consent of the Consultant, unless the superintendent proves to be unsatisfactory to the Contractor or ceases to be in his or her employ. The superintendent shall represent the Contractor in his or her absence and directions on minor matters given to him or her shall be held to be given to the Contractor. Important directions shall be given in writing to the Contractor. The Contractor shall give efficient supervision to the work using his or her best skill and attention.

13. MATERIALS, APPLIANCES, EMPLOYEES

- a) Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labour, water, tools, equipment, light and power necessary for the execution of the work. Unless otherwise specified all materials shall be new. Both workmanship and materials shall be of the quality specified. The Contractor shall not employ on the work any unfit person or anyone not skilled in the work assigned to him or her.

14. INSPECTION OF WORK

- a) The Owner, or the Consultant on his or her behalf, and their representatives shall at all times have access to the work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and for inspection. If the specifications, the Consultant's instructions, the laws, or the ordinances of any public authority require any work to be specially tested or approved, the Contractor shall give the Consultant timely notice of its readiness for inspection, and if the inspection is by an authority other than the Consultant, of the date and time fixed for such inspection. Inspections by the Consultant shall be promptly made. If any such work should be covered up without approval or consent of the Consultant, it must, if required by the Consultant, be uncovered for examination and made good at the Contractor's expense. Re-examination of questioned work may be ordered by the Consultant. If such work be found in accordance with the Contract, the Owner shall pay the cost of re-examination and replacement. If such work be found not in accordance with the contract, through the fault of the Contractor, the Contractor shall pay such cost.

15. REJECTED WORK

- a) The Contractor shall promptly remove from the premises any defective work, whether the result of poor workmanship, use of defective materials, damage through carelessness or other act of the Contractor, which has been condemned by the Consultant as failing to conform to the Contract Documents, whether incorporated in the work or not. The Contractor shall promptly replace and re-execute his or her own work in accordance with the contract and without expense to the Owner and shall bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement. If the Contractor does not remove such condemned material or work within the time fixed by written notice, the Owner may remove them and may store such materials at the expense of the Contractor. If the Contractor does not pay the expense of such removal within Five (5) days thereafter, the Owner may, upon Ten (10) day's written notice, sell such materials at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the Contractor.

16. DEDUCTIONS FOR UNCORRECTED WORK

- a) If, in the opinion of the Consultant, it is not expedient to correct defective work or work not done in accordance with the Contract Documents, the Owner may deduct from the contract price the difference in value between the work as done and that called for by the contract, the amount of which shall be determined in the final instance by the Consultant.

17. CORRECTION AFTER COMPLETION

- a) Subject to any special provisions in the Contract Documents, the Contractor shall remedy any defects due to faulty materials or workmanship appearing within a period of one year from the date of substantial completion of the work and shall pay for any damage to other work resulting therefrom which appears within such period and neither the final certificate nor payment thereunder shall relieve the Contractor from responsibility hereunder. The Owner shall give notice of observed defects promptly. Questions arising under this Article may be decided as provided in Article 43.

18. EMERGENCIES

- a) The Consultant has authority in an emergency to stop the progress of the work whenever, in his or her opinion, such stoppage may be necessary to ensure the safety of life, or of the structure, or neighbouring property. This includes authority to make such changes and to order, access and award the cost of such work extra to the Contract or otherwise as may in his or her opinion be necessary.

19. PROTECTION OF WORK AND PROPERTY

- a) The Contractor shall maintain continuously adequate protection of all his or her work from damage and shall take reasonable precautions to protect the Owner's property from all injury arising in connection with this Contract. He or she shall make good any damage or injury to his or her work and shall make good any damage or injury to the property of the Owner resulting from the lack of reasonable protective precautions. He or she shall not be responsible, however, for any damage or injury to his or her work and to the property of the Owner which may be directly due to errors in the Contract Documents or caused by the Owner, his or her agents, or employees, or from any work or risk which the Owner has agreed to insure, provided the Contractor has taken reasonable protective precautions. He or she shall adequately protect adjacent property as required by law and the Contract Documents.

20. CONTRACTORS' INSURANCE

a) INDEMNITY/HOLD HARMLESS

- .1 The Contractor shall be liable for all injuries to persons and for damage to property caused by his or her operations, and those of his or her sub-contractors, and his or her and their employees, engaged on all operations in connection with the contract both on and off the site, and he or she shall indemnify and save harmless the Owner from all suits, claims, expenses, costs, demands, losses, and damages to which the Owner may be put by reason of injury, including death, to persons, and damage to property of the Owner and others, resulting from; negligence, carelessness and any other cause whatsoever in the performance of the work.
- .2 The Contractor shall, until the date of issue of the final Certificate of Approval of the work by the Consultant, Indemnify and Save Harmless the Owner, and protect his or her own interests against:
 - (a) Theft, burglary or robbery of, and loss or damage to, all materials and equipment brought to the site for use in the work, whether or not such materials and equipment are incorporated in the work at the time that any such theft, burglary, robbery, loss or damage occurs.
 - (b) Theft or burglary of, and loss or damage to, any of his or her own plant and equipment being used on the Project and/or stored on the site.

b) BUILDERS RISK, ALL RISK PROPERTY INSURANCE

.1 The Contractor shall, without limiting its obligations or liabilities herein and at its own expense, provide and maintain the following insurances with Insurers and in forms and amounts acceptable to Government:

(a) The Contractor shall have Commercial General Liability coverage in an amount not less than Two Million (\$2,000,000.00) dollars inclusive per occurrence against bodily injury and property damage. **The Government of Prince Edward Island is to be added as an additional insured under this policy.** Such insurance shall include, but not be limited to:

- i) Blanket Written Contractual Liability;
- ii) Personal Injury Liability;
- iii) Non-owned Automobile Liability;
- iv) Cross Liability;
- v) Operation of Attached Machinery

Commercial General Liability insurance shall be endorsed to provide the Owner with thirty (30) day advance written notice of cancellation or material change and fifteen (15) days notice in the event of non-payment.

(b) Automotive liability coverage (Standard Automobile Policy) on all vehicles, the subject of this Agreement, owned, leased, operated or licensed in the name of the Contractor, in an amount not less than Two Million (\$2,000,000.00) dollars

(c) If the work involves new construction or reconstruction of a property being repaired or maintained, the Contractor shall provide and maintain All Risk Course of Construction (Builder's Risk) to the full value of the work in the amount of the Contract Price. The policy will permit partial or complete use or occupancy by the Owner during the term of this insurance.

All the foregoing insurance shall be primary and not require the sharing of any loss by any insurer of the Government nor by any other form of recovery available such as the Provincial Self Insurance and Risk management Fund.

.2 Proof of Insurance

A Certificate(s) of Insurance and any renewals thereof, shall be furnished to the Government prior to commencement of work by the Contractor and must be updated as required during the Term.

The policies required by this Agreement shall be in a form and with insurers satisfactory to the Government. Default of deliver or receipt by the government shall not be construed as

acknowledgement or concurrence that there has been compliance with the terms of this Agreement.

.3 Indemnification

The Contractor shall indemnify and hold harmless the Government of Prince Edward Island, its agents, representatives and employees from and against all claims, demands, losses, costs, damages, actions, suits or proceedings of every nature and kind whatsoever arising out of or resulting from the performance of work (herein called the “claims”), provided that any such claim is caused in whole or in part of any act, error or omission, including but not limited to those of negligence of the Contractor, or anyone directly or indirectly employed by the Contractor anyone for whom the Contractor may be liable.

21. PERFORMANCE BOND

- a) The Owner shall have the right to require the Contractor to furnish a bond covering the faithful performance of the Contract – including the corrections after completion provided for in Article 17 – and the payment of all obligations arising under the contract, in such form as the Consultant may prescribe and with such sureties as he or she may approve. If such bond is required by written instructions given previous to the receipt of bids, the premium shall be paid by the Contractor, if subsequent thereto, it shall be paid by the Owner.

22. CASH ALLOWANCES

- a) The Contractor shall include in the contract sum all cash allowances mentioned in the Specifications, which allowances shall be expended in whole or in part as the Consultant shall direct and the amount of the contract sum being adjusted in conformity therewith. The Contract sum includes such sums for expenses and profit on account of such cash allowances as the Contractor requires except those allowances included for contingency purposes.

23. SUBSURFACE CONDITIONS

- a) In the event that during the execution of the work, subsurface conditions at the site are found to differ materially from those indicated in the Contract Documents and soil reports, or otherwise represented by the Owner or Consultant to the Contractor, then the Contractor shall promptly notify the Consultant in writing of such conditions, the Consultant shall promptly investigate such conditions and if he or she finds that they differ materially and will result in an increase or decrease in the cost of, or time required for performance of this Contract, an equitable adjustment shall be made between the parties and the contract modified in writing accordingly. If the parties fail to agree upon the adjustment to be made, the dispute may be determined as provided for in Article 43.

24. CHANGES IN THE WORK

- a) The Owner or the Consultant, without invalidating the contract, may make changes by altering, adding to, or deducting from the work, the contract sum being adjusted accordingly. All such work shall be executed under the conditions of the Contract except that any claim for extension or reduction of time caused thereby shall be adjusted at the time of ordering such change. Except as provided in Article 18, no change shall be made unless in pursuance of a written order from the Consultant and no claim for an addition to or deduction from the contract sum shall be valid unless so ordered and at the same time valued, or agreed to be valued, as provided in Article 25.

25. VALUATION OF CHANGES

- a) Change Orders calling for normal changes or additions to the work will be priced in detail giving actual material trade prices (not list prices) and actual labour costs (including Employment Insurance, Worker's Compensation, holiday pay) and actual equipment rental. To these prices the Contractor will add:
- .1 For work less than \$2,500 involving the General Contractor only, the General Contractor adds 20% to his or her costs.
 - .2 For work over \$2,500 involving the General Contractor only, the General Contractor adds 15% to his or her costs.
 - .3 For work less than \$2,500 involving a Sub-Contractor only, the Sub-Contractor adds 20% to his or her costs, submits this price to the General Contractor who adds 10%.
 - .4 For work over \$2,500 involving a Sub-Contractor only, the Sub-Contractor adds 15% to his or her cost, submits this price to the General Contractor who adds 5%.
 - .5
 - (a) For work less than \$2,500 involving the General Contractor and Sub-Contractor, the Sub-Contractor adds 20% to his or her costs, submits his or her price to the General Contractor who adds 10%; to this amount the General Contractor adds the cost of his or her own work plus 20% of the cost of his or her own work only.
 - (b) The General Contractor does not add a further 10% to the cost of his or her own work.

.6

- (a) For work over \$2,500 involving the General Contractor and a Sub-Contractor, the Sub-Contractor adds 15% to his or her cost, submits this price to the General Contractor who adds 5%; to this amount the General Contractor adds the cost of his or her own work plus 15% of the cost of his or her own work only.
- (b) The General Contractor does not add a further 5% to the cost of his or her own work.

.7 Deletions to Contract: A mark-up shall **not** be charged nor credited on a credit portion of a Change Order.

.8 Supervision related to Change Orders shall be considered as included in the allowable mark-up and shall **not** be included in the labour charges for a Change Order.

26. APPLICATION FOR PAYMENTS

- a) The Contractor shall – before the first application for payment – submit to the Consultant a schedule of values of the various parts of the work aggregating to the total sum of the contract, divided so as to facilitate payments, made out in such form, and supported by such evidence as to its correctness as the Consultant may direct. This schedule, when approved by the Consultant, shall be used as a basis for applications of payment, unless it can be found to be in error.
- b) The Contractor, as per current Provincial regulation, shall include on all invoices the Harmonized Sales Tax as an additional line item. This amount would be in addition to the tender amount which does not include HST. See article 28 of this Section.

27. CERTIFICATES AND PAYMENTS

- a) Partial payments will be made monthly and within thirty (30) days after approval by the Owner and on the basis of a duly certified and approved estimate of work performed during the preceding period. In preparing estimates, the material delivered on the site and preparatory work done shall be taken into consideration.
- b) In making such partial payments, there shall be retained a hold back in the amount of fifteen percent (15%) of the estimated amount on each partial payment estimate, less any holdback release which may have been made to specific sub-contractors under any progressive release of holdback provisions in Provincial Legislation.
- c) All materials and work covered by partial payments made shall thereupon become the sole property of the Owner, but this shall not be construed as relieving the Contractor from the sole

responsibility for the safety and preservation of all materials and work upon which payments have been made and restoration of any damaged work or as a waiver of the right of the Owner to require the fulfillment of all the terms of the contract. Nor shall Consultant's Certification of Partial Payment for any work be construed as his or her final or irrevocable acceptance of that work.

- d) Document of Completion: Upon completion and acceptance of all work whatsoever required and the release of all claims against the Owner as specified, the Consultant shall file a written document with the Owner and with the Contractor as to the entire amount of work performed and compensation earned by the Contractor – including the extra work and compensation therefore.
- e) Final Payment: Within sixty (60) days after the filing of such document of completion and minimum one (1_ day after the lien period, and upon receipt from the General Contractor of declarations signed by each of his sub-contractors that the sub-contractor has been paid up to, and including the past previous partial payment, the Owner will pay the Contractor the amount stated therein less all deductions authorized by the terms of this contract and previous payments and advances whatsoever to or for the account of the Contractor. All previous estimates and payments, including those relating to extra work, shall be subject to correction at the time of this payment which is, throughout this contact, called Final Payment. Final Payment shall be subject to inspection and acceptance by the Owner or duly authorized representatives of the Owner and by representatives of all agencies having direct interest in the project.

Submittals to include:

- Certificate or letter of clearance from the Provincial Worker's Compensation Board
- f) With the second and all subsequent applications for payment, the Contractor shall include a statutory declaration form CCDC 9B, or other similar acceptable form to the Owner, declaring that all labour and materials entering into the work, including Sub-Contractors, covered by the previous application, have been paid. With application for release of lien holdback, the Contractor shall include a statutory declaration form CCDC 9A, or other similar form acceptable to the Owner.
- g) With application for release of lien holdback, the Contractor shall include certificates issued by the Worker's Compensation Board, indicating that Worker's Compensation premiums in relation to the project have been paid in full.

28. TAXES

- a) Unless otherwise provided herein, the Contractor shall pay all government sales or excise taxes in force at the date of the Agreement, provided that any increase or decrease in such taxes shall increase or decrease the contract sum accordingly.

29. PERMITS, NOTICES, LAWS AND RULES

- a) The Contractor shall apply and pay for all necessary permits or licenses required for the execution of the work (but this shall not include the obtaining of the Building Permit or permanent easement or right of servitude). The Contractor shall give all necessary notices and pay all fees required by law and comply with all laws, ordinances, rules and regulations relating to the work and to the preservation of the public's health. The Contractor shall be responsible for the safety of all workmen and equipment on the project in accordance with all applicable safety legislation passed by federal, provincial and local authorities governing construction safety.

If the Contract Documents are at variance therewith, any resulting additional expense incurred by the Contractor shall constitute an addition to the contract price.

30. PATENT FEES

- a) The Contractor shall pay all royalties and license fees and shall save the Owner harmless from loss on account of suits or claims for infringement of patents in the doing of the work.

31. USE OF PREMISES

- a) The Contractor shall confine his or her apparatus, the storage of materials and the operations of his or her workmen to limits indicated by laws, ordinances, permits or by direction of the Consultant and shall not unreasonably encumber the premises with his or her materials. The Contractor shall not load – or permit to be loaded – any part of the work with a weight that will endanger its safety. The Contractor shall enforce the Consultant's instructions regarding signs, advertisements, fires and smoking.

32. CLEANING UP

- a) The Contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his or her employees or work and, at the completion of the work, he or she shall remove all his or her rubbish and all tools, equipment and surplus materials from and about the work and shall leave the work "broom clean" or its equivalent, unless more exactly

specified. In case of dispute, the Owner may remove the rubbish and charge the cost as the Consultant shall determine to be just.

33. CUTTING, PATCHING AND DIGGING

- a) The Contractor shall do all cutting, fitting or patching of his or her work that may be required to make its several parts come together properly and fit it to receive or be received by work of Other Contractors shown upon, or reasonably implied by, the Contract Documents.

Any cost caused by ill-times work shall be borne by the party responsible therefore.

The Contractor shall not endanger any existing work by cutting, digging or otherwise and shall not cut or alter the work of any other Contractor save with the consent of the Consultant.

34. DELAYS

- a) If the Contractor is delayed in the completion of the work by any act or neglect of the Owner, Consultant or any Other Contractor or any employee of any one of them or by changes ordered in the work, then the time of completion shall be extended for such reasonable time as the Consultant may decide.
- b) If the Contractor is delayed in the performance of the Work by:
- .1 labor disputes, strikes, lock-outs (including lock-outs decreed or recommended for its members by a recognized contractors' association, of which the Contractor is a member or to which the Contractor is otherwise bound),
 - .2 fire, unusual delay by common carriers or unavoidable casualties,
 - .3 abnormally adverse weather conditions, or any cause beyond the Contractor's control other than one resulting from a default or breach of Contract by the Contractor the Contractor will make reasonable efforts to counter the circumstances giving rise to the delay or to otherwise remedy its inability to perform its obligations by utilizing all resources reasonably required in the circumstances, including obtaining supplies or services from other sources if the same are reasonably available (including seeking injunctive relief or other judicial, quasi-judicial or law enforcement remedy, provided that the Contractor will not be required to settle or resolve any labor disturbance, strike, lock-out, or work slowdown (collectively "Employment Matters") but excluding any Employment Matters involving persons retained, employed or hired by the Contractor to supply materials or services to meet the Contractor's obligations under this Contract; or

any Employment Matter caused by, or attributable to, any act (including any pricing or other practice or method of operation) or omission of the Contractor. Only after the Contractor has made such reasonable efforts the Contract Time shall be extended for such reasonable time as the Consultant may recommend in consultation with the Contractor. The extension of time shall not be less than the time lost as the result of the event causing the delay, unless the Contractor agrees to a shorter extension. The Contractor shall not be entitled to payment for costs incurred by such reasonable efforts or delays unless such reasonable efforts or delays were required as a result of actions by the Owner, Consultant or anyone employed or engaged by them directly or shall be necessary.

No such extension shall be made for delay unless written notice of claim is given to the Consultant within seven (7) days of its commencement provided, however, that in the case of a continuing cause of delay only one claim shall be necessary.

If no schedule is made under Article 3, no claim for delay shall be allowed on account of failure to furnish drawings until two (2) weeks after demand for such drawings and not then unless such claim be reasonable.

The Consultant shall not, except by written notice to the Contractor, or as provided in Article 18, stop or delay any part of the work pending decisions or proposed changes either by him or herself or by the Owner.

35. OWNER'S RIGHT TO DO WORK

- a) If the Contractor should neglect to execute the work properly or fail to perform any provision of this Contract, the Owner, after five (5) days written notice to the Contractor, may without prejudice to any other right or remedy he or she may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor; provided however, that the Consultant shall approve both such actions and the amount charged to the Contractor.

36. OWNER'S RIGHT TO TERMINATE CONTRACT

- a) If the Contractor should be adjusted as bankrupt, or if he or she should make a general assignment for the benefit of his or her creditors, or if a receiver should be appointed on account of his or her insolvency or if he or she should – except in case of recited in Article 35 – refuse or fail to supply enough properly skilled workmen or proper materials after having received seven (7) days notice in writing from the Consultant to supply additional workmen or materials, or if he or she should fail to make prompt payment to Sub-Contractors or for material or labour, or persistently disregard laws, ordinances or the instruction of the

Consultant, or otherwise be guilty of a substantial violation of the provisions of the Contract, then the Owner, upon the certificate of the Consultant that sufficient cause exists to justify such action, may, without prejudice to any right or remedy he or she may have, by giving the Contractor written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the work by whatever method he or she may deem expedient, but without undue delay or expense. In such case, the Contractor shall not be entitled to receive the expense of finishing the work, including compensation to the Consultant for his or her additional services; such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner as herein provided, shall be certified by the Consultant.

37. CONTRACTOR'S RIGHT TO SUSPEND WORK OR TERMINATE CONTRACT

- a) If the work should be stopped under an order of any court or other public authority through no act or fault of the Contractor or of anyone employed by him or her, or if the Consultant fails to issue a certificate in accordance with Article 27, or if the Owner should fail to pay to the Contractor within seven (7) days of its maturing and presentation, any sum certified by the Consultant or awarded by arbitrators, then the Contractor may, upon five (5) days written notice to the Owner and the Consultant, stop work and/or terminate this Contract without prejudice to any other right or remedy he or she may have and recover from the Owner payment for all work executed and any loss sustained upon the plant or material with reasonable profit and damages.

38. DAMAGES AND MUTUAL RESPONSIBILITY

- a) If either party to this Contract should suffer damage in any manner because of any wrongful act or neglect of the other party or of anyone employed by him or her then he or she shall be reimbursed by the other party for such damage. Claims under this paragraph shall be made in writing to the party liable within a reasonable time after the first observance of such damage and not later than the time of final certificate, except as expressly stipulated otherwise in the case of faulty work or materials, and may be adjusted by agreement or in the manner set out in Article 43 and the party reimbursing the other party as aforesaid shall thereupon be subrogated to the rights of the other party in respect of such wrongful act or neglect if it be that of a third party. Should the Contractor cause damage to any other Contractor on the work the Contractor agrees – upon due notice – to settle with such other Contractor by agreement or arbitration, if he or she will so settle. If such other Contractor sues the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor who shall defend such proceedings at the Owner's expense and if any final order or judgment against the Owner arises therefrom the Contractor shall pay or satisfy it and pay all costs incurred by the Owner provided that if the Contractor becomes liable to pay or satisfy any final order or judgment

against the Owner, then the Contractor shall have the right upon undertaking to indemnify the Owner against any and all liability for costs to appeal, in the name of the Owner, such final order or judgment to any and all courts or competent jurisdiction.

39. SEPARATE CONTRACTS WITH OTHER CONTRACTORS

- a) The Owner reserves the right to let separate contracts in connection with the undertaking of which the work is a part and the Contractor shall connect properly and coordinate this work with that of other Contractors. If any part of the Contractor's work depends – for its proper execution or results – upon the work of any other Contractor, the Contractor shall inspect the work prior to proceeding with his or her work as required by the Contract. Should the Contractor fail so to inspect and report, he or she shall have no claim against the Owner by reason of the defective or unfinished work of any other Contractor except as to latent defects not reasonably noticeable at the time of the commencement of the Contractor's work. In letting separate contracts, the Owner shall be responsible for the coordination of fire and other insurance coverages and shall take all precautions reasonable possible to avoid possible occurrence of a labour dispute or disputes on the work.

40. ASSIGNMENT

- a) Neither party to the Contract shall assign the Contract without the written consent of the other.

41. SUB-CONTRACTS

- a) The Contractor agrees that the list of names of sub-contractors supplied prior to the signing of the Contract is the list of Sub-Contractors proposed to be used to carry out those parts of the work noted thereon and he or she shall not employ any to whom the Consultant may reasonably object.

If the change of any name on such list is required by the Consultant and the work has to be awarded to a higher bidder, the contract price shall be increased by the difference between the two bids.

The Consultant shall, on request, furnish to any Sub-Contractor wherever practicable, evidence of the amounts certified to on his or her account.

The Contractor shall be held as fully responsible to the Owner for the acts and omissions of his or her sub-contractors and of persons directly or indirectly employed by them, as for the acts and omissions of persons directly employed by him or her. In view of this responsibility, the Contractor shall not be obliged to employ as a sub-contractor or supplier any person or firm to whom he or she may reasonably object.

42. RELATIONS OF CONTRACTOR AND SUB-CONTRACTOR

- a) The Contractor agrees to bind every sub-contractor by the terms of the Contract Documents, as far as applicable to his or her work.

43. ARBITRATION

- a) In the case of any dispute arising between the Owner (or the Consultant acting on his or her behalf) and the Contractor as to their respective rights and obligations under the Contract, either party hereto shall be entitled to give to the other notice of such dispute and to request arbitration thereof; and the parties may, with respect to the particular matters then in dispute, agree to submit the same to arbitration in accordance with the applicable law of the place of building.

Arbitration proceedings shall not take place until after the completion or alleged completion of the work except (a) on a question of certificate for payment, or (b) in a case where either party can show that the matter in dispute is of such nature as to require immediate consideration while evidence is available.

44. OWNER SIGNING AUTHORITY

- a) Mr. Alan Maynard, P. Eng. is designated as the Director for the purposes of this agreement, the Director shall represent Government in all matters pertaining to the construction project being provided pursuant to this agreement, and will administer said agreement, and shall complete necessary approvals of all plans and specifications provided for under this agreement on behalf of Government, provided however, that the Director shall not be authorized to amend the terms of the Agreement.

Government may replace the Director by providing written notice, in accordance with the notice requirements of this Agreement.

45. CONFLICT OF INTEREST

- a) The Contractor warrants that as at the date of this Agreement, no conflict of interest, or any circumstance that might interfere with independent and objective exercise of judgment, exists or is likely to arise in relation to execution of this Agreement or its subject matter. The Contractor shall immediately notify Government, in writing, if any such actual or potential conflict of interest should arise at any time during the Term. In the event Government discovers or is notified by the Contractor of an actual or potential conflict of interest, Government, in its sole discretion, may either:

- i) allow the Contractor to resolve the actual or potential conflict to the satisfaction of Government; or
- ii) terminate the Agreement in accordance with the Termination section of this Agreement.

END

PROJECT:

1. GENERAL

- a) The undersigned tenderer (hereinafter called the “Contractor”) hereby offers to the Minister of Transportation and Infrastructure (hereinafter called the “Owner”) to furnish all necessary tools, plant, services, materials and labour to execute and complete in a careful and workmanlike manner the work set out under the **Project #3980-23015** herein, which is more particularly described in the Plans and Specifications titled **Tyne Valley Youth Centre Fire Alarm System Replacement** and dated **February 2nd, 2023** for the lump sum as set out in Clause 3.

The Contractor agrees:

- .1 To complete the work by the date indicated on the Instructions to Bidders.
- .2 That this Form of Agreement supersedes and cancels all communication, negotiations and agreements relating to the work other than contained in the completed tender.
- .3 To use all suppliers and sub-contractors indicated on his or her tender unless prior approval is received from the Engineer to make a change.

2. ADDENDA

- a) The following addenda are included in this contract:

3. CONTRACT PRICE

- a) The Contract Price (*the lump sum referred to in Clause 1:*) which excludes value added taxes is:

- b) Value added (HST)(of _____%) payable by the Owner to the Contractor are:

c) Total amount payable by the Owner to the Contractor for the construction of the work is:

4. CORRESPONDENCE

a) The Owner, Consultant, and Contractor may be contacted in writing at the addresses below:

Owner & Consultant

PEI Department of Transportation and Infrastructure
PO Box 2000
Charlottetown, PE
C1A 7N8

Contractor

5. CONTRACTOR'S ACCEPTANCE

a) Accepted and executed on behalf of the Contractor this ____ day of _____, 20____,
in the presence of _____.

Witness

Signature & Corporate Seal

6. OWNER'S ACCEPTANCE

a) Accepted and executed on behalf of the Owner this ____ day of _____, 20____, in
the presence of _____.

Witness

Signature & Seal

END

1. GENERAL

1.1. TENDER

.1 SUBMITTED BY:

(Name) _____
(Address) _____
(Contact) _____
(Phone) _____ (Fax) _____
(Date) _____

FOR: Tyne Valley Youth Centre – Fire Alarm System Replacement
61 Bideford Road, Tyne Valley
Prince County, Prince Edward Island

TO: Minister of Transportation and Infrastructure
11 Kent Street
PO Box 2000
Charlottetown, PE
C1A 7N8

HAVING examined the drawings and specifications for this project as well as any addenda issued, we hereby offer to furnish all materials, plant and labour necessary for the full and proper completion of:

“Tyne Valley Youth Centre – Fire Alarm System Replacement”

INCLUDING all prime cost allowances, or other taxes in force at this date and **excluding HST**; but not including any additional or deductible allowance or taxes which may be applicable subsequent to this date, and which shall be payable by or to the Owner, in accordance with the above mentioned documents, for the sum of:

_____ Dollars (\$ _____)
in lawful money of Canada.

In submitting this tender we recognize the necessity to complete the information requested on any appendices, as well as the right of the Owner to accept any tender at the price submitted or to reject all tenders, it being understood, and this tender is submitted on the condition that revised tenders will not be called for if minor changes are contemplated.

In the event of this tender being accepted within thirty (30) days of the time stated for the closing of tenders, and our failing or declining to enter into a contract, then our bid deposit shall be forfeited to the Owner in lieu of any damages which he or she may suffer by reason of our failure or refusal to enter into such contract.

In the event of our tender not being accepted within thirty (30) days of the time stated for the closing of tenders, the bid deposit will be returned to us forthwith unless a satisfactory arrangement is made with us covering its retention for a further stated period.

1.2. ACKNOWLEDGEMENT OF RECEIPT OF ADDENDA

- .1 Addendum # _____ Issued _____ Initial _____
- Addendum # _____ Issued _____ Initial _____
- Addendum # _____ Issued _____ Initial _____
- Addendum # _____ Issued _____ Initial _____
- Addendum # _____ Issued _____ Initial _____

1.3. SUB-CONTRACTORS AND SUPPLIERS

- .1 Our tender includes the following sub-contractors and suppliers, (own forces may be used, as per Section B item 12). The following work will be performed (or provided) by following Sub-contractors and supplies coordinated by us in our role as General Contractor.

Electrical _____
General Carpentry _____
Cutting and Patching _____
Other _____

1.4. ACCEPTANCE OF AGREEMENT

- .1 If we are notified of the acceptance of this tender within the above specified time we will:
 - .1 Enter into a formal contract agreement with the Owners.

-
- .2 Furnish a general analysis of the contract sum, the total aggregating the amount of our tender.
 - .3 Provide a Construction Schedule and complete the entire work on or before the dates stated.

1.5. LABOUR RATES

- .1 Prior to signing the Contract related to this Bid, the successful Bidder will provide the Owner with labor rates covering labor provided by the Bidder and major Subcontractors, for extra work carried out in relation to Change Order and Change Directive work. These labor rates are to be substantiated by actual labor costs and wage levies; the labor rates must be reasonable, in comparison to local industry standards, and acceptable to the Owner.

1.6. CONTRACTOR'S SIGNATURE

The undersigned bidder declares that this tender is made without connection with any other person or persons submitting tenders for the same work, and is in all respect, fair & without collusion or fraud.

- .1 Signed, sealed and submitted for and on behalf of:

Submitted by (Company Name)

Authorized Name and Title (Print)

Authorized Signature

Date

END

1. REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .3 Province of Prince Edward Island
 - .1 Occupational Health and Safety Act, R.S.P.E.I.1988 (including any amendments to and regulations)
- .4 CSA C22.1-18 – Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
- .5 CSA C22.3 No. 7-94 (R2005) - Underground Systems
- .6 COSH, Canada Occupational Health and Safety Regulations (SOR/86-304)
- .7 Fire Protection Standards issued by Fire Protection Services of Human Resources Development Canada as follows:
 - .1 FCC No. 301 – June 1982 Standard for Construction Operations.(or latest edition)
 - .2 FCC No. 302 – June 1982 Standard for Welding and Cutting. (or latest edition)

2. COMPLIANCE REQUIREMENTS

- .1 Comply with Occupational Health and Safety Act, Occupational Health and Safety Act Regulations PEI (including any amendments to and regulations).
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.
- .3 Perform lockouts in compliance with:
 - .1 Canadian Electrical Code
 - .2 Federal and Provincial Occupational Health and Safety Acts and Regulations.
 - .3 Regulations and code of practice as applicable to mechanical equipment or other machinery being de-energized.
- .4 In event of conflict between any provisions of above Authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Consultant will advise on the course of action to be followed.

3. CONSTRUCTION SAFETY MEASURES

- .1 Observe and enforce construction safety measures required by latest National Building Code, Part 8, Provincial Government, Worker’s Compensation Board and municipal statutes and authorities.
- .2 Provide and maintain first aid equipment appropriate to the work and its location in accordance with the First Aid Regulations. Implement recommendations from Occupational Health and Safety Division specific to the project work site.

4. HEALTH AND SAFETY COORDINATOR

- .1 Employ and assign to work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Coordinator must:

- .1 Have minimum 2 years site-related working experience specific to activities associated with Construction.
- .2 Having working knowledge of occupational health and safety regulations.
- .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
- .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

5. SAFETY ASSESSMENT

- .1 Perform site specific hazard assessment related to project.
- .2 Perform on-going hazard assessments during the progress of Work identifying new or potential health risks and safety hazards not previously known. As a minimum, hazard assessments shall be carried out when:
 - .1 New subtrade work, new subcontractor(s) or new workers arrive at the site to commence another portion of work.
 - .2 The scope of work has been changed by Change Order.
 - .3 Potential hazard or weakness in current health and safety practices are identified by Consultant or by an authorized safety representative.
- .3 Each hazard assessment to be made in writing. Keep copies of all assessments on site for duration of Work. Upon request, make available to Consultant for inspection.

6. SUBMITTALS

- .1 Upon request, submit within seven (7) days to the Consultant, one copy electronically and one hard copy of the site-specific Health and Safety Plan.
- .2 Upon request, submit within seven (7) days to the Consultant, one copy electronically and one hard copy of the Contractor's authorized representative's worksite health and safety inspection reports.
- .3 Upon request, submit within seven (7) days to the Consultant, one copy electronically and one hard copy of the construction safety tool box meetings and formal contractor safety meetings.
- .4 In the event of an incident/accident, immediately submit to the Consultant one copy electronically and one hard copy of the incident/accident report.

7. SITE CONTROL AND ACCESS

- .1 Control worksite and entry points. Grant and allow entry to only workers and other persons so authorized. Immediately stop non-authorized persons from circulating within construction areas and remove from site.
- .2 Prior to gaining access to the site, all contractors, subcontractors and suppliers shall file with the General Contractor their proof of Workers Compensation coverage, proof of required

Insurance and proof of contract. Upon request, proof of these documents will be provided to the Owner and Consultant.

- .3 Delineate and isolate construction areas from other areas of site by use of appropriate means. Erect barricades, fences, hoarding and temporary lighting as required.
- .4 Erect signage at entry points and at other strategic locations around site, clearly identifying construction areas(s) as being “off limits” to non-authorized persons. Signage must be professionally made.
- .5 Ensure persons granted access is fitted and wear appropriate personal protective equipment (PPE).

8. PROTECTION

- .1 Provide temporary facilities for protection and safe passage of building occupants, public pedestrian and vehicular traffic around and adjacent to work site.
- .2 Provide safety barricades, lights and signage within work site as required to provide a safe working environment for workers.

9. MEETINGS

- .1 Prior to commencement of work hold a Health and Safety meeting. Have Contractor’s Site Superintendent in attendance.
- .2 Provide site safety orientation session to all workers and all workers new to the site and other authorized persons prior to granting them access to work site. Brief persons on site conditions and on the site safety rules in force at site.
- .3 Conduct site specific occupational health and safety meetings during the entire work as follows and submit minutes as requested.
 - .1 Formal meetings on a minimum monthly basis.
 - .2 Informal tool box meetings on a regular basis from a predetermined schedule.
- .4 Attend Health and Safety meetings as directed by the Contractor.

10. HAZARDOUS MATERIALS

- .1 Should material resembling hazardous materials (other than those identified within the Contract Documents) be encountered in the course of work, stop work immediately. Do not proceed until written instructions have been received from the Consultant.
- .2 Any material which contains asbestos, lead paint or PCB’s that is disturbed or removed during construction work shall be removed in accordance with the regulations set out by the Occupational Health and Safety Act.

11. WHIMIS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) Regulations regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of Safety Data Sheets.

- .2 Have a copy of WHMIS Safety Data Sheets available at the workplace on delivery of hazardous products.

12. SITE CLEANING

- .1 Except where special permission is obtained, maintain clean access on public sidewalks and roads.
- .2 Maintain walks and roads clear of construction materials and debris, including excavated material. Clean walks and roads as frequently as required to ensure that they are cleared of materials, debris and excavated material.
- .3 Remove snow and ice from areas as required to execute the work.

13. FIRE SAFETY REQUIREMENTS

- .1 Comply with requirements of latest standard for Building Construction Operations issued by the Fire Commissioner of Canada and Fire Safety Regulations of Local Authority. (latest editions)
- .2 Implement and follow fire safety measures during Work. Comply with following:
 - .1 National Fire Code, (latest edition)
 - .2 Fire Protection Standards FCC 301 and FCC 302, (latest edition).
 - .3 Federal and Provincial Occupational Health and Safety Acts and Regulations.
- .3 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirements, Consultant will advise on the course of action.
- .4 Hot Work will not be permitted on or within the facility except as outlined herein. Prior to conducting hot work, a hot work permit (see attached Appendix B) shall be prepared and submitted. A new permit shall be obtained at the start of each work shift during which hot work will be conducted.

14. EMERGENCY MANAGEMENT PLAN

- .1 Must include response for medical and fire emergencies.
- .2 Know the location of the nearest fire alarm box and telephone (if no cell phone available), including the emergency phone number.
- .3 Know where the “Civic Address” of worksite is posted to report to emergency personnel.
- .4 Report immediately all fire incidents to the fire department as follows:
 - .1 Activate nearest fire alarm box
 - .2 Telephone 911
 - .3 Where fire alarm box is exterior to building, the person activating the fire alarm box shall remain at the box to direct Fire Department to scene of the fire.
 - .4 When reporting a fire by telephone, give location of fire, name or number of building and be prepared to verify the location.
- .5 Notify the Owner of any emergency.

15. POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Consultant.

16. CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by Authority having Jurisdiction or by Consultant.
- .2 Provide Consultant with written report of action taken to correct non-compliance of health and safety issues identified.

17. OPEN EXCAVATIONS

- .1 If open foundations or demolition areas are to be left at the end of a work day, a protective barrier must be placed around the entire perimeter of the open excavation or demolition areas to limit access by others. Barrier to be approved by the requirements established in the OH&S Regulations.

END

1. GENERAL

- a) The General Contractor is to provide each item and properly execute all work as specified herein, indicated by drawings, specifications, addenda, or change orders issued with respect to this Project.
- b) The General Contractor shall co-ordinate, administer and supervise all work and material acquisition unless noted otherwise in either the Specifications or Drawings. Faulty work by any Section which could have been avoided by proper co-ordination and/or supervision by the General Contractor will not be accepted.
- c) Unless specified otherwise, the provisions of this Section shall apply to all Sections of the specifications.
- d) Study all Contract documents to determine additional work required by your section on which the work of other sections depends.
- e) Establish rates of wages and conditions of work in accordance with the Industrial standards Act of the Province of Prince Edward Island. Wherever possible give preference to local labour.
- f) Workmanship shall be of highest quality in accordance with best standard practice for this type of work, except where specified more precisely.

2. SPECIFICATION FORMAT

- a) These specifications are not intended as a detailed description of installation methods but serve to indicate particular requirements in the completed work.
- b) Conform to the latest edition of the National Building Code, together with all its related supplements, hereinafter referred to as the “Code” or “code”. Where Drawings and Specifications exceed code requirements provide such additional requirements.
- c) Where a material is designated on Drawings or in the Specifications for a certain application, unless otherwise specified, that material shall conform to standards designated in the latest edition of the National Building Code and any other Code, Act or Bylaw of Provincial or Local Application provided that in the case of conflict or discrepancy the more stringent requirement shall apply. Similarly, unless otherwise specified, installation methods and standards of workmanship shall also conform to standards invoked by the aforementioned code. Where no particular material is specified for a certain use, the bidder shall select from the choice offered in the code in each case.

- d) References to codes, and standards, including manufacturer's direction for installation shall be the latest edition thereof.
- e) Provide a copy of all certificates of acceptance issued by Provincial or Local authorities.
- f) Parts of the specification are written in short form, therefore it is understood that where a component of the work is stated in a heading followed by a material or operation, the words "Shall be", "Shall consist of" or similar words or phrases are implied which denote complete supply and installation of such materials of operations for the component of work designated by the heading.
- g) Where the aforementioned Code or this specification does not provide all information necessary for complete installation of any item, then the manufacturer's instructions for first quality workmanship shall be strictly complied with.
- h) Where words in the Contract Documents occur in the singular number, they shall be taken as plural where applicable in accordance with the quantities required to satisfy the requirements of the Contract.

3. STANDARDS AND DEFINITIONS

- a) Where a reference is made to specification standards produced by various organizations, conform to latest edition of standards, as amended and revised to date of Contract.
- b) Have a copy of each specified standard which relates to your work available on the Site to be produced immediately on the Consultant's request.

4. CO-OPERATION

- a) Co-operate with and co-ordinate with other trades as required for the satisfactory and expeditious completion of the work. Take field dimensions relative to this work. Fabricate and erect work to suit field dimensions and field conditions. Provide all forms, templates, anchors, sleeves, inserts and accessories required to be fixed to or inserted in the work and set in place or instruct the related trades as to their location. Pay the cost of extra work caused by and make up time lost as the result of failure to provide the necessary co-operation, information or items to be fixed to or built in, in adequate time.
- b) This Section shall provide other Sections with and be responsible for levels and dimensions which other sections require for establishing proper locations for their work.

5. MATERIAL STORAGE AND HANDLING

- a) Store packaged materials in original, undamaged condition with manufacturers' labels and seals intact. Handle and store materials in accordance with manufacturers' and suppliers' recommendations and in a manner to prevent damage to materials during storage and handling.

6. SITE VISIT

- a) All bidders submitting tenders for this work shall first examine the site and all conditions therein. All tenders shall take into consideration all such conditions as may affect the work under this contract, no claims for extras resulting from conditions existing at the time of tender will be accepted by the Owner.

7. EXAMINATION

- a) All trades shall examine the existing conditions upon which their work depends. Report to the General Contractor with a copy to the Consultant in writing defects in such work. The application of their work or any part of it shall be deemed acceptance of the work upon which their work or that part of it which has been applied depends.
- b) Drawings are, in part, diagrammatic and are intended to convey scope of work and indicate general and approximate location, arrangement and sizes of building components.

8. CONSTRUCTION SAFETY

- a) Observe construction safety measures of the latest edition of the National Building Code Part 8, Provincial Government Workers/Workers Compensation Board and municipal authority provided in any case of conflict or discrepancy more stringent requirements shall apply.
- b) Comply with requirements of FCC no. 301.
- c) Ensure no part of Work is subjected to loading that will endanger its safety or will cause permanent deformation.
- d) Design and construct falsework in accordance with CSA S269.2.
- e) Operate such equipment only by qualified hoist or crane operators, and maintain current inspection certificate.

- f) Design and construct scaffolding in accordance with CSA S269.2.
- g) Comply with the requirements of the Fall Protection & Scaffolding Regulations, Province of Prince Edward Island.
- h) Each user of equipment or tools shall be appropriately trained and be responsible to examine for sufficiency before use. Make equipment and tools safe if necessary, or notify the Contractor in writing that user will not commence work with such tools until it is made safe.
- i) Comply with the requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and comply regarding labeling and provision of material safety data sheets.
 - .1 Have a copy of WHMIS data sheets available at the workplace on delivery of materials.

9. PROTECTION

- a) Take reasonable and required measures, including those required by authorities having jurisdiction to protect the public and those employed on work from body harm and to protect adjacent public and private property from damage. Make full restitution for such harm and damage resulting from failure to take adequate protective measures. Make good damage to work from whatever cause.
- b) Take all necessary precautions to guard site, premises, materials and the public at time other than when supervised work is in progress.
- c) Provide and maintain in working order, suitable Underwriters' labeled fire extinguishers and locate in prominent position to approval of authorities having jurisdiction.
- d) Provide all signs, ramps, barricades, and hoarding and protective measures necessary to the safe execution of the work and protection of the public.
- e) Protect, relocate and maintain existing, active services wherever they are encountered. Wherever inactive services are encountered, cap them off and remove the unwanted portion, with the approval of the authorities having jurisdiction or the public utility concerned, in the manner approved by them.
- f) All trades shall protect previously installed work while carrying out their own work.

- g) Damaged work shall be made good by appropriate trades but at the expense of those causing damage.
- h) Attach and fasten fixtures and fittings in place, in a safe, sturdy, secure manner so that they cannot work loose or fall or shift out of position during the occupancy of building as a result of vibration or other causes in normal use.
- i) Protect existing buildings, landscaping, curbs, roads and lanes and utilities. If, during work, any buildings, landscaping, curbs, roads and lanes are damaged, repair or replace them at no extra expense to the Owner.
- j) Provide safety helmets for Consultants, Owner's representatives and any other authorized visitors to site if required.

10. FASTENINGS

- a) Supply all fastenings, anchors and accessories and adhesives required for fabrication and erection of the work.
- b) Exposed metal fastenings and accessories shall be of same texture, colour and finish as base metal on which they occur.
- c) Exterior anchors for windows and roofing sheet metal and anchors occurring on or in an exterior wall shall be noncorrosive or hot dip galvanized steel.
- d) Anchoring and fastening devices or adhesive shall be of appropriate type and shall be used in sufficient quantity in such a manner as to provide positive permanent anchorage of the unit to be anchored in position. Install anchors at spacing to provide for required load carrying capacity.
- e) Keep exposed fastenings to a minimum, evenly spaced and neatly laid out.
- f) Supply adequate instructions and templates and, if necessary, supervise installation where fastenings or accessories are required to be built into work of other trades.
- g) Fastenings shall be of permanent type. Wood plugs are not permitted.
- h) Fastenings which cause spalling or cracking of material to which anchorage is being made are not permitted.

- i) Do not use powder actuated fastening devices, which are stressed in withdrawal on any part of this work without written approval from the Consultant. Take particular stringent safety precautions when using powder actuated fastenings. Only low velocity plunger-type are permitted.

11. CUTTING, FITTING, AND PATCHING

- a) All cutting and patching shall be the responsibility of the General Contractor.
- b) All excavation backfilling and concrete work required to complete the work of Section 15 and or Section 16 shall be the responsibility of the General Contractor.
- c) Where new work connects with existing and where existing work is altered, cut and patch and make good to match existing work.
- d) Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.

12. EXISTING SERVICES

- a) Where work involves breaking into or connecting to existing services, submit work schedule sufficiently in advance to allow coordination of possible interruption with the Owner. Confirm each interruption 24 hours immediately prior to scheduled date of implementation.

13. ENVIRONMENTAL PROTECTION

- a) Ensure that pollution and environmental control of construction activities are exercised during the work to requirements of the federal and provincial environmental acts; including, but not limited to, the Prince Edward Island Environmental Protection Act.

14. HAZARDOUS MATERIAL

- a) Should material resembling hazardous materials (other than those identified within the Contract Documents), including, but not limited to spray or trowel applied asbestos, be encountered in course of work; stop work immediately. Do not proceed until written instructions have been received from Consultant.
- b) Any material which contains asbestos that is disturbed or removed during construction work (see Asbestos Content Report (where applicable)), shall be removed in accordance with the regulations set out by the Occupational Health & Safety Act. All costs for proper cutting,

removal and disposal of all asbestos on this contract shall be included in Tender. Refer also to Section 2C (as applicable).

- c) Where work entails use, storage, or disposal of toxic or hazardous materials, chemicals and or explosives, or otherwise creates a hazard to life, safety, health, or the environment; work shall be in accordance with the Jurisdictional Authority.

15. CLEANING

- a) All rubbish and construction debris must be removed from the entire site on a regular basis, so that the site is maintained in a clean, safe condition. Materials removed are to be disposed of in a manner acceptable to the Provincial Department of Communities, Land & Environment.
- b) Vacuum clean all areas prior to painting and close all areas after completion of painting to restrict access to authorized persons.
- c) On completion of work, by other trades, mop clean all resilient flooring strip using wet method to remove all layers of new or existing finish. Reseal with one coat sealer and two coats wax (wax to contain a minimum of 22% solids). Vacuum clean all carpets. All cleaning to be carried out by competent cleaners.
- d) Dust and clean all surfaces including glass (interior and exterior), doors and hardware.
- e) Arrange and pay for replacement of heating, ventilation and air conditioning filters if operated during construction.

16. FIRES

- a) Do not light fires of any sort to burn rubbish resulting from the work.

17. ACCESS TO SITE

- a) Access to site shall be directed by the Consultant.

18. SITE LIMITS

- a) The limits of the site are shown on the drawings and all activity relating to the contract shall be confined within these limits.

19. MAINTENANCE MANUALS

Prior to the issuance of the final certificate the following items shall be assembled and incorporated into a three ring binder complete with table of contents:

- a) All warranties and guarantees submitted by manufacturers.
- b) The printed or typewritten copies of recommended maintenance procedures for all items requiring regular maintenance.
- c) A copy of all approved Shop Drawings.

20. PERMITS

- a) Obtain and pay for all required permits, licenses, and inspections; required by applicable laws and regulations. Except the building permit which will be paid for by the Owner.

21. TOBACCO PRODUCT USAGE BAN

The use of Tobacco products is not permitted within the building or property.

- a) Property – Includes all lands and buildings under the control of the Government of PEI.
- b) Tobacco Products – Includes cigarettes, cigars, pipes, chewing tobacco, snuff, and any other products containing or reasonably resembling tobacco or tobacco products except approved cessation products used in approved cessation programs.
- c) Tobacco Usage Ban – Includes smoking, chewing, dipping or any other form of use of tobacco products.

END

1. CUTTING AND PATCHING

- a) Cut, patch and make good to leave work in a finished condition where new work connects with existing.
- b) Sections responsible for various categories of cutting and patching are as follows:
 - .1 All cutting and patching shall be the responsibility of the General Contractor.
 - .2 All excavation, backfilling and concrete work required to complete the work of Section 15 and/or Section 16 shall be the responsibility of the General Contractor.
- c) Carry out cutting and patching in the following manner:
 - .1 Regardless of which Subcontractor or Section of the specifications is responsible for any portion of cutting and patching work, in each case tradesmen qualified in the work being cut and patched shall be employed to carry out or supervise this work to ensure that it is correctly done.
 - .2 Where new work connects with existing and where existing work is altered, cut and patch and make good to match existing work.
 - .3 Do not cut, drill or sleeve load-bearing members without first obtaining the Consultant's written authority for each condition.
 - .4 Drill work carefully, leaving a clean hole not larger than required. This applies to both new and existing work.
 - .5 Cut holes after they are located by trades requiring them.
 - .6 Bulkheads to be constructed with steel studs, furring and seam filled gyproc.
 - .7 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.
 - .8 Co-ordinate work of your Section with work of other Sections, taking into account existing installations to assure best arrangement of components in available space. For critical locations consult with Consultant before commencing work.
 - .9 At penetrations of fire rated ceilings, walls, and floor/roof assemblies, completely seal voids with fire rated material, fill thickness of constructed element.

END

1. GENERAL

- a) This section shall be responsible for the demolition and removal of items indicated on the drawings and those which must be demolished to allow for the Fire Alarm System, including electrical components and site material which will be demolished under the supervision of the section sub-contractor. These materials include, but are not limited to: **electrical/fire alarm components as required to complete work as per the specifications & drawings.**

2. PROTECTION

- a) Prevent movement, settlement or damage of structures and parts of existing building to remain, provide bracing, shoring and underpinning as required. Make good damage caused by demolition.
- b) Take precautions to support affected structures and, if safety of building services appears to be endangered, cease operations and notify Consultant.
- c) If during the demolition work a situation should develop or a condition be exposed which has the potential to endanger the safety of the occupants or users of the buildings or structure in which demolition work is being carried out, or occupants or users of adjoining buildings or structures, the Contractor will cease operations, take whatever emergency actions, in the Contractor's opinion, is required to ensure the immediate safety of the occupants or users of these buildings or structures, and notify the Architect before continuing with the work.

3. DESCRIPTION OF WORK

- a) Perform all demolition removal and restitution as indicated, implied and required to properly complete the work of this contract.
- b) Refer closely to drawings and specifications to determine extent of demolition requirement.
- c) Demolition drawings serve only as a guide to demolition requirements. Location of new components and finishes where components exist implies removal of such components prior to new construction.
- d) Demolition of existing components, required to facilitate construction of new work is required.

4. EXECUTION

- a) Dispose of demolished materials in accordance with authorities having jurisdiction.

- b) Do not disrupt active or energized utilities and services.
- c) At the end of each day's work leave the site in a safe condition, with no danger of any component toppling or falling.
- d) Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as work progresses.
- e) Do not sell or burn materials on site.
- f) Remove contaminated or dangerous materials, as defined by authorities having jurisdiction relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.
- g) All demolished materials become the property of the Contractor, unless indicated otherwise, and are to be removed from the site and disposed of in a manner and in a location acceptable to Provincial Authority governing such disposal.

END



**Public Works and Planning Division
Transportation and Infrastructure**

Appendix A

Tel 902 368 5160
Fax 902 569 0590
princeedwardisland.ca

PO Box 2000
Charlottetown
Prince Edward Island
Canada C1A 7N8

COVID-19 CONTRACTOR AFFIDAVIT

DTI Project: _____

The undersigned (“Contractor”) hereby acknowledges the Province’s concerns regarding safety at the worksite due to the COVID-19 pandemic. The Contractor agrees that it shall conduct its operations in strict compliance with all applicable regulations, guidelines, and requirements imposed by the Chief Public Health Office (CPHO), Worker’s Compensation Board (WCB), and that it will comply with the Construction Association of PEI (CAPEI) “Pandemic Planning For The Construction Industry – A Guide” for all construction sites and workers at all Public Works locations.

The Contractor understands that it is the Contractor’s responsibility to develop, maintain, and follow a written Covid-19 Operational Plan specifying how it will meet its obligations. The Contractor is to provide a copy of their Covid-19 Operational Plan upon request by the DTI representative.

The Contractor, if acting as the General, also certifies that each Subcontractor, Sub-subcontractor, and other parties that will perform work on their behalf, will also comply and will satisfy these requirements.

The Contractor acknowledges and agrees that non-compliance with any of the requirements above, including failure to abide by its own COVID-19 Operational Plan, may result in suspension or termination of any or all work in progress.

Contractor/ Company Name (Please Print)

Contractor/Company Email (Please Print)

Contractor/Company Phone

Certification:

By signing below, on behalf of the Contractor/Company, I certify we have COVID-19 Operational Plan, all staff have read and acknowledged the plan and we agree to the foregoing.

Contractor/Company Representative (Please Print)

Contractor/Company Representative (Please Sign)

Signature Date

Please email completed form to adminpwp@gov.pe.ca prior to construction activity.

HOT WORK PERMIT

OWNER COPY

**CAN THIS JOB BE DONE WITHOUT HOT WORK, OR IN THE SHOP?
IF NOT, ENSURE PRECAUTIONS ARE IN PLACE!**

MAKE SURE SPRINKLERS ARE IN SERVICE AND FIRE EXTINGUISHERS ARE READILY AVAILABLE!

This Hot Work Permit is required for any operation involving open flames or producing heat and/or sparks. This includes, but is not limited to, Brazing, Cutting, Grinding, Soldering, Thawing Pipe, Torch-Applied Roofing, and Welding.

Note: The Required Precautions are not optional. They are required for fire-safe hot work. Please explain all "No" responses below.

Instructions

- The Permit-Authorizing Individual must:**
- a) Verify precautions listed at right (or do not proceed with the work)
 - b) Complete and retain this page
 - c) Give the second page to the person doing the work.

Who, When, and Where?

Hot Work Being Done By	
<input type="checkbox"/> Employee	
<input type="checkbox"/> Contractor	
Date	Job/Work Order No.
Location/Building and Floor	
Nature of Job/Object	
Name of Person(s) Doing Hot Work	
I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for work.	
Signature of Permit-Authorizing Individual	

Permit Expiration

Expiration Date	Expiration Time	<input type="checkbox"/> AM
		<input type="checkbox"/> PM

Name of Assigned Fire Watch

**THIS PERMIT IS GOOD FOR
24 HOURS ONLY!**

Required Precautions Checklist

<input type="checkbox"/> Available Sprinklers in Normal Automatic mode and valve open. <input type="checkbox"/> Hot Work equipment in good repair.
<p>Assess 35 ft radial "sphere" of work for potential fire hazards:</p> <input type="checkbox"/> Floors, work level and <u>below</u> , cleaned or protected. <input type="checkbox"/> All other combustibles removed or shielded from sparks. <ul style="list-style-type: none"> • Clean horizontal surfaces (e.g. building structures, equipment, ducts, cable trays, etc.) <u>above</u> and <u>below</u> where possible. • Remove flammable liquids, dust, lint, combustible waste, oil deposits, etc., where possible. • If removal/cleaning is impractical, protect with fire-retardant covers, or shield with fire-retardant guards and/or curtains. <input type="checkbox"/> Transmission or conveying of sparks to adjacent areas eliminated or protected. <ul style="list-style-type: none"> • Tightly cover wall/floor openings with fire-retardant material. • Where openings cannot be sealed, suspend fire-retardant tarpaulins to help protect areas beneath. • Isolate or shut down fans and conveyors to prevent the capturing and conveying sparks to other areas. <input type="checkbox"/> Explosive atmosphere eliminated or potential not present.
<p>Work on walls, ceilings or enclosed equipment:</p> <input type="checkbox"/> Construction materials verified as noncombustible and without combustible covering or insulation. <input type="checkbox"/> Combustibles on other side of walls relocated or protected. <input type="checkbox"/> Enclosed equipment cleaned and protected from all combustibles. <input type="checkbox"/> Containers purged of flammable liquids/vapors.
<p>Fire watch/hot work area monitoring requirements:</p> <input type="checkbox"/> Continuous fire watch provided during and for <i>at least 60 minutes</i> after hot work, including all breaks. <input type="checkbox"/> Fire watch supplied with suitable extinguishers/hoses. <input type="checkbox"/> Fire watch trained in the use of fire equipment and sounding alarm. <input type="checkbox"/> Area to be monitored hourly for a <i>minimum 4 hours</i> after job is completed or longer if required.
<p>Other precautions that may be required:</p> <input type="checkbox"/> Fire watch provided for adjoining areas, above, or below. <input type="checkbox"/> Confined Space or Lock-Out-Tag-Out required/used. <input type="checkbox"/> Area smoke or heat detection disabled to eliminate false trip.
Other: _____ Comments: _____ _____ _____

HOT WORK PERMIT

CONTRACTOR COPY

WARNING! HOT WORK IN PROGRESS WATCH FOR FIRE!

Note: The Required Precautions are not optional. They are required for fire-safe hot work. Please explain all "No" responses below.

Instructions

- Person doing hot work:** Indicate time started and post permit at hot work location. After hot work, indicate time completed and leave permit posted for Fire Watch.
- Fire Watch:** Prior to leaving area, do final inspection, sign, leave permit posted and notify Permit-Authorizing Individual.
- Monitor:** After 4 hours, do final inspection, sign, and return to designated area.

Who, When, and Where?

Hot Work Being Done By

- Employee
 Contractor

Date

Job/Work Order No.

Location/Building and Floor

Nature of Job/Object

Name of Person(s) Doing Hot Work

I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for work.

Signature of Permit-Authorizing Individual

Time AM PM
Started PM PM

Expiration Date AM PM
Expiration Time PM

Work area and all adjacent areas to which sparks and heat might have spread were inspected during the fire watch period and were found fire safe.

Signature of Fire Watch Time

Work area was monitored for a minimum of 4 hours following hot work and found fire safe.

Signature of Monitor Time

**THIS PERMIT IS GOOD FOR 24
HOURS ONLY!**

Required Precautions Checklist

(must be retained as record of hot work activity for 6 months minimum)

- Available Sprinklers in Normal Automatic mode and valve open.
 Hot Work equipment in good repair.

Assess 35 ft radial "sphere" of work for potential fire hazards:

- Floors, work level and below, cleaned or protected.
 All other combustibles removed or shielded from sparks.
- Clean horizontal surfaces (e.g. building structures, equipment, ducts, cable trays, etc.) above and below where possible.
 - Remove flammable liquids, dust, lint, combustible waste, oil deposits, etc., where possible.
 - If removal/cleaning is impractical, protect with fire-retardant covers, or shield with fire-retardant guards and/or curtains.
- Transmission or conveying of sparks to adjacent areas eliminated or protected.
- Tightly cover wall/floor openings with fire-retardant material.
 - Where openings cannot be sealed, suspend fire-retardant tarpaulins to help protect areas beneath.
 - Isolate or shut down fans and conveyors to prevent the capturing and conveying sparks to other areas.
- Explosive atmosphere eliminated or potential not present.

Work on walls, ceilings or enclosed equipment:

- Construction materials verified as noncombustible and without combustible covering or insulation.
 Combustibles on other side of walls relocated or protected.
 Enclosed equipment cleaned and protected from all combustibles.
 Containers purged of flammable liquids/vapors.

Fire watch/hot work area monitoring requirements:

- Continuous fire watch provided during and for *at least 60 minutes* after hot work, including all breaks.
 Fire watch supplied with suitable extinguishers/hoses.
 Fire watch trained in the use of fire equipment and sounding alarm.
 Area to be monitored hourly for a *minimum 4 hours* after job is completed or longer if required.

Other precautions that may be required:

- Fire watch provided for adjoining areas, above, or below.
 Confined Space or Lock-Out-Tag-Out required/used.
 Area smoke or heat detection disabled to eliminate false trip.

Other: _____

Comments: _____

WARNING!

HOT WORK IN PROGRESS WATCH FOR FIRE!

IN CASE OF EMERGENCY:

CALL: _____

AT: _____

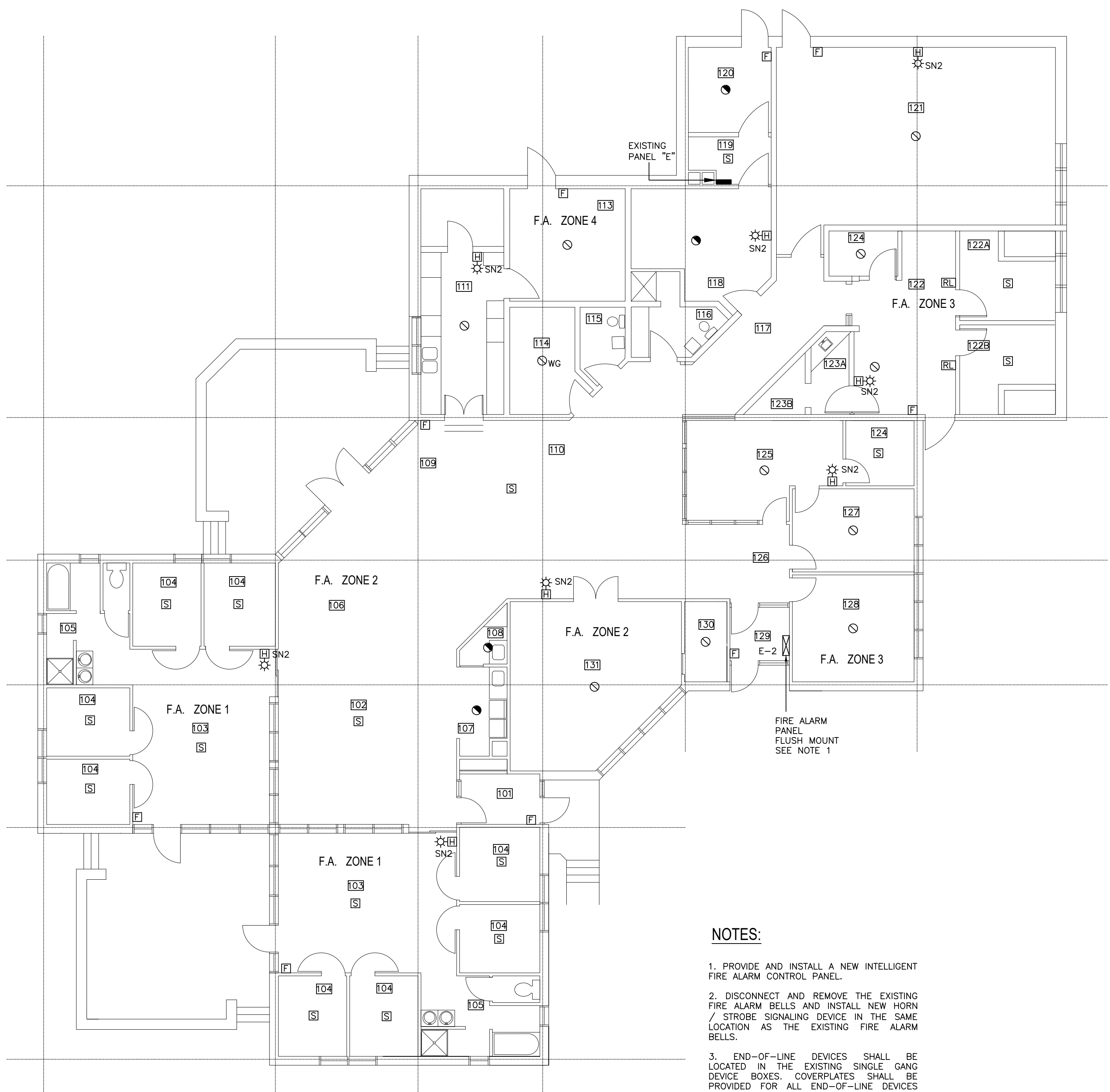
WARNING!

FIRE WATCH/MONITOR RECORD

Checked by (initials)	Date	Time	Checked by (initials)	Date	Time



- NOTES:**
1. DISCONNECT AND REMOVE ALL EXISTING FIRE ALARM DEVICES.
 2. EXISTING WIRING TO BE REUSED WHERE POSSIBLE.
 3. EXISTING FIRE ALARM PANEL FLUSH MOUNTED IN BLOCK WALL. MAKE NECESSARY MODIFICATIONS TO WALL FOR NEW FIRE ALARM PANEL.



- NOTES:**
1. PROVIDE AND INSTALL A NEW INTELLIGENT FIRE ALARM CONTROL PANEL.
 2. DISCONNECT AND REMOVE THE EXISTING FIRE ALARM BELLS AND INSTALL NEW HORN / STROBE SIGNALING DEVICE IN THE SAME LOCATION AS THE EXISTING FIRE ALARM BELLS.
 3. END-OF-LINE DEVICES SHALL BE LOCATED IN THE EXISTING SINGLE GANG DEVICE BOXES. COVERPLATES SHALL BE PROVIDED FOR ALL END-OF-LINE DEVICES AND SHALL HAVE AN IDENTIFYING LABEL SECURELY ATTACHED TO THE FRONT OF THE COVER PLATE, LISTING THE ZONE SERVED.
 4. REMOVE ALL EXISTING WIRING AND DEVICES MADE REDUNDANT THROUGH THE SCOPE OF THIS CONTRACT.
 5. COMPLETE SYSTEM TO BE VERIFIED AND CERTIFIED UPON COMPLETION OF WORK. COMPLETE FIRE ALARM INSPECTION REPORT TO BE PROVIDED TO THE OWNER AND CONSULTANT FOR REVIEW.
 6. SUPPLY AND INSTALL A WALL MOUNTED FIRE ALARM LAMACOID PLAN AND LOCATE AT THE MAIN ENTRANCE OF THE FACILITY BESIDE THE FIRE ALARM CONTROL PANEL.
 7. RECONNECT TO EXISTING 120 VOLT CIRCUIT 2 PANEL E LOCATED IN THE ELECTRICAL ROOM.



ISSUED FOR TENDER
2023-02-02

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A = Detail #
BB/CC = Sheet # (Where Detail Required)
CC = Sheet # (Where Detailed)

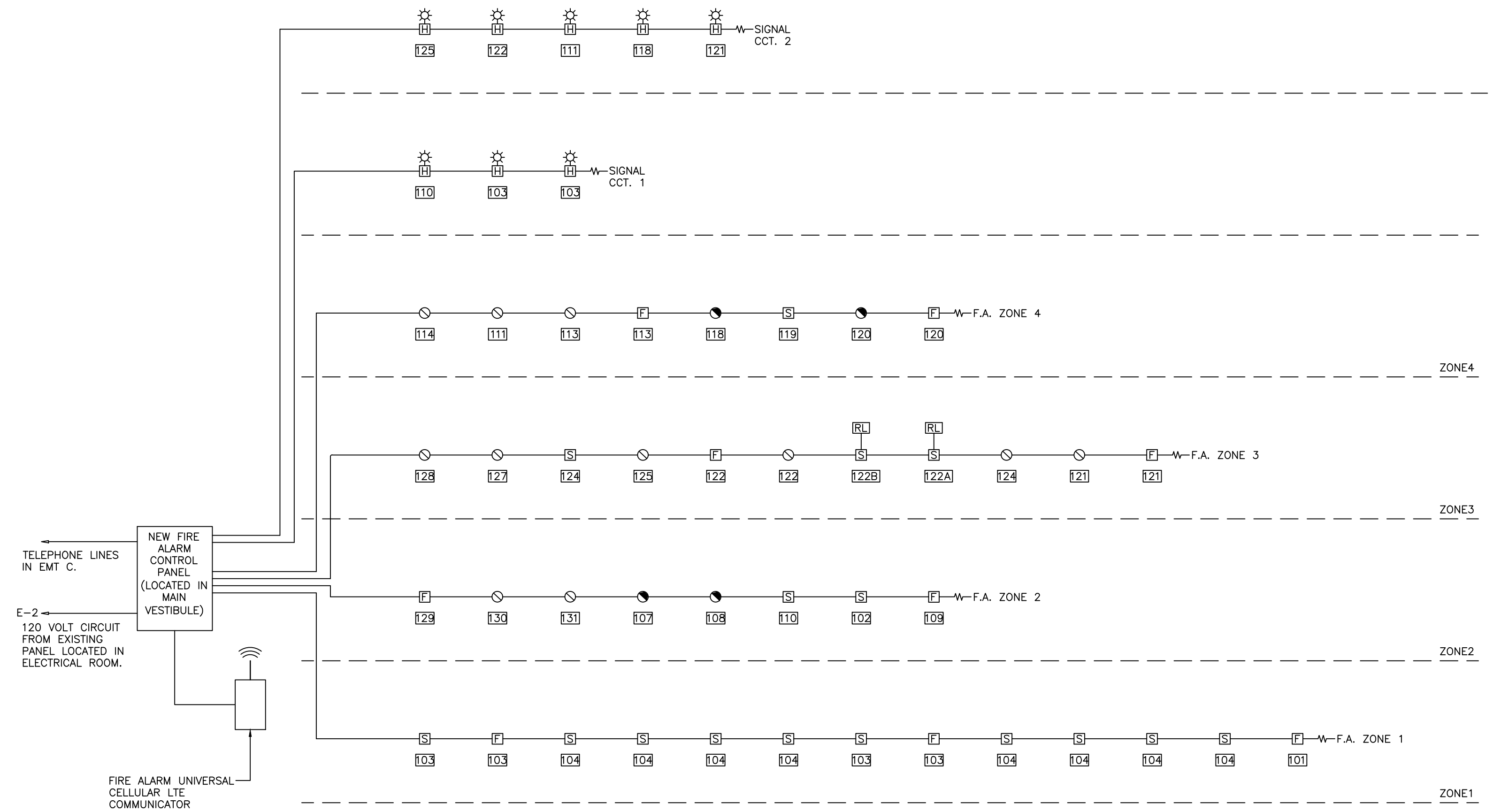
Project Title :
**Tyne Valley Youth Centre
Fire Alarm System
Replacement**

Drawing Title :
**Fire Alarm System Demo
And Revised Floor Plans**

Scale : AS NOTED	Design By : JPG
Drawn By : C.Y.	Date : Feb. 2, 2023
Project No. : 3980-23015 (RAL #2022091)	Drawing # : E1 of E3

1 FIRE ALARM SYSTEM DEMO FLOOR PLAN
E1 SCALE : 1 = 100

2 FIRE ALARM SYSTEM REVISED FLOOR PLAN
E1 SCALE : 1 = 100



1 FIRE ALARM RISER DIAGRAM
SCALE : NTS

- NEW FIRE ALARM CONTROL PANEL WITH 2 ALARM ZONES AND TWO SIGNAL CIRCUITS, SIEMENS, CERBERUS PRO 252 POINT ADDRESSABLE FIRE ALARM CONTROL PANEL SIEMENS, MODEL # FC922
- INTELLIGENT FIRE ALARM PULL STATION, 1 STAGE, SIEMENS CAT. # HMS-SA
- ADDRESSABLE MULTI-CRITERIA FIRE DETECTOR, SIEMENS, CAT. # 0H921
- ADDRESSABLE HEAT DETECTOR (15 DEGREES F PER MINUTE) AND FIXED TEMPERATURE (135 DEGREES F) SIEMENS, CAT.# H921
- ADDRESSABLE HEAT DETECTOR FIXED TEMPERATURE, SIEMENS, CAT.# H921
- FIRE ALARM HORN/STROBE COMBINATION, SIEMENS ZH/ZR SERIES
- ADDRESSABLE INPUT MODULE, SIEMENS, HTRI SERIES CAT. # HTRI-S
- FIRE ALARM BELL
- REMOTE FIRE ALARM LED LAMP, WALL MOUNT Ø2.1M AFF. CERBERUS RLI-2.
- END OF LINE RESISTOR - IN SINGLE GANG BOX C/W COVERPLATE
- HOME RUN TO FIRE ALARM CONTROL PANEL FIRE ALARM WIRING IN CONDUIT, ALARM CIRCUITS 2 #12AWG, SIGNAL CIRCUITS 2 #14AWG
- ELECTRICAL PANEL
- EXISTING DEVICE LOCATION, NEW DEVICE TO BE INSTALLED
- WIRE GUARD

FIRE ALARM WIRING:

1. ALL NEW INITIATING AND SIGNALING DEVICES SHALL BE INSTALLED AND CONNECTED TO THE NEW FIRE ALARM CONTROL PANEL.
2. ALL NEW WIRING REQUIRED FOR FIRE ALARM DEVICES SHALL BE ONE TWISTED PAIR #18 AWG C/W #18 GREEN PVC BONDING CONDUCTOR IN AN INTERLOCKED ALUMINUM ARMOUR, STANDARD OF ACCEPTANCE: SECUREX II, WIRE IN CONDUIT IS ALSO AS ACCEPTABLE WIRING METHOD.
3. ALL NEW WIRING REQUIRED FOR FIRE ALARM SIGNALING DEVICES SHALL ONE PAIR #12 AWG C/W #18 GREEN PVC BONDING CONDUCTOR IN AN INTERLOCKED ALUMINUM ARMOUR, STANDARD OF ACCEPTANCE: SECUREX II, WIRE IN CONDUIT IS ALSO AS ACCEPTABLE WIRING METHOD.

2 SYMBOL LEGEND
SCALE : NTS



GENERAL ELECTRICAL PROVISIONS

- 1 GENERAL
 - 1 THIS SECTION COVERS ITEMS COMMON TO SECTIONS OF THE ELECTRICAL DIVISION.
 - 2 THIS SECTION SUPPLEMENTS REQUIREMENTS OF THE ARCHITECTURAL DIVISION UNLESS SPECIFIED OTHERWISE.
 - 3 CODES AND STANDARDS
 - 1 TO COMPLETE INSTALLATION IN ACCORDANCE WITH CSA C22.1, LATEST EDITION IN EFFECT, EXCEPT WHERE SPECIFIED OTHERWISE.
 - 2 NO ALTERNATIVE TO SUPPLYING EQUIPMENT WHICH IS NOT CSA C22.1NO.14M10/9 EXCEPT WHERE SPECIFIED OTHERWISE.
 - 4 ABBREVIATIONS FOR ELECTRICAL TERMS: TO CSA Z83-1983.
 - 5 DO COMPLETE INSTALLATION IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
 - 3 PERMITS, FEES AND INSPECTION
 - 1 SUBMIT TO ELECTRICAL INSPECTION DEPARTMENT NECESSARY NUMBER OF DRAWINGS AND SPECIFICATIONS FOR EXAMINATION AND APPROVAL PRIOR TO COMMENCEMENT OF WORK.
 - 2 PAY ASSOCIATED FEES.
 - 3 ENGINEER WILL PROVIDE DRAWINGS AND SPECIFICATIONS REQUIRED BY ELECTRICAL INSPECTION DEPARTMENT AT NO COST.
 - 4 NOTIFY ENGINEER OF CHANGES REQUIRED BY ELECTRICAL INSPECTION DEPARTMENT PRIOR TO MAKING CHANGES.
 - 5 FURNISH CERTIFICATES OF ACCEPTANCE FROM INSPECTION DEPARTMENT AND AUTHORITIES HAVING JURISDICTION ON COMPLETION OF WORK.
 - 4 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES IN ACCORDANCE WITH THIS DIVISION.
 - 2 INDICATE DETAILS OF CONSTRUCTION, DIMENSIONS, CAPACITIES, WEIGHTS AND ELECTRICAL PERFORMANCE CHARACTERISTICS OF EQUIPMENT OR MATERIAL.
 - 3 WHERE APPLICABLE, INCLUDE WIRING, SINGLE LINE AND SCHEMATIC DIAGRAMS.
 - 4 INCLUDE WIRING DRAWINGS OR DIAGRAMS SHOWING INTERCONNECTION WITH WORK OF OTHER SECTIONS.
 - 5 OPERATION AND MAINTENANCE MANUALS
 - 1 PROVIDE 3 (THREE) SETS OF OPERATION AND MAINTENANCE MANUALS.
 - 2 INCLUDE THE FOLLOWING INFORMATION IN THE OPERATIONS AND MAINTENANCE MANUALS:
 - 1 NAMES AND ADDRESS OF LOCAL SUPPLIERS FOR THE ITEMS INCLUDED.
 - 2 DETAILS OF DESIGN ELEMENTS, CONSTRUCTION FEATURES, COMPONENT FUNCTION AND MAINTENANCE REQUIREMENTS, TO PERMIT EFFECTIVE START-UP, OPERATION, REPAIR, MODIFICATION, EXPANSION OF ANY PORTION OR FEATURE OF THE INSTALLATION.
 - 3 TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY BULLETINS, COMPONENT ILLUSTRATIONS, EXPLODED VIEWS, TECHNICAL DESCRIPTIONS OF ITEMS, ADVERTISING OR SALES LITERATURE IS NOT ACCEPTABLE.
 - 4 THE CONSULTANTS REVIEWED SHOP DRAWINGS.
 - 5 WIRING AND SCHEMATIC DIAGRAMS AND PERFORMANCE CURVES.
 - 3 REVIEW INFORMATION PROVIDED IN THE MAINTENANCE INSTRUCTIONS AND MANUALS WITH THE OWNER'S OPERATING PERSONNEL TO ENSURE THEIR COMPLETE UNDERSTANDING OF THE ELECTRICAL EQUIPMENT AND SYSTEM.
 - 6 MAINTENANCE MATERIALS
 - 1 PROVIDE MAINTENANCE MATERIALS AS SPECIFIED.
 - 2 REFER TO SECTIONS IN THIS DIVISION FOR REQUIREMENTS.
 - 7 CARE, OPERATION AND START-UP
 - 1 INSTRUCT OPERATING PERSONNEL IN THE OPERATION, CARE AND MAINTENANCE OF EQUIPMENT.
 - 2 ARRANGE AND PAY FOR SERVICES OF MANUFACTURER'S FACTORY SERVICE ENGINEER TO SUPERVISE START-UP OF INSTALLATION, CHECK, ADJUST, BALANCE AND CALIBRATE COMPONENTS.
 - 3 PROVIDE THESE SERVICES FOR SUCH PERIOD, AND FOR AS MANY VISITS AS NECESSARY TO PUT EQUIPMENT IN OPERATION, AND ENSURE THAT OPERATING PERSONNEL ARE CONVERSANT WITH ASPECTS OF ITS CARE AND OPERATION.

8 VOLTAGE RATINGS

- 1 OPERATING VOLTAGES: TO CAN3-C235-83.
- 2 MOTORS, CONTROL AND DISTRIBUTION DEVICES AND EQUIPMENT TO OPERATE SATISFACTORILY AT 60 HZ WITH NORMAL OPERATING LIMITS ESTABLISHED BY ABOVE STANDARD, EQUIPMENT TO OPERATE IN EXTREME OPERATING CONDITIONS ESTABLISHED IN ABOVE STANDARD WITHOUT DAMAGE TO EQUIPMENT.
- 9 MATERIALS AND EQUIPMENT
 - 1 PROVIDE MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THIS DIVISION.
 - 2 EQUIPMENT AND MATERIAL TO BE CSA CERTIFIED, WHERE THERE IS NO ALTERNATIVE TO SUPPLYING EQUIPMENT WHICH IS NOT CSA CERTIFIED, OBTAIN SPECIAL APPROVAL FROM INSPECTION DEPARTMENT.
 - 3 FACTORY ASSEMBLE CONTROL PANELS AND COMPONENT ASSEMBLIES.
 - 10 ELECTRIC MOTORS, EQUIPMENT AND CONTROLS
 - 1 SUPPLIER AND INSTALLER RESPONSIBILITY IS INDICATED IN MOTOR EQUIPMENT SCHEDULE ON ELECTRICAL DRAWINGS AND RELATED MECHANICAL RESPONSIBILITY IS INDICATED ON MECHANICAL DRAWINGS.
 - 2 CONTROL WIRING AND CONDUIT IS SPECIFIED IN DIVISION 16 EXCEPT FOR CONDUIT, WIRING AND CONNECTIONS BELOW 50 V WHICH ARE RELATED TO CONTROL SYSTEMS SPECIFIED IN DIVISION 15 AND SHOWN ON MECHANICAL DRAWINGS.
 - 3 FINISH METAL ENCLOSURE SURFACES BY REMOVAL OF RUST AND SCALE, CLEANING, APPLICATION OF RUST RESISTANT PRIMER INSIDE AND OUTSIDE, AND AT LEAST TWO COATS OF FINISH ENAMEL.
 - 1 POINT OUTDOOR ELECTRICAL EQUIPMENT "EQUIPMENT GREEN" FINISH TO EEMAC Y1-1-1955.
 - 2 PAINT INDOOR SWITCHGEAR AND DISTRIBUTION ENCLOSURES LIGHT GREY TO EEMAC 2Y-1-1955.
 - 2 CLEAN AND TOUCH UP SURFACES OF SHOP PAINTED EQUIPMENT SCRATCHED OR MARRED DURING SHIPMENT OR INSTALLATION.
 - 3 CLEAN, PRIME AND PAINT EXPOSED HANGERS, RACKS, FASTENINGS TO PREVENT RUSTING.
 - 12 EQUIPMENT IDENTIFICATION
 - 1 IDENTIFY ELECTRICAL EQUIPMENT WITH NAMEPLATES AND LABELS AS FOLLOWS:
 - 2 NAMEPLATES
 - 1 1.1 LAMINATED 3MM(1/8") THICK PLASTIC ENGRAVING SHEET, BLACK FACE, WHITE CORE, SELF ADHESIVE UNLESS SPECIFIED OTHERWISE.
 - 2 NAMEPLATE SIZES
 - 1 SIZE 1.40 X 50 MM (3/8" X 2") 1 LINE 3 MM (1/8") HIGH LETTERS
 - 2 SIZE 2.12 X 70 MM (1/2" X 3 1/8") LINE 5 MM (3/16") HIGH LETTERS
 - 3 SIZE 3.12 X 90 MM (1 1/4" X 3 5/8") LINES 3 MM (1/8") HIGH LETTERS
 - 4 SIZE 4.20 X 90 MM (3/4" X 3 1/2") 1 LINE 5 MM (3/16") HIGH LETTERS
 - 5 SIZE 5.20 X 90 MM (3/4" X 3 1/2") 2 LINES 5 MM (3/16") HIGH LETTERS
 - 6 SIZE 6.25 X 100 MM (1" X 4") 1 LINE 12MM (1/2") HIGH LETTERS
 - 7 SIZE 7.25 X 100 MM (1" X 4") 2 LINES 6 MM (1/4") HIGH LETTERS
 - 3 EMBOSSED PLASTIC LABELS WITH 6MM(1/4") HIGH LETTERS UNLESS SPECIFIED OTHERWISE.
 - 4 WORKING ON NAMEPLATES AND LABELS TO BE APPROVED BY ENGINEER PRIOR TO MANUFACTURE.
 - 5 ALLOW FOR AVERAGE OF TWENTY-FIVE (25) LETTERS PER NAMEPLATE AND LABEL.
 - 6 LABELS TO BE ENGLISH.
 - 7 NAMEPLATES FOR TERMINAL CABINETS AND JUNCTION BOXES TO INDICATE SYSTEM AND/OR VOLTAGE CHARACTERISTICS.
 - 8 DISCONNECTS, STARTERS AND CONTACTORS: INDICATE EQUIPMENT BEING CONTROLLED AND VOLTAGE.
 - 9 TERMINAL CABINETS AND PULL BOXES: INDICATE SYSTEM AND VOLTAGE.
 - 10 ACCESS DOORS: INDICATE CAPACITY, PRIMARY AND SECONDARY VOLTAGES.

13 WIRING IDENTIFICATION

- 1 IDENTIFY WIRING WITH PERMANENT INDELIBLE IDENTIFYING MARKINGS, EITHER NUMBERED OR COLOURED PLASTIC TAPES, ON BOTH ENDS OF PHASE CONDUCTORS OF FEEDERS AND BRANCH CIRCUIT WIRING.
- 2 MAINTAIN PHASE SEQUENCE AND COLOUR CODING THROUGHOUT.
- 3 COLOUR CODE: TO CSA C22.1-1998.
- 4 USE COLOUR CODED WIRES IN COMMUNICATION CABLES, MATCHED THROUGHOUT SYSTEM.
- 14 CONDUIT AND CABLE IDENTIFICATION
 - 1 COLOUR CODE CONDUITS AND METALLIC SHEATHED CABLES.
 - 2 CODE WITH PLASTIC TAPE OR PAINT AT POINTS WHERE CONDUIT OR CABLE ENTERS WALL, CEILING, OR FLOOR, AND AT 15M(50FT) INTERVALS.
 - 3 COLOURS: 25 MM WIDE PRIME COLOUR AND 20MM(3/4") WIDE AUXILIARY COLOUR.
- 15 WIRING TERMINATIONS
 - 1 VISIBLE AND LEGIBLE AFTER EQUIPMENT IS INSTALLED.
 - 17 WARNING SIGNS
 - 1 PROVIDE WARNING SIGNS, AS SPECIFIED AND/OR TO MEET REQUIREMENTS OF INSPECTION DEPARTMENT AND ENGINEER.
 - 2 USE DECAL SIGNS, MINIMUM 75 X 25MM(3"X1") SIZE.
 - 18 SINGLE LINE ELECTRICAL DIAGRAMS
 - 1 PROVIDE SINGLE LINE ELECTRICAL DISTRIBUTION DIAGRAM UNDER PLEXIGLASS IN MAIN ELECTRICAL ROOM.
 - 2 PROVIDE FIRE ALARM RISER DIAGRAM, PLAN AND ZONING OF BUILDING UNDER PLEXIGLASS AT FIRE ALARM CONTROL PANEL AND IN GLAZED FRAME AT ANNUNCIATOR WHERE APPLICABLE.
 - 3 DRAWINGS: 600 X 900MM MINIMUM SIZE.
 - 19 LOCATION OF OUTLETS
 - 1 LOCATE OUTLETS WHERE INDICATED ON THE DRAWINGS.
 - 2 PROVIDE DISTANCE DOES NOT EXCEED 3M(10FT), AND INFORMATION IS GIVEN BEFORE INSTALLATION.
 - 4 LOCATE LIGHT SWITCHES ON LATCH SIDE OF DOORS. LOCATE DISCONNECT DEVICES IN MECHANICAL AND ELEVATOR MACHINE ROOMS ON LATCH SIDE OF DOOR.
 - 20 MOUNTING HEIGHTS
 - 1 MOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO CENTRELINE OF EQUIPMENT UNLESS SPECIFIED OR INDICATED OTHERWISE.
 - 2 IF MOUNTING HEIGHT OF EQUIPMENT IS NOT INDICATED VERIFY BEFORE PROCEEDING WITH INSTALLATION.
 - 3 INSTALL ELECTRICAL EQUIPMENT AT THE FOLLOWING HEIGHTS UNLESS INDICATED OTHERWISE.
 - 1 LOCAL SWITCHES: 1200MM(4ft)
 - 2 IDENTIFIABLE OUTLETS: 1500MM(5ft)
 - 1 GENERAL: 305MM(12") OR AS NOTED ON DRAWINGS.
 - 2 ABOVE TOP OF CONTINUOUS BASEBOARD HEATER: 203MM(8")
 - 3 IN MECHANICAL ROOMS: 1220MM(4ft)
 - 3 PANEL BOARDS: AS REQUIRED BY CODE OR AS INDICATED.
 - 4 TELEPHONE OUTLETS: 305MM(12")
 - 5 FIRE ALARM STATIONS: 1200MM(4ft)
 - 6 FIRE ALARM STATIONS OR HORN/STROBE: 2134MM(8ft4"), UNLESS NOTED OTHERWISE.
 - 7 EMERGENCY LIGHTING BATTERY UNITS: 2134MM(8ft4") UNLESS NOTED OTHERWISE.

21 PROTECTION

- 1 PROTECT EXPOSED LIVE EQUIPMENT DURING CONSTRUCTION FOR PERSONNEL SAFETY.
- 2 SHIELD AND MARK LIVE PARTS "LIVE 120 VOLTS", OR WITH APPROPRIATE VOLTAGE IN ENGLISH.
- 3 ARRANGE FOR INSTALLATION OF TEMPORARY DOORS FOR ROOMS CONTAINING ELECTRICAL DISTRIBUTION EQUIPMENT. KEEP THESE DOORS LOCKED EXCEPT WHEN UNDER DIRECT SUPERVISION OF ELECTRICIAN.
- 22 LOAD BALANCE
 - 1 MEASURE PHASE CURRENT TO PANELBOARDS WITH NORMAL LOADS (LIGHTING) OPERATING AT TIME OF ACCEPTANCE, ADJUST BRANCH CIRCUIT CONNECTIONS AS REQUIRED TO OBTAIN BEST BALANCE OF CURRENT BETWEEN PHASES AND RECORD CHANGES.
 - 2 MEASURE PHASE VOLTAGES AT LOADS AND RECORD AT TIME OF TEST.
 - 3 SUBMIT, AT COMPLETION OF WORK, A REPORT LISTING PHASE AND NEUTRAL CURRENTS ON PANELBOARDS OPERATING UNDER NORMAL LOAD, STATE HOUR AND DATE ON WHICH EACH LOAD WAS MEASURED.
 - 23 CONDUIT AND CABLE INSTALLATION
 - 1 INSTALL CONDUIT AND SLEEVES PRIOR TO POURING OF CONCRETE. SLEEVES THROUGH CONCRETE: SHEET METAL, SIZED FOR FREE PASSAGE OF CONDUIT, AND PROTRUDING 30MM(1 1/4").
 - 2 INSTALL CABLES, CONDUITS, AND FITTINGS TO BE EMBEDDED OR PLASTERED OVER, NEATLY AND CLOSE TO BUILDING STRUCTURE SO FURRING CAN BE KEPT TO MINIMUM.
 - 24 SEALING
 - 1 WHERE CABLES, BUS DUCTS, CABLE TRAY, OR CONDUITS PASS THROUGH FLOORS, WALLS OR ROOF, PROVIDE INTERNAL AND EXTERNAL SEALING THERETO.
 - 2 RETAIN THE SERVICE OF A SPECIALTY SEALANT CONTRACTOR FOR THE WORK REQUIRED.
 - 3 COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ALL SEALANT APPLICATIONS.
 - 4 FOR NON-FIRE RATED LOCATIONS, SEALANT SHALL BE SILICONE, THAT MEETS REQUIREMENTS OF CGSB 19-GP-23, FOR THE SIZE OF THE JOINT REQUIRED, AND THE TYPES OF MATERIALS BEING BONDED.
 - 5 FOR FIRE RATED LOCATIONS, THE FIRE STOP SHALL MEET THE REQUIREMENTS OF UL/C WITH REGARDS TO THE TYPE OF ASSEMBLY AND THE FIRE RATED PARTITION.
 - 25 PERFORMANCE TESTS
 - 1 CONDUIT AND PAY FOR TESTS OF THE FOLLOWING WHERE APPLICABLE:
 - 1 POWER GENERATION AND DISTRIBUTION SYSTEMS INCLUDING PHASING, VOLTAGE, GROUNDING AND LOAD BALANCING.
 - 2 CIRCUITS ORIGINATING FROM BRANCH DISTRIBUTION PANELS.
 - 3 LIGHTING AND ITS CONTROL.
 - 4 MOTORS, HEATERS AND ASSOCIATED CONTROL EQUIPMENT INCLUDING SEQUENCED OPERATION OF SYSTEMS WHERE APPLICABLE.
 - 5 SYSTEMS: FIRE ALARM AND COMMUNICATIONS SYSTEMS.
 - 6 SURGE PROTECTION SYSTEMS.
 - 2 FURNISH MANUFACTURER'S CERTIFICATE OR LETTER CONFIRMING THAT ENTIRE INSTALLATION AS IT PERTAINS TO EACH SYSTEM HAS BEEN INSTALLED TO MANUFACTURER'S INSTRUCTIONS.
 - 3 INSULATION RESISTANCE TESTING:
 - 1 MESSENGER CIRCUITS, FEEDERS AND EQUIPMENT UP TO 350V WITH A 50 V INSTRUMENT.
 - 2 CHECK RESISTANCE TO GROUND BEFORE ENERGIZING.
 - 3 CARRY OUT TESTS IN PRESENCE OF ENGINEER.
 - 4 PROVIDE INSTRUMENTS, METERS, EQUIPMENT AND PERSONNEL REQUIRED TO CONDUCT TESTS DURING AND AT CONCLUSION OF PROJECT.
 - 5 SUBMIT TEST RESULTS FOR ENGINEER'S REVIEW.
 - 26 CO-ORDINATION OF PROTECTIVE DEVICES
 - 1 ENSURE CIRCUIT PROTECTIVE DEVICES SUCH AS OVERCURRENT TRIPS, RELAYS, FUSES, ARE INSTALLED TO VALUES AND SETTINGS AS INDICATED.

27 CLEANING

- 1 DO FINAL CLEANING.
- 2 CLEAN LUMINAIRE REFLECTORS AND LENSES, LAMPS, AND OTHER SURFACES THAT HAVE BEEN EXPOSED TO CONSTRUCTION DUST AND DIRT. CLEAN THE INSIDES AND OUTSIDES OF PANELBOARDS, SPLITTERS AND OTHER ELECTRICAL EQUIPMENT, AND COMPLETELY REMOVE ALL DEBRIS AND TOOLS FROM THE PROJECT. OWNER TO INSPECT INTERIORS PRIOR TO CLOSURE.
- 3 MEANS THAT ITEM NAMED MEETS SPECIFICATIONS IN ALL RESPECTS REGARDING QUALITY OF MATERIAL AND WORKMANSHIP, AND IS ACCEPTABLE TO ENGINEER WITHOUT QUALIFICATION. EQUIPMENT PROPOSED SHALL MEET SAME STANDARDS AND MUST BE APPROVED SEVEN (7) DAYS PRIOR TO TENDER CLOSING.
- 4 "APPROVED ALTERNATES" WILL BE ACCEPTED WITH THE TENDER ON THE FORM SUPPLIED, INDICATING PRICE INCREASE OR DECREASE TO THE BID, SHOULD THE ALTERNATE BE ACCEPTED.
- 28 CUTTING AND PATCHING
 - 1 ALL CUTTING AND PATCHING REQUIRED FOR THE WORK OF THIS DIVISION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
 - 2 PREPARE DRAWING SHOWING THE EXTENT OF THE WORK AND SUBMIT FOR THE CONSULTANT'S APPROVAL, FOR PATCHING. USE MATERIALS EQUAL TO THOSE COMPRISING THE SURROUNDING AREA.
 - 3 INFORM OTHER DIVISION CONTRACTORS IN SUFFICIENT TIME WITH REGARD TO REQUIRED OPENINGS.
 - 4 IN WORK ALREADY FINISHED, CUTTING AND PATCHING WILL BE CARRIED OUT BY OTHERS AT THE ELECTRICAL CONTRACTORS' EXPENSE.
 - 5 BE AWARE OF FIRE RATED PARTITIONS, MINIMIZE THE AREA AFFECTED BY THE WORK, AND RETURN ALL SURFACE TO A CONDITION ENCOUNTERED BEFORE THE WORK. ACCEPTANCE OF THE FINISHED WORK IS AT THE SOLE DISCRETION OF THE CONSULTANT.
 - 30 EXCAVATION AND BACKFILL
 - 1 ALL EXCAVATION, TRENCHING AND BACKFILLING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
 - 2 THIS CONTRACTOR TO PROVIDE LAYOUT DRAWINGS AND SUPERVISION FOR ALL TRENCHING REQUIRED FOR THE COMPLETION OF THEIR WORK.
 - 31 CONCRETE WORK
 - 1 ALL CONCRETE WORK SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
 - 2 THIS CONTRACTOR TO PROVIDE LAYOUT DRAWINGS AND SUPERVISION FOR ALL CONCRETE WORK REQUIRED.
 - 32 ACCESS DOORS
 - 1 WHEREVER ANY ITEM OF ELECTRICAL EQUIPMENT REQUIRING ACCESS TO IT IS INSTALLED, ACCESS DOORS MUST BE AVAILABLE AT UNDERSIDE OF CONCRETE SLAB AND EXTEND 100 MM (4") ABOVE FINISHED FLOOR UNLESS OTHERWISE SHOWN.
 - 2 ACCESS DOORS MUST BE INSTALLED IN ACCORDANCE WITH THE CONSTRUCTION SCHEDULE.
 - 35 AS-BUILT DRAWINGS
 - 1 PROVIDE AS-BUILT DRAWINGS OF THE INSTALLATION FROM THE RECORD DRAWINGS, IN THE FORM OF FULL-SIZE PRINTS AND/OR AUTOCAD DRAWINGS (WHEN REQUESTED).

33 CONTRACT DRAWINGS

- 1 THE DRAWINGS FOR THE ELECTRICAL WORK ARE DIAGRAMMATIC PERFORMANCE DRAWINGS ONLY, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE LOCATION OF APPARATUS AND FIXTURES, AND THE APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND OUTLETS. THE DRAWINGS DO NOT INTEND TO SHOW ARCHITECTURAL, MECHANICAL OR STRUCTURAL DETAILS.
- 2 FOLLOW THE ELECTRICAL DRAWINGS FOR LAYING OUT THE WORK, REGARDING ACCURATE DIMENSIONS, FROM THE DIMENSIONS SHOWN ON THE ARCHITECTURAL DRAWINGS, OR BY SITE MEASUREMENTS.
- 3 REFER TO THE OTHER DIVISIONS COORDINATION DRAWINGS, TO BECOME FAMILIAR WITH ALL CONDITIONS AFFECTING THE WORK, AND VERIFY SUITABLE SPACES EXIST, IN WHICH THE EQUIPMENT WILL BE INSTALLED.
- 4 MAKE, AT NO ADDITIONAL COST, ANY CHANGES OR ADDITIONS TO MATERIALS AND EQUIPMENT NECESSARY TO ACCOMMODATE SITUATIONAL CONDITIONS (OFFSETS AROUND BEAMS, COLUMNS, ETC.).
- 5 ALTER AT NO ADDITIONAL COST, THE LOCATION OF MATERIALS AND/OR EQUIPMENT AS DIRECTED, PROVIDED THAT THE CHANGES ARE MADE BEFORE INSTALLATION, AND DO NOT NECESSITATE ADDITIONAL MATERIALS.
- 6 INSTALL CEILING MOUNTED COMPONENTS (SUCH AS LIGHTING FIXTURES, FIRE ALARM DETECTORS, ETC.) IN ACCORDANCE WITH DIMENSIONED REFLECTED CEILING DRAWINGS, PREPARED BY THE (ARCHITECTURAL) CONSULTANT.
- 7 LEAVE SPACE CLEAR, AND INSTALL EQUIPMENT TO ACCOMMODATE FUTURE MATERIALS AND/OR EQUIPMENT AS INDICATED OR SPECIFIED, OR TO ACCOMMODATE EQUIPMENT AND/OR MATERIALS SUPPLIED BY OTHER CONTRACTORS.
- 8 VERIFY THAT THE SPACES IN WHICH THE EQUIPMENT IS TO BE INSTALLED IS SUFFICIENT AND INSTALL ALL EQUIPMENT TO MAINTAIN HEAD ROOM AND CLEARANCES, TO CONSERVE SPACE, COMPLY WITH CODES, AND TO ENSURE ADEQUATE SPACE FOR FUTURE SERVICING.
- 9 CONFIRM AT THE SITE, THE EXACT LOCATION OF EQUIPMENT, OUTLETS AND FIXTURES, AND THE LOCATION OF OUTLETS FOR EQUIPMENT SUPPLIED BY OTHER CONTRACTORS, BEFORE INSTALLATION.
- 34 INSERTS, HANGERS AND SLEEVES
 - 1 PROVIDE HANGERS, INSERTS, SLEEVES AND SUPPORTS AS SPECIFIED.
 - 2 INSERTS ARE TO BE OF LEAD SHIELD TYPE.
 - 3 HANGERS MUST NOT BE WELDED TO STRUCTURAL STEEL MEMBERS AND BURNING OF HOLES IN STRUCTURAL STEEL IS PROHIBITED.
 - 4 SLEEVES IN NEW CONSTRUCTION ARE TO BE OF A TYPE SUITABLE FOR THE APPLICATION, AND BE SEALED AND MADE WATERTIGHT. SLEEVES THROUGH CONCRETE SHALL BE SCHEDULE 40 STEEL PIPE, 200MM (8") DIAMETER, WHICH LETTERS MUST BE AVAILABLE AT UNDERSIDE OF CONCRETE SLAB AND EXTEND 100 MM (4") ABOVE FINISHED FLOOR UNLESS OTHERWISE SHOWN.
 - 5 BE RESPONSIBLE FOR THE INSTALLATION OF SLEEVES IN ACCORDANCE WITH THE CONSTRUCTION SCHEDULE.
 - 35 AS-BUILT DRAWINGS
 - 1 PROVIDE AS-BUILT DRAWINGS OF THE INSTALLATION FROM THE RECORD DRAWINGS, IN THE FORM OF FULL-SIZE PRINTS AND/OR AUTOCAD DRAWINGS (WHEN REQUESTED).

36 COMPLETION OF CONTRACT

- 1 THE EQUIPMENT MUST BE CLEANED AND TESTED, BEFORE FINAL ACCEPTANCE BY THE CONSULTANT.
- 2 FROM THE DATE OF ISSUANCE OF A "CERTIFICATE OF SUBSTANTIAL PERFORMANCE", ALL EQUIPMENT, MATERIALS AND WORKMANSHIP, OTHER THAN LAMPS, TEST UNCONDITIONALLY WARRANTED FOR NOT LESS THAN 1 (ONE) YEAR.
- 3 DEFECTS AND DEFICIENCIES WHICH ORIGINATE OR BECOME EVIDENT DURING THE WARRANTY PERIOD MUST BE REPAIRED OR REPLACED, AT NO COST.
- 4 IF, DURING THE WARRANTY PERIOD, TRANSFORMERS, BALLASTS OR OTHER NOISE AND VIBRATION PRODUCING EQUIPMENT ARE REPLACED BY THE CONSULTANT TO EXCEED ACCEPTABLE STANDARDS, THEN THESE MUST BE REPLACED WITHOUT DELAY OR ADDITIONAL COST TO THE OWNER, ALL WORK RELATING TO THE REPLACEMENT OF DEFECTIVE ITEMS MUST BE CARRIED OUT AFTER NORMAL WORKING HOURS AND AT A TIME WHICH IS ACCEPTABLE TO THE OWNER.
- 37 EXISTING CONDITIONS
 - 1 VISIT THE SITE AND EXAMINE EXISTING CONDITIONS AFFECTING THE WORK OF THIS DIVISION.
 - 2 NO CLAIM FOR EXTRA PAYMENT SHALL BE MADE FOR EXTRA WORK BE NECESSARY BY CIRCUMSTANCES ENCOUNTERED DUE TO CONDITIONS WHICH WERE VISIBLE UPON, OR REASONABLY INFERRABLE FROM AN EXAMINATION OF THE SITE PRIOR TO SUBMISSION OF THE BID.
 - 38 NOISE AND VIBRATION
 - 1 ELECTRICAL EQUIPMENT IS TO OPERATE WITHOUT OBJECTIONABLE NOISE OR VIBRATION. THE ACTIVITIES PERMITTED SHALL BE EQUIPMENT OPERATES WITH EXCESSIVE NOISE OR VIBRATION, THEN THE EQUIPMENT MUST BE REPLACED OR NOISE OR VIBRATION ELIMINATED.
 - 2 CONNECTIONS TO NOISE-PRODUCING AND VIBRATING EQUIPMENT MUST BE MADE WITH FLEXIBLE CONDUIT. USE A MINIMUM OF 1M (3 FT) OF FLEXIBLE CONDUIT OR CABLE AT EACH DEVICE, FORMED INTO A 360 DEG LOOP.
 - 3 VIBRATION ISOLATORS ARE TO BE PROVIDED WHERE INDICATED OR REQUIRED.
 - 39 FIELD QUALITY CONTROL
 - 1 ALL ELECTRICAL WORK TO BE CARRIED OUT BY QUALIFIED, LICENSED ELECTRICIANS OR APPRENTICES AS PER THE CONDITIONS OF THE PROVINCIAL ACT RESPECTING MANPOWER VOCATIONAL TRAINING AND QUALIFICATION. EMPLOYEES REGISTERED IN A PROVINCIAL APPRENTICES PROGRAM SHALL BE PERMITTED, UNDER THE DIRECT SUPERVISION OF A QUALIFIED LICENSED ELECTRICIAN, TO PERFORM SPECIFIC TASKS. THE ACTIVITIES PERMITTED SHALL BE DETERMINED BASED ON THE LEVEL OF TRAINING ATTAINED AND THE DEMONSTRATION OF ABILITY TO PERFORM SPECIFIC DUTIES.
 - 2 THROUGHOUT THE CONSTRUCTION OF THE PROJECT, A PROPERLY QUALIFIED ELECTRICAL SUPERVISOR MUST BE AVAILABLE AT ALL TIMES. THE SUPERINTENDENT WHO STARTS THE WORK MUST NOT BE CHANGED UNLESS REQUESTED BY THE CONSULTANT, OR BY THE CONTRACTOR WITH WRITTEN PERMISSION FROM THE CONSULTANT.
 - 3 IN ADDITION, PROVIDE PROPER OFFICE SUPERVISION OF THE WORK. THE PERSON RESPONSIBLE FOR OFFICE SUPERVISION MUST VISIT THE SITE AS OFTEN AS NECESSARY, TO ENSURE WORK IS PROPERLY PERFORMED, AND ATTEND MEETINGS WHEN SO REQUESTED.
 - 4 THE WORK OF THIS DIVISION IS TO BE CARRIED OUT BY A CONTRACTOR WHO HOLDS A VALID MASTER ELECTRICAL CONTRACTOR LICENSE AS ISSUED BY THE PROVINCE WHERE THE WORK IS BEING CONSTRUCTED.
 - 40 COMMISSIONING
 - 1 THE CONTRACTOR SHALL BE FINANCIALLY RESPONSIBLE FOR ALL WORK REQUIRED FOR THE COMMISSIONING OF THE ELECTRICAL SYSTEMS. SYSTEMS TO BE COMMISSIONED ARE OUTLINED IN THIS SECTION, PARAGRAPH 25 - PERFORMANCE TESTS.
 - 41 TRAINING
 - 1 PROVIDE TRAINING FOR SYSTEMS AS REQUESTED IN THE FOLLOWING SPECIFICATIONS.
 - END

3 ELECTRICAL SPECIFICATIONS - 1
SCALE : NTS

ISSUED FOR TENDER
2023-02-02

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Project Title:
Tyne Valley Youth Centre
Fire Alarm System
Replacement

Drawing Title:
Fire Alarm System Riser
Diagram And Legend

Scale: AS NOTED
Design By: JPG
Drawn By: C.Y.
Date: Feb. 2, 2023
Project No.: 3980-23015 (RAL #2022091)
Drawing #: E2 of E3

CONDUITS, CONDUIT FASTENINGS AND CONDUIT FITTINGS**PART 1 - GENERAL**

- 1.1 LOCATION OF CONDUITS
- 1.2 DRAWINGS DO NOT SHOW ALL CONDUITS. THOSE SHOWN ARE IN DIAGRAMMATIC FORM ONLY.

PART 2 - PRODUCTS

- 2.1 CONDUITS
 - 1 RIGID GALVANIZED STEEL THREADED CONDUIT. SIZE AS INDICATED, TO CSA C22.2 NO.45.
 - 2 ELECTRICAL METALLIC TUBING (EMT) WITH STEEL SET SCREW COUPLINGS AND CONNECTORS, SIZE AS INDICATED, TO CSA C22.2 NO. 85.
 - 3 RIGID PVC CONDUIT. SIZE AS INDICATED, TO CSA C22.2 NO.211-2.1983.
 - 4 FLEXIBLE METAL CONDUIT AND LIQUID-TIGHT FLEXIBLE METAL CONDUIT. SIZE AS INDICATED, TO CSA C22.2 NO. 56.

2.2 CONDUIT FASTENINGS

- 1 ONE HOLE STEEL STRAPS TO SECURE SURFACE CONDUITS 50MM(2") AND SMALLER. TWO FASTENINGS HOLD STEEL STRAPS FOR CONDUITS LARGER THAN 50(2") MM.
- 2 BEAM CLAMPS TO SECURE CONDUITS TO EXPOSED STEEL WORK.
- 3 CHANNEL TYPE SUPPORTS FOR TWO OR MORE CONDUITS.
- 4 SIX THREADED RODS TO SUPPORT SUSPENDED CHANNELS.

2.3 CONDUIT FITTINGS

- 1 FITTINGS MANUFACTURED FOR USE WITH CONDUIT SPECIFIED.

COATINGS, SAME AS FITTINGS CONDUIT.**2 FACTORY "ELLS" WHERE 90 DEGREE BENDS ARE REQUIRED FOR 25MM(1") AND LARGER CONDUITS.****2.4 EXPANSION FITTINGS FOR RIGID CONDUIT**

- 1 WATERTIGHT EXPANSION FITTINGS WITH INTEGRAL BONDING JUMPER SUITABLE FOR LINEAR EXPANSION AND 19MM(3/4") DEFLECTION IN ALL DIRECTIONS AS INDICATED.

2.5 FISH CORD

- 1 POLYPROPYLENE.

3.1 INSTALLATION

- 1 INSTALL CONDUITS TO CONSERVE HEADROOM IN EXPOSED LOCATIONS AND CAUSE MINIMUM INTERFERENCE IN SPACES THROUGH WHICH THEY PASS.

CONCEAL CONDUITS EXCEPT IN MECHANICAL AND ELECTRICAL SERVICE ROOMS AND IN UNFINISHED AREAS.

- 3 USE RIGID GALVANIZED STEEL THREADED CONDUIT WHERE SUBJECT TO MECHANICAL DAMAGE, ALSO WHERE INDICATED; ALSO WHERE NOT SPECIFIED OR INDICATED OTHERWISE.

4 USE ELECTRICAL METALLIC TUBING (EMT) FOR FEEDERS AND BRANCH CIRCUITS ABOVE 2.4MM(3/8") AND BELOW, WHERE NOT SUBJECT TO MECHANICAL INJURY.

- 5 USE RIGID PVC CONDUIT UNDERGROUND IN WET OR CORROSIVE AREAS, IN POURED CONCRETE SLABS AND UP TO 150MM(6") ABOVE POURED CONCRETE SLABS.

6 USE FLEXIBLE METAL CONDUIT FOR CONNECTION TO MOTORS IN DRY AREAS, CONNECTION TO RECESSED INCANDESCENT FIXTURES WITHOUT A PREWIRED OUTLET BOX, CONNECTION TO SURFACE OR RECESSED FLUORESCENT FIXTURES, WORK IN MOVABLE METAL PARTITIONS.

- 7 USE LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR CONNECTION TO MOTORS IN DAMP, WET OR CORROSIVE LOCATIONS.

8 BEND CONDUIT COLD. REPLACE CONDUIT IF KINKED OR FLATTENED MORE THAN 1/10TH OF ITS ORIGINAL DIAMETER.

- 9 MECHANICALLY BEND STEEL CONDUIT OVER 19MM(3/4") DIA.

10 FIELD THRODS ON RIGID CONDUIT MUST BE OF SUFFICIENT LENGTH TO DRAW CONDUITS UP TIGHT.

- 11 INSTALL FISH CORD IN EMPT CONDUITS.
- 12 WHERE CONDUITS BECOME BLOCKED, REMOVE AND REPLACE BLOCKED SECTION.
- 13 DRY CONDUITS OUT BEFORE INSTALLING WIRE.

3.2 SURFACE CONDUITS

- 1 RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
- 2 RUN CONDUITS IN FLANGED PORTION OF STRUCTURAL STEEL.
- 3 GROUP CONDUITS WHEREVER POSSIBLE ON CHANNELS.
- 4 DO NOT PASS CONDUITS THROUGH STRUCTURAL MEMBERS EXCEPT AS INDICATED.

5 DO NOT LOCATE CONDUITS LESS THAN 75MM(3") PARALLEL TO STEAM OR HOT WATER LINES WITH A MINIMUM OF 25MM(1") AT CROSSOVERS.**3.3 CONCEALED CONDUITS**

- 1 RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
- 2 DO NOT INSTALL HORIZONTAL RUNS IN MASONRY WALLS.
- 3 DO NOT INSTALL CONDUITS IN TERRAZZO OR CONCRETE TOPPING.

3.4 CONDUITS IN CAST-IN-PLACE CONCRETE

- 1 LOCATE IN SUTURE REINFORCING STEEL, WHERE POSSIBLE, INSTALL IN CENTRE ONE THIRD OF SLAB.
- 2 PROTECT CONDUITS FROM DAMAGE WHERE THEY STUB OUT OF CONCRETE.
- 3 INSTALL SLEEVES WHERE CONDUITS PASS THROUGH SLAB OR WALL.
- 4 WHERE CONDUITS PASS THROUGH WATERPROOF MEMBRANE PROVIDE OVERSIZED SLEEVE BEFORE MEMBRANE IS INSTALLED, USE COLD MASTIC BETWEEN SLEEVE AND CONDUIT.
- 5 DO NOT PLACE CONDUITS IN SLABS IN WHICH SLAB THICKNESS IS LESS THAN 10 TIMES CONDUIT DIAMETER.
- 6 ENCASE CONDUITS COMPLETELY IN CONCRETE WITH MINIMUM 25MM(1") CONCRETE COVER.
- 7 ORDNANCE CONDUITS IN SLAB TO MINIMIZE CROSS-OVERS.

3.5 CONDUITS UNDERGROUND

- 1 SLOPE CONDUITS TO PROVIDE DRAINAGE.

END**PART 2 - PRODUCTS****2.1 BUILDING WIRES**

- 1 CONDUCTORS: STRANDED FOR 10 AWG AND LARGER. MINIMUM SIZE: 2 AWG.
- 2 COPPER CONDUCTORS: SIZE AS INDICATED, WITH 600 V INSULATION OF CHEMICALLY CROSS-LINKED THERMOSETTING POLYETHYLENE MATERIAL, RATED RW90.
- 2.2 ARMOURED CABLES
 - 1 CONDUCTORS: INSULATED, COPPER, SIZE AS INDICATED.
 - 2 TYPE: A600.
 - 3 ARMOUR: INTERLOCKING TYPE FABRICATED FROM ALUMINIUM STRIP.

2.3 CONTROL CABLES

- 1 TYPE LVT; 2 SOFT ANNEALED COPPER CONDUCTORS, SIZED AS INDICATED, WITH THERMO PLASTIC INSULATION, OUTER COVERING OF THERMOPLASTIC JACKET. FIRE RATED FTA.
- 2 LOW ENERGY 300 V CONTROL CABLE: ANNEALED COPPER CONDUCTORS SIZED AS INDICATED, WITH PVC INSULATION TYPE TW OR TWN AND SHIELDING OVER EACH CONDUCTOR AND OVERALL PVC JACKET. FIRE RATED FTA.

3.1 INSTALLATION OF BUILDING WIRES

- 1 INSTALL WIRING AS FOLLOWS:
 - 1 IN CONDUIT SYSTEMS IN ACCORDANCE WITH SECTION "CONDUITS, CONDUIT FASTENINGS AND CONDUIT FITTINGS".
 - 2 IN UNDERGROUND DUCTS IN ACCORDANCE WITH SECTIONS "INSTALLATION OF CABLES IN DUCTS".
 - 2.2 INSTALLATION OF ARMOURED CABLES
 - 1 GROUP CABLES WHEREVER POSSIBLE.
 - 2 INSTALL CABLE IN TRENCHES IN ACCORDANCE WITH SECTION "INSTALLATION OF CABLES IN DUCTS".
 - 3 TERMINATE CABLES IN ACCORDANCE WITH SECTION "WIRE AND BOX CONNECTORS 0-1000V".
 - 3.3 INSTALLATION OF CONTROL CABLES
 - 1 INSTALL CONTROL CABLES IN CONDUIT, AS INDICATED.
 - 2 GROUND CONTROL CABLE SHIELD.

JUNCTION AND PULL BOXES**PART 1 - GENERAL**

- 1.1 SHOP DRAWINGS AND PRODUCT DATA
- 1.2 SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR CABINETS IN ACCORDANCE WITH THE "GENERAL" SECTION.

PART 2 - PRODUCTS**2.1 JUNCTION AND PULL BOXES**

- 1 WELDED STEEL CONSTRUCTION WITH SCREW-ON FLAT COVERS FOR SURFACE MOUNTING.
- 2 COVERS WITH 25MM(1") MINIMUM EXTENSION ALL AROUND, FOR FLUSH-MOUNTED PULL AND JUNCTION BOXES.

3.1 EXECUTION

- 1 INSTALLATION OF BUILDING WIRES

3.2 INSTALLATION OF CONTROL CABLES

- 1 INSTALL CONTROL CABLES IN CONDUIT, AS INDICATED.
- 2 GROUND CONTROL CABLE SHIELD.

END**3.1 EXECUTION**

- 1 JUNCTION BOXES AND CABINETS INSTALLATION
 - 1 INSTALL PULL BOXES IN INCONSPICUOUS BUT ACCESSIBLE LOCATIONS.
 - 2 INSTALL PULL BOXES SO AS NOT TO EXCEED 30M(100FT) OF CONDUIT RUN BETWEEN PULL BOXES.

3.2 IDENTIFICATION

- 1 PROVIDE EQUIPMENT IDENTIFICATION IN ACCORDANCE WITH THE "GENERAL" SECTION.
- 2 INSTALL SIZE 2 IDENTIFICATION LABELS INDICATING SYSTEM NAME, VOLTAGE AND PHASE.

END**OUTLET BOXES, CONDUIT BOXES AND FITTINGS****PART 1 - GENERAL**

- 1.1 REFERENCES
 - 1 CSA C22.1-1998 CANADIAN ELECTRICAL CODE, PART 1.
 - 2 RELATED WORK SPECIFIED ELSEWHERE
- 1.2 BOX CONNECTORS TO THE "WIRE AND BOX CONNECTORS 0-1000V".
- 2 CONDUIT TO THE SECTION "CONDUIT, CONDUIT FASTENINGS AND CONDUIT FITTINGS".

PART 2 - PRODUCTS**2.1 OUTLET AND CONDUIT BOXES GENERAL**

- 1 SIZE BOXES IN ACCORDANCE WITH CSA C22.1.
- 2 102MM(4") SQUARE OR LARGER OUTLET BOXES AS REQUIRED FOR SPECIAL DEVICES:
 - 3 GANG BOXES WHERE WIRING DEVICES ARE GROUPED.
 - 4 BLANK COVER PLATES FOR BOXES WITHOUT WIRING DEVICES.
 - 5 COMBINATION BOXES WITH BARRIERS WHERE OUTLETS FOR MORE THAN ONE SYSTEM ARE GROUPED.

2.2 SHEET STEEL OUTLET BOXES

- 1 ELECTRO-GALVANIZED STEEL, SINGLE AND MULTI GANG FLUSH DEVICES BOXES FOR FLUSH INSTALLATION, MINIMUM SIZE 76 X 50 X 38MM(3"x2"x1-1/2"). 102MM(4") SQUARE OUTLET BOXES WHEN MORE THAN ONE CONDUIT ENTERS ONE SIDE WITH EXTENSION AND PLASTER RINGS AS REQUIRED.
- 2 ELECTRO-GALVANIZED STEEL UTILITY BOXES FOR OUTLETS CONNECTED TO SURFACE-MOUNTED EMT CONDUIT, MINIMUM SIZE 102 X 54 X 48MM(4"x2-1/8"x1-7/8").
- 3 102MM(4") SQUARE OR OCTAGONAL OUTLET BOXES FOR LIGHTING FIXTURE OUTLETS.
- 4 102MM(4") SQUARE OUTLET BOXES WITH EXTENSION AND PLASTER RINGS FOR FLUSH MOUNTING DEVICES IN FINISHED PLASTER OR TILE WALLS.

2.3 CONDUIT BOXES

- 1 CAST FS OR FD FERALLOY BOXES WITH FACTORY-THREADED HUBS AND MOUNTING FEET FOR MOUNTING DEVICES OF SWITCHES AND RECEPTACLES WHERE RIGID STEEL CONDUIT IS USED.

2.4 FITTINGS-GENERAL

- 1 BUSHING AND CONNECTORS WITH NYLON INSULATED THROATS.
- 2 KNOCK-OUT FILLERS TO PREVENT ENTRY OF DEBRIS.
- 3 CONDUIT OUTLET BOXES FOR CONDUIT UP TO 32MM(1-1/4") AND PULL BOXES FOR LARGER CONDUITS.
- 4 DOUBLE LOCKOUTS AND INSULATED BUSHINGS ON SHEET METAL BOXES.

3.1 EXECUTION

- 1 SUPPORT BOXES INDEPENDENTLY OF CONNECTING CONDUITS.
- 2 FILL BOXES WITH PAPER, SPONGES OR FOAM OR SIMILAR APPROVED MATERIAL TO PREVENT ENTRY OF DEBRIS DURING CONSTRUCTION. REMOVE UPON COMPLETION OF WORK.
- 3 FOR FLUSH INSTALLATIONS MOUNT OUTLETS FLUSH WITH FINISHING WALL USING PLASTER RINGS TO PERMIT WALL FINISH TO COME WITHIN 6MM(1/4") OF OPENING.
- 4 PROVIDE CORRECT SIZE OF OPENINGS IN BOXES FOR CONDUIT AND ARMoured CABLE CONNECTIONS, REDUCING WASHERS NOT ALLOWED.

END**WIRE AND BOX CONNECTORS 0-1000 V****PART 1 - GENERAL**

- 1.1 REFERENCES
 - 1 CSA C22.2 NO. 65-1956 (R1965) WIRE CONNECTORS.
 - 2 EEMAC 1Y-2, 1961 BUSHING STUD CONNECTORS.
 - 3 RELATED WORK SPECIFIED ELSEWHERE
- 1.2 "WIRES AND CABLES 0-1000 V".
- 2 "OUTLET BOXES, CONDUIT BOXES AND FITTINGS" SECTION.

PART 2 - PRODUCTS**2.1 MATERIALS**

- 1 PRESSURE TIE WIRE CONNECTORS: WITH CURRENT CARRYING PARTS OF COPPER SIZED TO FIT COPPER CONDUCTORS AS REQUIRED.
- 2 FUTURE TYPE SPRING CONNECTORS: WITH CURRENT CARRYING PARTS OF COPPER SIZED TO FIT COPPER CONDUCTORS 10 AWG OR LESS.
- 3 BUSHING STUD CONNECTORS: TO EEMAC 1Y-2-1961 TO SUIT CONDUCTOR.
- 4 CLAMPS OR CONNECTORS FOR ARMoured CABLE AND FLEXIBLE CONDUIT, AS REQUIRED.

3.1 EXECUTION

- 1 INSTALL MECHANICAL PRESSURE TIE CONNECTORS AND TIGHTEN SCREWS WITH APPROPRIATE COMPRESSION TOOL.
- 2 FUTURE TYPE SPRING CONNECTORS: WITH CURRENT CARRYING PARTS OF COPPER SIZED IN ACCORDANCE WITH CSA C22.2 NO.65-1956(R1965).
- 2.2 INSTALL FIXTURE TYPE CONNECTORS AND TIGHTEN. REPLACE INSULATING CAP.
- 3 INSTALL BUSHING STUD CONNECTORS IN ACCORDANCE WITH EEMAC 1Y-2-1961.
- 4 INSTALL GRIP TYPE CONNECTORS WITH SNAP-ON NYLON CAPS ON SPLICES AND JOINTS IN BRANCH CIRCUITS.

FASTENINGS AND SUPPORTS**PART 1 - GENERAL**

- 1.1 RELATED WORK
 - 1 FASTENINGS AND SUPPORTS TO ARCHITECTURAL AND THE "GENERAL" SECTIONS.
- 2.1 SUPPORT CHANNELS
 - 1 U SHAPE, SIZE 41 X 41MM(1-5/8"x1-5/8"), 2.5MM(3/32") THICK, SURFACE MOUNTED OR SUSPENDED AS INDICATED.
- 2.2 MANUFACTURERS
 - 1 ACCEPTABLE MANUFACTURERS: BURNDY LTD., ELECTROVERT LTD., UNISTRUT LTD.

PART 3 - EXECUTION

- 3.1 INSTALLATION
 - 1 SECURE EQUIPMENT TO MASONRY, TILE AND PLASTER SURFACES WITH ANCHORS TO SUIT.
 - 2 SECURE EQUIPMENT TO POURED CONCRETE WITH EXPANDABLE INSERTS.
 - 3 SECURE EQUIPMENT TO HOLLOW MASONRY WALLS OR SUSPENDED CEILINGS WITH TOGGLE BOLTS.
 - 4 SECURE SURFACE MOUNTED EQUIPMENT WITH TWIST CLIP FASTENERS TO INVERTED T BAR CEILINGS. ENSURE THAT T BARS ARE ADEQUATELY SUPPORTED TO CARRY WEIGHT OF EQUIPMENT SPECIFIED BEFORE INSTALLATION.
 - 5 SUPPORT EQUIPMENT, CONDUIT OR CABLES USING CLIPS, SPRING LOADED BOLTS, CABLE CLAMPS DESIGNED AS ACCESSORIES TO BASIC CHANNEL MEMBERS.
 - 6 FASTEN CONDUIT OR CABLES TO BUILDING CONSTRUCTION OR SUPPORT SYSTEM USING STRAPS.
 - 7 ONE-HOLE STEEL STRAPS TO SECURE SURFACE CONDUITS AND CABLES 50MM(2") AND SMALLER.
 - 2 TWO-HOLE STEEL STRAPS FOR CONDUITS AND CABLES LARGER THAN 50MM(2").
 - 3 BEAM CLAMPS TO SECURE CONDUIT TO EXPOSED STEEL WORK.
 - 7 SUSPENDED SUPPORT SYSTEMS:
 - 1 SUPPORT INDIVIDUAL CABLE OR CONDUIT RUNS WITH 6 MM DIA THREADED RODS AND SPRING CLIPS.
 - 2 SUPPORT 2 OR MORE CABLES OR CONDUITS ON CHANNELS SUPPORTED BY 6MM(1/4") DIA. THREADED ROD HANGERS WHERE DIRECT FASTENING TO BUILDING CONSTRUCTION IS IMPRACTICAL.
 - 3 FOR SURFACE MOUNTING OF TWO OR MORE CONDUITS USE CHANNELS AT 1M(3") OC SPACING.
 - 9 PROVIDE METAL BRACKETS, FRAMES, HANGERS, CLAMPS AND RELATED TYPES OF SUPPORT STRUCTURES WHERE INDICATED OR AS REQUIRED TO SUPPORT CONDUIT AND CABLE RUNS.
 - 10 ENSURE ADEQUATE SUPPORT FOR RACEWAYS AND CABLES DROPPED VERTICALLY TO EQUIPMENT WHERE THERE IS NO WALL SUPPORT.
 - 11 DO NOT USE WIRE LASHING OR PERFORATED STRAP TO SUPPORT OR SECURE RACEWAYS OR CABLES.
 - 12 DO NOT USE SUPPORTS OR EQUIPMENT INSTALLED FOR OTHER TRADES FOR CONDUIT OR CABLE SUPPORT EXCEPT WITH PERMISSION OF OTHER TRADE AND APPROVAL OF CONSULTANT.
 - 13 INSTALL FASTENINGS AND SUPPORTS AS REQUIRED FOR EACH TYPE OF EQUIPMENT AND CONDUITS, AND IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

GROUNDING & BONDING SECONDARY**PART 1 - GENERAL****PART 2 - PRODUCTS****2.1 MATERIALS**

- 1.1 GROUNDING EQUIPMENT TO: CSA C22.2 NO.41 1950 (R1967).
- 2 COPPER GROUNDING CONDUCTORS TO: ASA G7.1-1964.
- 2.2 EQUIPMENT
 - 1 TO TB OSH CHAPTER 3.4.
 - 2 SUBJECT TO FIRE COMMISSIONER OF CANADA (FC) APPROVAL.
 - 3 SUBJECT TO FC INSPECTION FOR FINAL ACCEPTANCE.
- 2.3 UNANNEALED, LAMINATED AND COPPLY WITH APPLICABLE PROVISIONS OF NATIONAL BUILDING CODE, LOCAL/PROVINCIAL BUILDING CODE, AND MEET REQUIREMENTS OF LOCAL AUTHORITY HAVING JURISDICTION.

1.5 SHOP DRAWINGS

- 1 SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE "GENERAL" SECTION.
- 2 INCLUDE:
 - 1 DETAIL ASSEMBLY AND INTERNAL WIRING DIAGRAMS FOR CONTROL UNITS, CONSOLES AND AUXILIARY CABINETS.
 - 2 OVERALL SYSTEM RISER WIRING DIAGRAM IDENTIFYING CONTROL EQUIPMENT, INITIATING ZONES, SIGNALING CIRCUITS, IDENTIFYING TERMINATIONS, TERMINAL NUMBERS, CONDUCTORS AND RACEWAYS, 3 DETAILS FOR DEVICES.
 - 4 DETAILS AND PERFORMANCE SPECIFICATIONS FOR CONTROL AND ALARM CIRCUITS TO BE MAINTAINED DURING POWER FAILURE.
 - 2.5 INITIATING/INPUT CIRCUITS
 - 1 RECEIVING CIRCUITS FOR ALARM INITIATING DEVICES SUCH AS MANUAL PULL STATIONS, SMOKE DETECTORS, HEAT DETECTORS AND WATER FLOW DEVICES.
 - 2 INTERFERENCE WITH BATTERY CHARGER AND BATTERY TO PROVIDE UNINTERRUPTIBLE TRANSFER OF POWER TO STANDBY SOURCE DURING PRIMARY POWER FAILURE OR LOSS.
 - 5 DURING NORMAL OPERATING CONDITIONS FAULT IN BATTERY CHARGING CIRCUIT, SHORT OR OPEN IN BATTERY LEADS TO ACTIVATE COMMON TROUBLE SEQUENCE AND STANDBY POWER TROUBLE INDICATOR.
 - 6 STANDBY BATTERIES: SEALED, MAINTENANCE FREE.
 - 7 CONTINUOUS SUPERVISION OF WIRING FOR EXTERNAL INITIATING AND ALARM CIRCUITS TO BE MAINTAINED DURING POWER FAILURE.
 - 2.5 INITIATING/OUTPUT CIRCUITS
 - 1 RECEIVING CIRCUITS FOR ALARM INITIATING DEVICES SUCH AS MANUAL PULL STATIONS, SMOKE DETECTORS, HEAT DETECTORS AND WATER FLOW DEVICES.
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 - 6 STANDBY BATTERIES: SEALED, MAINTENANCE FREE.
 - 7 CONTINUOUS SUPERVISION OF WIRING FOR EXTERNAL INITIATING AND ALARM CIRCUITS TO BE MAINTAINED DURING POWER FAILURE.

3.1 INSTALLATION

- 1 INSTALL COMPLETE PERMANENT, CONTINUOUS, SYSTEM AND CIRCUIT, EQUIPMENT, TERMINALS AND BOXES AND SYSTEMS INCLUDING, CONDUCTORS, CONNECTORS, ACCESSORIES, AS INDICATED, TO CONFORM TO REQUIREMENTS OF ENGINEER AND LOCAL AUTHORITY HAVING JURISDICTION.
- 2 INSTALL CONNECTORS TO MANUFACTURER'S INSTRUCTIONS.
- 3 PROTECT EXPOSED GROUNDING CONDUCTORS FROM MECHANICAL INJURY.
- 4 MAKE BURIED CONNECTIONS TO ELECTRODES USING PERMANENT MECHANICAL CONNECTORS.
- 5 USE MECHANICAL CONNECTORS FOR GROUNDING AND BONDING CONNECTIONS TO EQUIPMENT PROVIDED WITH LUGS.
- 6 SOLDERED JOINTS NOT PERMITTED.
- 7 INSTALL BONDING WIRE FOR FLEXIBLE CONDUIT, CONNECTED AT BOTH ENDS TO GROUNDING BUSHING, SOLDERLESS LUG, CLAMP OR CUP WASHER AND SCREW, NEATLY GLEAT BONDING WIRE TO EXTERIOR OF FLEXIBLE CONDUIT.
- 8 CONNECT BUILDING STRUCTURAL STEEL TO GROUND.
- 9 MAKE GROUNDING CONNECTIONS IN RADIAL CONFIGURATION ONLY, WITH CONNECTIONS TERMINATING AT SINGLE GROUNDING POINT, AVOID LOOP CONNECTIONS.
- 10 BOND SINGLE CONDUCTOR, METALLIC ARMoured CABLES TO CABINET AT SUPPLY END, AND PROVIDE NON-METALLIC INLET PLATE AT LOAD END.
- 11 PROVIDE MINIMUM OF THREE (3) GROUND RODS FOR NEW SERVICE.

3.2 ELECTRODES

- 1 INSTALL ROD ELECTRODES AND MAKE GROUNDING CONNECTIONS.
- 2 BOND SEPARATE MULTIPLE ELECTRODES TOGETHER.
- 3 USE SIZE 30 AWG COPPER CONDUCTORS FOR CONNECTIONS TO ELECTRODES.
- 4 MAKE SPECIAL PROVISION FOR INSTALLING ELECTRODES THAT WILL GIVE ACCEPTABLE RESISTANCE TO GROUND VALUE WHERE ROCK OR SAND TERRAIN PREVAILS. GROUND AS INDICATED.

3.3 EQUIPMENT BONDING

- 1 INSTALL GROUNDING AND BONDING CONNECTIONS TO TYPICAL EQUIPMENT INCLUDING IN, BUT NOT NECESSARILY LIMITED TO FOLLOWING LIST: SERVICE EQUIPMENT, DUCT SYSTEMS, FRAMES OF MOTORS, STARTERS, CONTROL PANELS, BUILDING STEEL WORK, DISTRIBUTION PANELS, OUTDOOR LIGHTING.
- 3.4 COMMUNICATION SYSTEMS
 - 1 INSTALL GROUND CONNECTIONS FOR FIRE ALARM, TELEPHONE/DATA AND SECURITY SYSTEMS AS INDICATED.

3.5 TESTS

- 1 PERFORM TESTS IN ACCORDANCE WITH THE "GENERAL" SECTION.
- 2 PERFORM GROUNDING AND RESISTANCE TESTS USING METHOD APPROPRIATE TO SITE CONDITIONS AND TO APPROVAL OF ENGINEER AND LOCAL AUTHORITY HAVING JURISDICTION OVER INSTALLATION.
- 3 PERFORM TESTS BEFORE ENERGIZING ELECTRICAL SYSTEM.

END**MULTIPLY FIRE ALARM SYSTEM****PART 1 - GENERAL****1.1 RELATED WORK**

- 1 WIRING: SECTION "WIRES AND CABLES 0-1000V".
- 2 CONDUITS: SECTION "CONDUITS, CONDUIT FASTENINGS AND CONDUIT FITTINGS".

1.2 REFERENCES

- 1 CANULC-S524-M91, INSTALLATION OF FIRE ALARM SYSTEMS.
- 2 ULCS525-1978, AUDIBLE SIGNAL APPLIANCES FOR FIRE ALARM.
- 3 CANULC-S526-M87, VISUAL, SIGNAL APPLIANCES, FIRE ALARM.
- 4 CANULC-S527-M87, CONTROL UNITS, FIRE ALARM.
- 5 CANULC-S528-M91, MANUAL PULL STATIONS.
- 6 CANULC-S529-M87, SMOKE DETECTORS, FIRE ALARM.
- 7 CANULC-S530-M91, HEAT ACTUATED FIRE DETECTORS, FIRE ALARM.
- 8 CANULC-S531-M87, SMOKE ALARMS.
- 9 CANULC-S536-M86, INSPECTION AND TESTING OF FIRE ALARM SYSTEMS.
- 10 CANULC-S537-M86, VERIFICATION OF FIRE ALARM SYSTEMS.
- 11 NBC - LATEST EDITION IN EFFECT, NATIONAL BUILDING CODE OF CANADA.

1.3 SYSTEM DESCRIPTION

- 1 FULLY SUPERVISED, MICROPROCESSOR-BASED, FIRE ALARM SYSTEM, UTILIZING DIGITAL TECHNIQUES FOR DATA TRANSMISSION, DIGITAL AND MULTI-PLEXING TECHNIQUES FOR DATA TRANSMISSION, 2 SYSTEM TO CARRY OUT FIRE ALARM AND PROTECTION FUNCTIONS; INCLUDING RECEIVING ALARM SIGNALS, INITIATING ALARM; SUPERVISING COMPONENTS AND WIRING; ACTUATING ANNUNCIATORS AND AUXILIARY FUNCTIONS; INITIATING TROUBLE SIGNALS AND SIGNALING TO FIRE DEPARTMENT.
- 2 ZONED, NON-CODED SINGLE STAGE OR TWO STAGE AS INDICATED.
- 4 MODULAR IN DESIGN TO ALLOW FOR FUTURE EXPANSION.
- 5 OPERATION OF SYSTEM SHALL NOT REQUIRE PERSONNEL WITH SPECIAL COMPUTER SKILLS.
- 6 SYSTEM TO INCLUDE:
 - 1 CENTRAL CONTROL UNIT IN SEPARATE ENCLOSURE WITH POWER SUPPLY, STANDBY BATTERIES, CENTRAL PROCESSOR WITH MICROPROCESSOR AND LOGIC INTERFACE, MAIN SYSTEM MEMORY, INPUT-OUTPUT INTERFACES FOR ALARM RECEIVING, ANNUNCIATION/DISPLAY, AND PROGRAM CONTROL/SIGNALLING.
 - 2 DATA GATHERING: SMOKE DETECTORS, FIRE ALARM, COMMUNICATIONS FAIL BETWEEN CCU AND REMOTE UNITS, AUDIBLE AND VISUAL TROUBLE INDICATION TO ACTIVATE COMMUNICATION BETWEEN CCU AND REMOTE DGPS/TPRS TO BE SUPERVISED, DATA GATHERING, COMMUNICATIONS FAIL BETWEEN ALL OF SYSTEMS CONTROL PANELS.
 - 11 SOFTWARE AND HARDWARE TO MAINTAIN TIME OF DAY, DAY OF WEEK, DAY OF MONTH, MONTH AND YEAR.
 - 12 SOFTWARE TO CONTINUOUSLY MONITOR COMMUNICATIONS AND SMOKE DETECTORS AND ANNUNCIATE THEIR STATUS AND SENSITIVITY SETTINGS AT CONTROL PANEL.

2.4 POWER SUPPLIES

- 1 120 V, 60 HZ AS PRIMARY SOURCE OF POWER FOR SYSTEM.
- 2 VOLTAGE REGULATED, CURRENT LIMITED DISTRIBUTED SYSTEM POWER.
- 3 PRIMARY POWER FAILURE OR POWER LOSS (LESS THAN 102 V) WILL CAUSE COMMON TROUBLE SEQUENCE.
- 4 INTERFACE WITH BATTERY CHARGER AND BATTERY TO PROVIDE UNINTERRUPTIBLE TRANSFER OF POWER TO STANDBY SOURCE DURING PRIMARY POWER FAILURE OR LOSS.
- 5 DURING NORMAL OPERATING CONDITIONS FAULT IN BATTERY CHARGING CIRCUIT, SHORT OR OPEN IN BATTERY LEADS TO ACTIVATE COMMON TROUBLE SEQUENCE AND STANDBY POWER TROUBLE INDICATOR.
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2.5 INITIATING/OUTPUT CIRCUITS

- 1 RECEIVING CIRCUITS FOR ALARM INITIATING DEVICES