

Minor Works  
RCMP  
Newfoundland and Labrador

Section      Title

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.1 Description of  
Standing Offer Work

.1 Scope of work under this Contract includes, but shall not be limited to the provision of all labour, material, tools and equipment necessary to complete, service work, minor renovation and/or minor repairs and maintenance including structural, interior finish work, wall coverings, crack filling, painting, flooring, cabinetry, doors, windows, siding, roofing, insulating, concrete & asphalt repairs, mechanical, plumbing, heating, landscaping, electrical, construction of sheds and small out building, etc as required to support the operations of the Royal Canadian Mounted Police in the province of Newfoundland and Labrador on an "as and when requested basis" for the duration of One(1) year with the option to renew for an additional Two(2) Terms of One(1) Year each. Please note: the majority of the work to be completed in this contract will entail Employee Housing. However, this contract will also cover work completed at detachments, radio repeater sites and other buildings. The Province of Newfoundland and Labrador require work in Two (2) Areas.

**1. Labrador:**

- All areas for the South coast of Labrador, Forteau, Mary's Harbour and Cartwright.

- All areas for Central Labrador, Goose Bay Northwest River and Sheshashiu.

- All areas for North coast of Labrador, Rigolet, Makkovik, Postville, Hopedale, Natuashish and Nain.

**2. Eastern Newfoundland:** All areas of Eastern NL: Bonavista, Clarenville, Bay Roberts, Whitbourne, Marystown, Burin, Grand Bank, St. Lawrence, Placentia, Trepassey, Fermeuse, Ferryland and Bell Island.

.2 All work must be coordinated with RCMP

Property Management office or the Local RCMP Detachment office where the residences are located.

- .3 For each call-up on this Standing Offer a scope of work will be provided on an as required basis, when and where needed.
- .4 If lowest tender for the Standing Offer is not available, the second lowest bidder may be given the work.

1.2 Measurement of Payment

- .1 Payment for services will be based on estimated quantities shown in the Unit Price Table.
- .2 Travel - will be paid for as per Federal Government Travel Regulations at time of travel. Details of expense claims to be broken down daily, showing departure and arrival times, meals, incidentals and accommodations on the invoices. A provisional amount of \$30,000.00 will be included in total bid price.
- .3 Base of operations for all regions of Labrador will be Goose Bay, Labrador. Access to all of Labrador, kilometres travelled and all hours of work will be measured from Goose Bay, Labrador. Mode of transportation will be paid on invoice with the base of operation from Goose Bay, Labrador. Mode of transportation and location to be determined by RCMP at time of inspection services. The preferred method of Air Travel is via RCMP Aircraft when and where available.
- .4 Travel for Eastern Newfoundland - will be paid for as per Federal Government Travel Regulations at time of travel. Details of expense claims to be broken down daily, showing departure and arrival times, meals, incidentals and accommodations on the invoices. A provisional amount of \$30,000.00 will be included in total bid price.
- .5 Base of operations on the island of Newfoundland for all areas of Eastern NL is Clarenville, NL.

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- .6 For all areas accessible by road, all kilometres travelled to and from site will be measured from base of operation as indicated. In the event more than one site is visited on an inspection trip, the cost of travelling will be the aggregate cost of travelling to each individual site and return, as determined by the Departmental Representative. (Note: No additional payment will be authorized for rental vehicles, petroleum products, hours of operation of vehicle and air transportation).
  - .7 Overtime rate will apply to hours worked in excess of eight(8) hours per day or on Saturdays and Sundays. All overtime must be approved by the Departmental Representative before being incurred.
  - .8 Payment for standby will be based on the time spent standing idle on-site due to inclement weather. Standby time will only be paid upon prior authorization from a Departmental Representative to a maximum of eight(8) hours per day, and measured such that the total of hours worked and standby time not exceeds the eight(8) hours per day maximum. Standby time will not be authorized prior to arrival to specific project sites.
- .3 Documents Required
- .1 Maintain at job site, one copy each of following:
    - .1 Call-Ups and Contract drawings.
    - .2 Specifications.
    - .3 Addenda.
    - .4 Reviewed shop drawings and submissions.
    - .5 Change orders.
    - .6 Other modifications to Contract.
    - .7 Field test reports.
    - .8 Copy of approved work schedule.
    - .9 Manufacturer's installation and application instructions.
    - .10 Standards listed in Part 1 of the specification sections under Reference Standards.
- .4 Site Conditions
- .1 "As-Built" information of each facility may

be available for inspection at the RCMP Property Management office located in Newfoundland. This material may not be current and will be made available for information purposes only.

- .2 Parties intending to tender for this work are advised to visit sample facilities within the province and make their own assessment of the facilities and difficulties attending execution of the Work, actual site conditions, and all other contingencies. RCMP Property Management must coordinate such site visits.

#### .5 Work Schedule

- .1 The Contractor is advised that the locations of the work will be determined by the Project Authority on a priority basis within the boundaries of the Region as defined in Clause 1.1.

- .2 The Contractor will be required to mobilize at the individual locations within 72 hours of notification from the Project Authority.

#### .6 Contractor's Use of Site

- .1 Use of Site: partial, as coordinated with the Project Authority, local RCMP Detachment office or the occupant of the residence for execution of the Work.

- .2 Some facilities where the RCMP residence is attached to the existing Detachment office may require the Contractor to be accompanied by security approved guard or Commissionaires. The cost of this security is the responsibility of the Contractor.

Contractor to invoice Project Authority for these Commissionaires' charges - no markup.

- .3 Do not unreasonably encumber site with materials or equipment.

- .4 Move stored products or equipment supplied under this Contract at the Contractor's expense which interfere with day to day operation of the residence or other Contractors.

- .5 Obtain and pay for use of additional storage or work areas needed to conduct work under this Contract. The Contractor will be solely responsible for arranging for the storage of materials on or off the site, and any

materials stored at the site which interfere with any of the day-to-day activities at or near the site.

- .6 Exercise care so as not to obstruct or damage public or private property in the area of the Work. Do not interfere with normal day-to-day operations of the residence.
- .7 At the completion of all work, restore the area of work to its original condition. Damage to grounds and property will be repaired at Contractor's expense. Remove all construction materials, residue, excess, etc., and leave the site in a condition acceptable to the Property Manager.
- .8 Comply with all regulations and authorities having jurisdiction over the work.
- .9 Provide temporary barriers and warning signs in locations where work is adjacent to areas used by the public or occupants of the RCMP residence.

.7 Codes and Standards

- .1 Perform work in accordance with National Building Code of Canada (NBCC) 2010 and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements will apply.
- .2 Meet or exceed requirements of contract documents, specified standards, codes and referenced documents.

.8 Setting Out Of Work

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
- .2 Provide devices needed to lay out and construct work.
- .3 Supply such devices as straight edges and templates required to facilitate Project Authority inspection of work.

.9 Location of

- .1 Location of equipment, fixtures and

Equipment and  
Fixtures

outlets indicated or specified are to be considered as approximate.

- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Project Authority of impending installation and obtain his approval for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by Project Authority.

.10 Protection

- .1 Store all materials and equipment to be incorporated into work to prevent damage by any means.
- .2 Repair or replace all materials or equipment damaged in transit or storage to the satisfaction of and at no cost to the Property Manager.

.11 Concealment

- .1 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

.12 Cutting and  
Patching

- .1 Execute cutting (including excavation), fitting and patching required to make work fit properly.
- .2 Where new work connects with existing and where existing work is altered; cut, patch and make good to match existing work.
- .3 Obtain Project Authority approval before cutting, boring or sleeving load-bearing members.
- .4 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final

assembly.

- .5 Fit work airtight to pipes, sleeves, ducts and conduits.

.13 Asbestos  
Discovery

- .1 Demolition of spray or trowel applied asbestos or suspect containing materials such as flooring can be hazardous to health. Should material resembling asbestos be encountered, stop work and notify Project Authority immediately. Do not proceed until written instructions have been received from Project Authority.

.14 Existing  
Services

- .1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to pedestrian, vehicular traffic and residence occupants.
- .2 Before commencing work, establish location and extent of service lines in area of work and notify Project Authority of findings.
- .3 Submit schedule to and obtain acceptance from Project Authority for any shut-down or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.
- .4 Where unknown services are encountered, immediately advise Project Authority and confirm findings in writing.
- .5 Record locations of maintained, re-routed and abandoned service lines.

.15 Additional  
Drawings

- .1 Project Authority may furnish additional drawings to assist proper execution of the work. These drawings will be issued for clarification and intent as if they were included with plans referred to in the Contract Documents.



.16 Works  
Coordination

- .1 The Contractor is responsible for coordinating the work of the various trades, where the work of each trade interfaces with each other.
- .2 The Contractor shall convene meetings between trades whose work interfaces, and ensure that they are fully aware of the areas and the extent of where the interfacing is required. Provide each trade with the plans and specifications of the interfacing trade as required, to assist them in planning and carrying out their respective work.
- .3 Shop drawing review and material ordering shall only commence after this coordination has taken place between trades and all conditions affecting the work of the interfacing trades has been made known.
- .4 Ensure coordination and cooperation between trades in order to facilitate the general progress of the work and avoid situations of spatial interference.
- .5 Ensure that each trade provides all other trades reasonable opportunity for the completion of the work and in such a way as to prevent unnecessary delays, cutting, patching and the need to remove and replace completed work.
- .6 Project Authority will not be held responsible for any extra costs incurred as a result of the failure to carry out coordination of work. Disputes between the various trades as a result of their not being informed of the areas and extent of interface work shall be the sole responsibility of the Contractor, and shall be resolved by him/her at no

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additional cost to the Contract.

.17 Contract Documents

Contract Drawings:

.1 The Project Authority will issue drawings to assist in the proper execution of the work. These drawings will be issued for location and clarification only. Such drawings will have the same meaning and intent as if they were included in the Contract Documents.

.2 The drawings indicate the extent and general dimensions of the work. Make all necessary measurements to ensure that the result of the work is in accordance with the intent.

.3 Verify all existing conditions in the field prior to proceeding with work.

.2 Contract Specifications:

.1 These specifications and those to be issued under this Standing Offer Contract are intended to describe and provide for a finished project. They are intended to be complementary, and what is called for by either will be as binding as if called for by both. The Contractor shall understand that the work herein described will be complete in every detail, notwithstanding that every item necessarily involved is not particularly mentioned, and the Contractor will be held to provide all labour, materials and equipment necessary for the entire completion of the work and will not avail himself of any errors or omissions.

.18 Taxes, Permits and Regulations

.1 Pay applicable federal, provincial and municipal taxes.

.2 Apply for, obtain and pay for all necessary permits, approvals and other authorizations required for the work.

.3 Comply with all by-laws, ordinances and

regulations of all authorities having jurisdiction.

.19 Worker's Compensation

- .1 The Contractor and all sub-contractors must be registered under the Workers' Compensation Act and provide evidence of good standing.

.20 Laws, Standards Taxes and Fees

- .1 Comply with all laws and standards governing all or any part of the work, pay all applicable taxes and pay for all permits and certificates required in respect of the execution of the work. Where variances exist between the requirements of agencies governing all or any part of the work, the most restrictive will govern, but in no instance will the standards established by the drawings and this Specification, which exceed such requirements, be reduced.

.21 Protection and Repair

- .1 Repair any damage resulting from operations under this contract.

.22 Inspection and Testing

- .1 The Project Authority may employ an Inspector and/or Testing Company to ensure work conforms with the Contract.

.23 Disposal of Debris

- .1 Debris, including construction materials not incorporated in the work and other materials of this nature will be disposed of by the Contractor in suitable locations off the site. Disposal is the responsibility of the Contractor.

.24 Confined Spaces

- .1 All work in confined spaces will be carried out in compliance with the Canada Labour Code, Part II.
- .2 Contractor to provide and maintain all equipment as required by any person to enter and/or perform work in a safe manner, in compliance with the Canada Occupational, Safety and Health Regulations.

Newfoundland and Labrador

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- .1 At the Departmental Representative's request, the Contractor agrees to provide to Project Authority or its Consultants, all necessary equipment to enter the confined space and the Contractor acknowledges that he/she is responsible for the safety and efficacy of this equipment.
- .3 The Contractor shall provide and maintain training, as required by the Canada Labour Code, Part II, Section 11.
  - .1 The Contractor and/or his employees shall provide proof of training and qualifications when requested by the Departmental representative.
- .4 The Contractor shall provide the Departmental Representative with a copy of an "Entry Permit" for each and every entry into the confined space to ensure compliance with the Canada Labour Code, Part II, Section 11.

.25 Personnel

- .1 The Contractor will provide only journeymen personnel with a valid Newfoundland and Labrador License or certification to work on all trades related projects under this Contract. The Project Authority may at any time during this Contract request to inspect a worker's certification.

.26 Invoicing

- .1 The Contractor is required to notify the Project Authority upon completion of the work at each facility before submitting an invoice.
- .2 Each invoice must show:
  - .1 Contract number.
  - .2 Work location.
  - .3 Description of work.
  - .4 Project Number.
  - .5 Quantity broken down as per Unit Price Table.
- .3 In the event of a dispute, the Contractor is to make any and all records available to the Project Authority to substantiate

the invoiced amount.

1 General

- .1 This section specifies general requirements and procedures for Contractor submissions of shop drawings, product data, samples and mock-ups to Project Authority for review.
- .2 Do not proceed with work or with material deliveries until relevant submissions are reviewed by Project Authority.
- .3 Contractor's responsibility for errors and omissions in submission is not relieved by Project Authority's review of submissions.
- .4 Notify Project Authority, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .5 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Project Authority review of submission, unless Project Authority gives written acceptance of specific deviations.
- .6 Make any changes in submissions which Project Authority may require consistent with Contract Documents and resubmit as directed by Project Authority.
- .7 Notify Project Authority, in writing, when resubmitting, of any revisions other than those requested by Project Authority.
- .8 If submission is rejected for failing to meet specification requirements, Contractor shall bear cost of re-review.

- 2 Submission Requirements
- .1 Coordinate each submission with requirements of work and Contract Documents. Individual submissions will not be reviewed until all related information is available.
  - .2 Allow five (5) business days for Project Authority review of each submission.
  - .3 Accompany submissions with transmittal letter, in duplicate, containing:
    - .1 Date.
    - .2 Project title and number.
    - .3 Contractor's name and address.
    - .4 Identification and quantity of each shop drawing, product data and sample submitted.
    - .5 Other pertinent data.
  - .4 Submissions shall include:
    - .1 Date and revision dates.
    - .2 Project title and number.
    - .3 Manufacturer.
    - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract documents.
    - .5 Details of appropriate portions of work as applicable:
      - .1 Fabrication.
      - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
      - .3 Setting or erection details.
      - .4 Capacities.
      - .5 Performance characteristics.
      - .6 Standards.
      - .7 Operating weight.
      - .8 Wiring diagrams.
      - .9 Single line and schematic diagrams.

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.10 Relationship to adjacent work.

.5 After Project Authority review, distribute copies.

3 Shop Drawings

.1 Shop drawings: original drawings, or modified standard drawings provided by Contractor, to illustrate details of portions of work, which are specific to project requirements.

.2 Maximum sheet size 850 X 1050 mm.

.3 Cross-reference shop drawing information to applicable portions of Contract Documents.

.4 Project Authority shall retain two (2) copies of all shop drawings.

4 Product Data

.1 Product data: manufacturer's catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products.

.2 Submit three (3) copies of product data.

.3 Sheet size: 215 x 280 mm, maximum of 3 modules.

.4 Delete information not applicable to project.

.5 Supplement standard information to provide details applicable to project.

.6 Cross-reference product data information to applicable portions of Contract Documents.

.7 Project Authority shall retain two (2)



copies of all product data.

- 5 Samples
- .1 Samples: examples of materials, equipment, quality, finishes, workmanship.
  - .2 Where colour, pattern or texture is criterion, submit full range of samples.
  - .3 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be verified.

- 6 Mock-ups
- .1 Mock-ups: field-erected example of work complete with specified materials and workmanship.
  - .2 Erect mock-ups at locations acceptable to Project Authority.
  - .3 Reviewed and accepted mock-ups will become standards of workmanship and material against which installed work will be verified.

PART 1 - GENERAL

- 1.1 Section Includes .1 Procedure to isolate and lockout electrical facility or other equipment source.
- 1.2 Related Work .1 Section 01 36 20 - Fire Safety Requirements  
.2 Section 01 35 30 - Health & Safety
- 1.3 References .1 C22.1-06 Canadian Electrical Code , Part 1, Safety Standard for Electrical Installations  
.2 CAN/CSA C22.3 No. 1-06 - Overhead Systems.  
.3 CAN/CSA C22.3 No 7-06 - Underground Systems.  
.4 COSH, Canada Occupational Health and safety Regulations made under Part 2 of the Canada Labour Code.
- 1.4 Definitions .1 Electrical Facility: means any system, equipment, device, apparatus, wiring, conductor, assembly or part thereof that is used for the generation, transformation, transmission, distribution, storage, control, measurement or utilization of electrical energy, and that has an amperage and voltage that is dangerous to persons.  
.2 Guarantee of Isolation: means a guarantee by a competent person in control or in charge that a particular facility or equipment is isolated.  
.3 De-energize: in the electrical sense, that a piece of equipment is isolated and grounded, e.g. if the equipment is not grounded, it cannot be considered de-energized (DEAD)

- .4 Guarded: means that an equipment or facility is covered, shielded fenced, enclosed, inaccessible by location, or otherwise protected in a manner that , to the extent that is reasonably practicable, will prevent or reduce danger to any person who might touch or go near such item.
- .5 Isolate: means that an electrical facility, mechanical equipment or machinery is separated or disconnected from every source of electrical, mechanical, hydraulic, pneumatic or other kind of energy that is capable of making it dangerous.
- .6 Live/ alive: means that an electrical facility produces , contains, stores or is electronically connected to a source of alternating or direct current of an amperage and voltage that is dangerous or contains any hydraulic, pneumatic or other kind of energy that is capable of making the facility dangerous to persons.

1.5 Compliance Requirements

- .1 Perform Lockouts in compliance with:
  - .1 Canadian Electrical Code.
  - .2 Federal and provincial Occupational Health & Safety Acts and Regulations.
  - .3 Regulations and code of practice as applicable to mechanical equipment or other machinery being de-energized.
  - .4 Procedures specified herein.
- .2 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, Departmental Representative will advise on the course of action to be followed.

1.6 Submittals

- .1 Submit copy of proposed Lockout Procedures and sample form of lock out permit or lock out tags for review.

2. Submit documentation within (7) calendar days of acceptance of bid. Do not proceed with work until submittal has been reviewed by Project Authority.
  - .3 Submit above documents in accordance with the submittal requirements specified in Section 01 33 00
  - .4 Resubmit Lockout Procedures with noted revisions as may result from Project Authority review.
- 1.7 Isolation of Existing Services
- .1 Obtain Project Authority's written authorization prior to conducting work on existing active, energized service or facility required as part of the work and before proceeding with the lockout of such services or facility.
  - .2 To obtain authorization, submit to Project Authority the following documentation:
    - .1 Written Request for Isolation of the service or facility and;
    - .2 Make a Request for Isolation for each event, unless directed otherwise by Project Authority and as follows:
      - .1 Fill out standard forms in current use at the Facility when so directed by Project Authority or;
      - .2 Where no form exist at Facility, make request in writing identifying:
        - .1 Identification of system or equipment to be isolated, including its location;
        - .2 Time duration, indicating time and date, completion time and date when isolation will be in effect;
        - .3 Voltage of service feed to system or Equipment being isolated;
        - .4 Name of person making the request.

- .3 Document to be in type written format.
- .4 Do not proceed until receipt of written notification from Project Authority granting the Isolation Request and authorization to proceed with the isolation of designated equipment or facility. Project Authority may designate other individual at the Facility as the person authorized to grant the Isolation Request.
- .5 Conduct safe, orderly shutdown of equipment or facilities, de-energize and isolate power and other sources of energy and lockout items in accordance with requirement of clause 1.8 below
- .6 Plan and schedule shut down of existing services in consultation with the Project Authority and the Facility Manager. Minimize impact and downtime of Facility operations.
- .7 Determine in advance, as much as possible, in cooperation with the Project Authority, the type and frequency of Situations which will require a Request for Isolation. Follow Project Authority directives in this regard.
- .8 Conduct hazard assessment as part of the planning process of isolating existing equipment and facilities. Hazard Assessments to conform with requirements of Health & Safety Section 01 35 30.

1.8 LOCKOUTS

- .1 Isolate and lockout electrical facilities, mechanical equipment and machinery from all potential energy sources prior to starting work on such items.
- .2 Develop and implement lockout procedures to be followed on site as an integral part of the Work.
- .3 Use energy isolation lockout devices specifically designed and appropriate for type of facility or equipment being locked out.
- .4 Use industry standard lockout tags.
- .5 Provide appropriate safety grounding and Guards as required.
- .6 Prepare Lockout Procedures in writing. Describe safe work practices, work functions and sequence of activities to be followed on site to safely isolate all potential energy sources and lockout/tag out facilities and equipment.
- .7 Include within procedures a system of worker request and issuance of individual lockout permit by a person , employed by Contractor, designated to be "In Charge" and being responsible for:
  - .1 Controlling issuance of permits or tags to workers.
  - .2 Determining permit duration.
  - .3 Maintaining record of permits and tags issued.
  - .4 Submitting a Request for Isolation to Project Authority when required in accordance with clause 1.7 above.
  - .5 Designating a Safety Watcher, when one is required based on type of work.

- .6 Ensuring equipment or facility has been properly isolated, providing a Guarantee of Isolation to workers prior to proceeding with work.
- .7 Collecting and safekeeping lock out tags, returned by workers, as a record of the event.
- .8 Clearly establish, describe and allocate within procedures the responsibilities of:
  - .1 Workers.
  - .2 Designated person controlling issuance of lockout tags/permits.
  - .3 Safety Watcher.
  - .4 Subcontractors and General Contractor
- .9 Procedures shall meet the requirements of Codes and Regulations specified in clause 1.5 above.
- .10 Generic procedures, if used, must be edited, supplemented with pertinent information and tailored to reflect specific project conditions. Clearly label as being the procedures applicable to this contract.
  - .1 Incorporate site specific rules and procedures established by Facility manager and in force at site. Obtain such procedures through Project Authority
- .11 Procedures to be in typewritten format.
- .12 Submit copy of Lockout Procedures to Project Authority, in accordance with submittal requirements of clause 1.6 herein, prior to commencement of work.

1.9 Conformance

- .1 Ensure that lockout procedures, as established for project on site, are stringently followed. Enforce use and compliance by all workers.
- .2 Brief all persons working on electrical facilities, mechanical and other equipment fed by an energy source on requirements of this section.
- .3 Failure to perform lockouts in accordance with regulatory requirements or follow procedures specified herein may result in the issuance of a Non Compliance Notification at Project Authority's discretion.

Documents on Site

- .1 Post Lockout Procedures on site in common location for viewing by workers.
- .2 Keep copies of Request for Isolation submitted to Project Authority and lockout permits or tags issued to workers.
- .3 Upon request, make such data available to Project Authority or to authorized safety representative for inspection.



- 1.1 Related Work .1 Fire Safety Procedures: Section 01 36 20
- 1.2 Submittals .1 Submit to Project Authority copies of the following documents, including updates issued:
- .1 Site Specific Health and Safety Plan.
  - .2 Building Permit, certificates and other permits obtained.
  - .3 Reports or directions issued by Federal, Provincial inspectors or other Authority having jurisdiction.
  - .4 MSDS data sheets.
  - .5 Name of person designated for full time health and safety supervision on site.
- .2 Upon request, submit for Project Authority's review, reports and documentation on health and safety related issues such as site safety inspections, accident/incident reports, safety meetings, etc.
- 1.3 Compliance Requirements .1 Comply with the Occupational Health and Safety Act for the Province of Newfoundland and Labrador and the Regulations made pursuant to the Act.
- .2 Comply with Canada Labour Code Part II, and the Canada Occupational Safety and Health Regulations made under Part II of the Canada Labour Code.
- .3 Observe and enforce construction safety measures required by:
- .1 2010 National Building Code of Canada
  - .2 Provincial Worker's Compensation Board;
  - .3 Municipal statutes and ordinances.

- .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, Project Authority will advise on the course of action to be followed.
- .5 Maintain Workers Compensation Coverage for duration of Contract. Submit Letter of Good Standing to Project Authority upon request.

#### 1.4 Responsibility

- .1 Be responsible for health and safety of persons on site, of property and for protection of persons circulating adjacent to work to extent that they may be affected by conduct of Work.
- .2 Enforce compliance by workers and other persons granted access to construction areas with safety requirements of Contract Documents, applicable federal, provincial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

#### 1.5 Site Control and Access

- .1 Control site and entry points of construction areas. Approve and grant access only to workers and authorized persons. Immediately stop non-authorized persons from circulating within construction areas.
- .2 Provide site safety orientation to all persons before granting entry. See Clause 1.11.2 in this regard.
- .3 Delineate and isolate construction areas by use of effective means. Erect barricades and hoarding as required.

- .4 Erect signage at strategic locations of site indicating that construction areas are restricted to authorized persons only.
- .5 Ensure persons granted access wear appropriate personal protective equipment (PPE). Provide such PPE to persons granted access to perform inspections and other approved purposes.

1.6 Protection

- .1 Provide temporary facilities for protection and safe passage pedestrians and vehicular traffic around mobilization and work site.
- .2 Provide safety barricades, lights and signage in work areas as required to create a safe environment for workers.
- .3 Carry out work placing emphasis on health and safety of public, facility employees, construction workers and protection of the environment.
- .4 Should unforeseen or peculiar safety related hazard or condition become evident during performance of work, immediately take measures to rectify the situation and prevent damage or harm. Advise Project Authority verbally and in writing.

1.7 Filing of Notice

- .1 File Notice of Project and other Notices with Provincial authorities prior to commencement of Work.

1.8 Permits

- .1 Obtain permits as required prior to commencement of work and post on site.
- .2 Where particular permit or certificate cannot be obtained notify and obtain Project Authority approval to proceed prior to carrying out that portion of work.

1.9 Hazard Assessments

- .1 Conduct hazard assessments identifying health risks and safety hazards during the course of work. Carryout as follows:
  - .1 Initial assessment prior to commencement of work.
  - .2 On-going assessments identifying new risks and hazards resulting from work progress and site conditions.
  - .3 As a minimum, conduct hazard assessments when:
    - .1 New sub trade work, new subcontractor(s) or new workers arrive at the site to commence their allocated 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 Engineer or by an authorized safety representative.
  - .4 Hazard assessments to be project specific, based on review of work, site and weather conditions.
  - .5 Make assessments in writing. Keep on site and make available to Project Authority for inspection upon request.

1.10 Project/Site Conditions

- .1 The following are known or potential project related health and safety hazards at site:
  - .1 Areas under renovation must be free and clear of construction hazards, material and equipment during the daytime areas of weekdays for use by Facility employees or occupants.
  - .2 Asbestos was commonly used as an insulator of hot water pipes and air heating ducts. It is a component of some types of vermiculite insulation that may be located in ceilings and attics, commonly used in drywall plaster, flooring tiles and adhesive mastic.

.3 Crawlspace/Attic Hazards - insects, rodents, birds, bats, droppings may be disease vectors.

.4 Mould/fungus - Dampness, soil, organic debris may be present in crawlspaces provides a potential environment for microbial growth.

.2 Above lists shall not be construed as being complete and inclusive of potential safety and health hazards encountered during work. Include above items into the hazard assessments.

#### 1.11 Safety Meetings

- .1 Prior to commencement of work attend health and safety meeting conducted by Project Authority. Have Site Superintendent and Designated Health and Safety Site Supervisor in attendance. Project Authority will advise of time and location.
- .2 Provide site safety orientation to all workers and other authorized persons prior to granting them access to work site. Outline site conditions, safety hazards and state safety rules to be observed on site.
- .3 Conduct regular safety meetings and briefings during progress of work in accordance with provincial occupational health and safety regulations.
- .1 Keep workers informed of anticipated or potential hazards. Provide safe work practices and procedures to be followed.
  - .2 Record and post minutes of meetings.
  - .3 Changes in site and project conditions.

1.12 Health and  
Safety Plan

- .1 Develop written site-specific Project Health and Safety Plan, based on hazard assessments, prior to commencement of work. Submit plan to Project Authority within 7 calendar days of Contract Award date.
- .2 Health and Safety Plan shall contain three (3) parts with following information:
  - .1 Part 1: List of individual health risks and safety hazards identified by hazard assessments.
  - .2 Part 2: List of measures to control or mitigate each hazard and risk identified in part one of Plan. State engineering controls, personal protective equipment and safe work practices to be used.
  - .3 Part 3: Emergency and Communications:
    - .1 Emergency Measures: standard operating procedures, evacuation measures and emergency response to be followed during an accident or incident, representative of all risks and hazards identified in Plan. Ensure measures complement the Facility's Emergency Response and Evacuation Plans at site. Obtain pertinent information on such plans from Project Authority.
    - .2 Emergency Contact: names and telephone numbers of officials should an incident, accident or emergency situation occur, including:
      - .1 General Contractor and all Subcontractors.
      - .2 Federal and Provincial Departments and resources from local emergency organizations as applicable to type and nature of emergency which might occur and as stipulated by applicable laws and regulations.

.3 Officials from RCMP and site facility management. Project Authority will provide list.

.3 Site Communications:

.1 Site procedures used to share work related information and safety issues between workers, sub-contractors and General Contractor.

.2 List of critical work activities, to be communicated with the Facility Management which could affect facility operations, or endanger the health and safety of Facility employees and general public. Develop list in consultation with the Project Authority.

.3 Prepare Health and Safety Plan in a three column format, addressing the three parts specified above, as follows:

Column 1 Identified Hazard	Column 2 Control Measures Implemented	Column 3 Emergency Measures & Communications Procedures
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.4 Develop Plan in collaboration with subcontractors. Address all work and activities of subcontractors and update Plan if required as they arrive on site.

.5 Implement and enforce compliance with requirements of the Health and Safety Plan until completion of work and demobilization from site.

.6 As work progresses, review and update Plan addressing additional health risks and safety hazards identified by on-going hazard assessments.

.7 Submit revised versions of Plan to Project

Authority.

- .8 Post a copy of Plan, including all updates, in a common visible location at site.
- .9 Submission of the Health and Safety Plan, and updates, to the Project Authority is for review and information purposes only. Project Authority receipt, review and any comments made of Plan shall not be construed to imply approval in hold by Project Authority, or be interpreted as a warranty of being complete and accurate or confirmation that all project health and safety issues have been addressed and that Plan is legislative compliant. Furthermore, Project Authority's review shall not relieve Contractor of his legal obligations for the provision full Health and Safety on the construction project.

1.13 Safety  
Supervision and  
Inspections

- .1 Designate one person to be present on site at all times, responsible for supervising health and safety.
  - .1 Person to be competent in Occupational Health and Construction Safety as defined in Provincial Occupational Health and Safety Act.
- .2 Assign responsibility, obligation and authority to such designated person(s) to stop work as deemed necessary for reasons of health and safety.
- .3 Provide name to Project Authority.
- .4 Cooperate with Facility's Health and Safety Site Coordinator responsible for the entire site.
- .5 Conduct regularly scheduled safety inspections of work site.



- .6 Maintain written documentation on each inspection.
- 
- 1.14 Training
    - .1 Ensure that all workers and other persons granted site access are effectively trained on:
      - .1 Safe tool and equipment operation.
      - .2 Wear and use of appropriate PPE.
      - .3 Safe practices and procedures for performance of assigned tasks.
      - .4 Site Conditions and minimum safety rules in force at site.
- 
- 1.15 Minimum Site Safety Rules
    - .1 Notwithstanding the requirement to abide by federal and provincial health and safety regulations, the following safety rules shall be considered minimum requirements to be obeyed by all persons granted access:
      - .1 Wear personal protective equipment (PPE) appropriate to function and task on site; the minimum requirements being hard hat, safety footwear and eye protection.
      - .2 Immediately report unsafe activities, conditions, near-miss accidents, injuries and damages.
      - .3 Maintain site in tidy condition.
      - .4 Obey warning signs and safety tags.
    - .2 Brief workers on site safety rules, and on the disciplinary measures to be taken for violation or non compliance. Post such information on site.
- 
- 1.16 Accident Reporting
    - .1 Investigate and report incidents and accidents as outlined in Provincial Occupational Safety and Health Act and Regulations.
    - .2 Investigate and immediately report to

Project Authority incidents and accidents which results in:

.1 Injuries requiring medical aid as defined in the Canadian Dictionary of Safety Terms - 1987 published by Canadian Society of Safety Engineers (C.S.S.E.),

.2 Required notification to Workers Compensation Board or other regulatory agencies as stipulated by applicable regulations.

1.17 Tools and Equipment Safety

- .1 Routinely check and conduct maintenance of tools and equipment. Ensure safe operation as recommended by tool manufacturer.
- .2 Tag and remove from site items found faulty or defective.

1.18 Hazardous Products

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
- .2 Keep MSDS data sheets for all material delivered to site. Post on site in a conspicuous location visible to workers as well as to Facility personnel.
- .3 Submit copy to Project Authority.

1.19 Blasting

- .1 Blasting or other use of explosives is not permitted.

1.20 Powder Actuated Devices

- .1 Use powder actuated fastening devices only after receipt of written permission from Project Authority.

1.21 Lockouts

- .1 Ensure electrical power and other source of energy to mechanical and electrical equipment are effectively disconnected and locked-out before proceeding with work on such items.
- .2 In consultation with Project Authority,

locate power source, isolate service and provide a guarantee of isolation to own workers before commencing work.

- .3 Implement and follow a system of lockout procedures, complete with use of lockout tags between workers and Contractor, to ensure equipment is fully de-energized against all potential sources of energy in accordance with provincial and federal health and safety regulations.
- .4 Obtain Project Authority's approval before disconnecting services to ensure minimum effect on Facility operations.
  - .1 Isolation permit: when in use at Facility, apply for and obtain an isolation permit from Project Authority.

1.22 Site Records  
and Post of  
Documents

- .1 Keep on site copy of safety documents and reports so specified in contract documents and as received by authorities having jurisdiction.
- .2 Post documents when specified or stipulated by governing laws and regulations.
- .3 Upon request, make documents available to Project Authority or authorized safety representative.

1.23 Non Compliance  
Notifications and  
Disciplinary  
Measures

- .1 Immediately address and correct health and safety violations and non-compliance issues.
- .2 Negligence or failure to follow applicable safety laws, regulations and safety requirements specified in this Contract could result in disciplinary measure

imposed on worker, subcontractor and General Contractor by regulatory agency having jurisdiction.

- .3 Project Authority shall use a system of Non-Compliance Notifications issued to General Contractor when non-compliance or safety violations are observed and includes progressive disciplinary measures taken. Measures may include removal of offending party from site and could result in "Taking the Work Out of Contractor's Hands" depending on the severity or frequency of infractions.
- .4 Details of system will be provided by Project Authority prior to commencement of work.
- .5 Project Authority will make final decision as to when a Non-Compliance Notification will be issued, based on nature of violation noted or brought to his/her attention by an authorized safety representative.
- .6 Non-Compliance Notifications issued by Project Authority shall not be construed as to overrule or disregard warnings, orders and fines levied against Contractor by a regulatory agency having jurisdiction.

.1 Definitions

.1 Hazardous Material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.

.2 Fires

.1 Fires and burning of rubbish on site not permitted.

.3 Disposal of  
Wastes and  
Hazardous  
Materials

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of hazardous waste including volatile materials, such as mineral spirits, paint thinner, oil or fuel into waterways, storm, sanitary sewers or municipal solid waste landfills.

.3 Store, handle and dispose of hazardous materials and hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.

.4 Perform work in such a way as to:

.1 Optimize use of materials and minimize waste.

.2 Dispose of leftover products, waste and demolition debris with maximum consideration on recycling and minimizing disposal at landfill sites.

.5 Dispose of waste and debris at approved landfill sites only and transfer stations. Stringently follow provincial, municipal and landfill operator rules and regulations. Separate out and prevent improper disposal of items banned from landfills.

.6 Deconstruct and separate at source demolition debris, construction material waste, product packaging and delivery containers into various waste categories in order to maximize

recycling abilities of various items and to divert as such waste as possible from disposal at landfill sites in a "mixed state".

.1 Where specialized recycling firms exist, transport waste and leftover materials to such facility.

.2 Co-operate and follow landfill site operator's recycling program and efforts on landfill diversion.

.7 Communicate with landfill operator prior to commencement of work, to determine what specific construction, demolition and waste materials have been banned from disposal at the landfill.

#### 4 Paint Recycling

.1 Send leftover paint, thinners and other paint related products to a paint recycling facility.

#### 5 Pollution Control

.1 Prevent contaminations of air beyond applicable work areas, by providing temporary enclosures.

.2 Maintain inventory of hazardous materials used and hazardous wastes stored on site. List product name, quantity and date when storage began.

.3 Have emergency spill response equipment and rapid clean-up kit, appropriate to work, at site. Locate adjacent to work and to storage areas of hazardous materials. Provide personal protective equipment as required for clean-up.

.4 Report to Federal and Provincial Department of the Environment petroleum and other hazardous material spills as well as accidents having potential of polluting the environment. Also, notify Engineer and submit a written spill report to Engineer within 24 hours of occurrence.



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- 1.5 Hot Work Authorization
- .1 Obtain Project Authority's "Authorization to Proceed" before conducting any form of Hot Work on site.
  - .2 To obtain authorization submit to Project Authority:
    - .1 Contractor's Hot Work Procedures to be followed on site to ensure fire safety.
    - .2 Description of the type and frequency of Hot Work required.
    - .3 Completed Hot Work Permit.
  - .3 Upon review and confirmation that effective fire safety measures will be implemented during performance of hot work, Project Authority will provide "Authorization to Proceed" as follows:
    - .1 Issue one (1) written Authorization to Proceed covering the entire project and duration of work or;
    - .2 Issue individual Authorization to Proceed for specific items of work by requiring Contractor to fill out individual Hot Work Permit for each hot work event as determined by Project Authority.
  - .4 Frequency for Hot Work Permit based on:
    - .1 Nature of phasing of work;
    - .2 Risk to facility operations;
    - .3 Quantity of various trades needing to perform hot work on project or;
    - .4 Other situations deemed necessary by Project Authority to ensure fire safety on premises.
  - .5 Do not perform any hot work until receipt of Project Authority's written Authorization to Proceed.



- .6 Hot work to be performed inside building can only be done during Facility non-operational periods. Coordinate with Facility Manager through the Project Authority in this regard.
  - .7 Failure to comply with the established hot work procedures may result in the issuance of a Non-Compliance Notification at Project Authority's discretion with possible disciplinary measures imposed.
- 1.6 Hot Work Procedures
- .1 Develop and implement safety procedures and work practices to be followed during the performance of hot work.
  - .2 Procedures to include:
    - .1 Requirement to perform hazard assessment of site and immediate hot work area for each hot work event in accordance with Hazard Assessment and Safety Plan requirements Section 0135 30.
    - .2 Use of a Hot Work Permit system for each event when Hot Work event.
    - .3 Permit shall be issued by Contractor's Superintendent granting permission to worker or subcontractor to proceed with hot work.
    - .4 Provision of a designated person(s) to carry out a Fire Safety Watch for a minimum of 60 minutes immediately upon completion of the hot work.
    - .5 Compliance with fire safety codes and standards specified herein and occupational health and safety regulations specified in Section 01 35 30.
  - .3 Generic procedures, if used, must be edited, supplemented with pertinent information and tailored to reflect specific project conditions. Clearly label as being the Hot Work Procedures applicable to this contract.

- .4 Hot Work Procedures to be in typewritten format, listing step by step procedures and worker instructions, clearly establishing and allocating responsibilities of:
    - .1 Worker(s),
    - .2 Designated person authorized to issue the Hot Work Permit,
    - .3 Fire Safety Watcher,
    - .4 Subcontractors and Contractor.
  
  - .5 Brief all workers and subcontractors on Hot Work Procedures and Permit system.
- 1.7 Fire Protection and Alarm Systems
- .1 Fire protection and alarm systems shall not be:
    - .1 Obstructed.
    - .2 Shut-off, unless approved by Project Authority.
    - .3 Left inactive at the end of a working day or shift.
  
  - .2 Do not use fire hydrants, standpipes and hose systems for purposes other than fire fighting.
  
  - .3 Costs incurred, from the fire department, building owner and tenants, resulting from negligently setting off false alarms will be charged to the Contractor.
- 1.8 Documents on Site
- .1 Keep Hot Work Permits and Hazard assessment documentation on site for duration of Work.
  
  - .2 Upon request, make available to Project Authority or to authorized safety representative for inspection.

1 General

- .1 Include in the work construction and temporary facilities required as construction aids or by jurisdiction authorities, or as otherwise specified. Install to meet needs of construction as work progresses. Maintain construction and temporary facilities during use, relocate them as required by the work, remove them at completion of need and make good adjacent work and properly affected by their installation.
- .2 Include in the work construction and temporary facilities to provide for construction safety such as: barricades, storage, fire protection, construction equipment, and as otherwise required of the constructor by the Construction Safety Act, or the Province of New Brunswick, as well as all other applicable regulations or authorities with jurisdiction.
- .3 Construct temporary work of new materials unless use of second-hand materials is approved.

2 Protection

- .1 Box with wood or otherwise protect from damage, by continuing construction, finished sills, jambs, corners and the like.
- .2 Provide protection for finished and partially finished building finishes and equipment during performance of work.
- .3 Provide necessary screens, covers and hoardings as required.
- .4 Be responsible for damage incurred due to lack of or improper protection.
- .5 Maintain project in clean condition.
- .6 All costs to repair building damage caused by Contractor or Sub-Contractors will be the responsibility of the Contractor.
- .7 Protect immediate and adjacent property against

damage which might occur from falling debris or other cause; do not interfere with use of or safe passage to and from building.

- .8 Take precautions to guard against movement or settlement of adjacent portions of structure; design, provide and place bracing or shoring as required; be responsible for safety and support of such elements; be liable for any such movement or settlement, any damage or injury caused thereby or resulting there from. If at any time safety or any adjacent portion of building appears to be endangered, cease operations, notify Project Authority, take precautions to support structure; do not resume operations until permission has been granted. If such movement or settlement of adjacent portion of building is caused by negligence or default of Contractor, restore the structural integrity of the structure to the Project Authority's design at no extra cost. When Project Authority considers additional bracing or shoring necessary to safeguard or prevent such movement or settlement, install bracing and shoring upon order.
- .9 Should any demolition of building commence before any new construction work, provide and maintain legal and necessary guards, railings, lights, warning signs, morality lights, and watchmen during execution of work to fully protect all persons from loss, damage, death or injury through neglect, carelessness or incompetence of Contractor or his employees or condition or handling of materials.
- .10 All demolition work shall be scheduled outside of regular working hours and shall be coordinated with the local Detachment Commander or occupants of residence.

3.3 Installation  
and Removal

- .1 Pay all costs for installation of temporary utilities, facilities and controls in order to execute the work expeditiously..
- .2 Pay all costs for removal of work from building/site after use and restoration of

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building/site unless otherwise noted.

- 4.4 Temporary Power and Light
- .1 Level of illumination shall be not less than 162 lx (15 foot candles) of fluorescent lighting.
  - .2 Permanent power distribution system of building or parts thereof may be used for temporary power and lighting where approved by Engineer. Be responsible for damage thereof.
  - .3 In the event approval of use of permanent power distribution system is given, the Contractor accepts responsibility for that portion of the distribution system under his control and is required to ensure that his operations will in no way affect the normal operation of the building.
- 5.5 Temporary Telephone
- .1 Provide and pay for temporary telephones and dedicated facsimile machines, necessary for own use.
  - .2 Pay for all long distance charges.
- 6.6 Site Storage and Over-Loading
- .1 The Contractor shall confine his apparatus, the storage of products, and the operations of its employees to limits indicated by the laws, ordinances, permits or Contract Documents, and shall not unreasonably encumber the premises with his products.
  - .2 The Contractor shall not load or permit to be loaded any part of the work with a weight or force that will endanger the safety of the work.
- 7.7 Construction Parking
- .1 Parking will be the responsibility of the RCMP Detachment Commander, however, the Detachment Commander reserves the right to limit this service based on RCMP operational requirements, safety and public need.
- 8.8 Site Offices
- .1 Contractors may provide their own offices as necessary, provided they agree to the conditions imposed by the Project Authority.
  - .2 Locate all site offices as directed by the

Project Authority.

- .3 Strictly enforce no smoking and use of scent-free product policies.

9.9 Equipment,  
Tool and Materials  
Storage

- .1 Provide and maintain, in a clean and orderly condition, lockable areas of tools, equipment and materials.

- .2 Locate all site storage sheds as directed by the Project Authority.

10 0 Dust Tight  
Screens/Partitions

- .1 Provide dust tight partitions to localize dust generating activities, and for the protection of workers, finished areas of work and the public. This applies to both above and below ceilings.

- .2 Maintain and relocate protection until such work is complete.

11 1 Pest Control

- .1 Provide effective non-pesticide pest control to site offices; equipment, tools and materials storage areas; and areas under construction.

- .2 All food stuffs and wrappers are to be kept in sealed containers and remove immediately at the end of each working day.

- 1 General .1 Use new material and equipment unless otherwise specified.
- .2 Within five (5) days of written request by Project Authority, submit following information for materials and equipment proposed for supply:
- .1 name and address of manufacturer,
  - .2 trade name, model and catalogue number,
  - .3 performance, descriptive and test data,
  - .4 manufacturer's installation or application instructions,
  - .5 evidence of arrangements to procure.
- .3 Use products of one manufacturer for material and equipment of same type or classification unless otherwise specified.
- 2 Manufacturers Instructions .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 Notify Project Authority in writing of any conflict between these specifications and manufacturer's instructions. Project Authority will designate which document is to be followed.
3. Fastenings General .1 Provide metal fastenings and accessories in same texture, colour and finish as base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work.
- .2 Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage. Wood plugs not acceptable.
- .3 Conceal fasteners where indicated. Space evenly and lay out neatly.

- .4 Fastenings which cause spalling or cracking are not acceptable.
- .5 Obtain Project Authority's approval before using explosive actuated fastening devices. If approval is obtained comply with CSA Z166- 1975.

.4 Fastenings  
Equipment

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

.5 Delivery and  
Storage

- .1 Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.
- .2 Prevent damage, adulteration and soiling of material and equipment during delivery, handling and storage. Immediately remove rejected material and equipment from site.
- .3 Store material and equipment in accordance with suppliers instructions.
- .4 Touch-up damaged factory finished surfaces to Project Authority's satisfaction. Use primer or enamel to match original. Do not paint over name plates.



.6 Construction  
Equipment and  
Plant

- .1 On request, prove to the satisfaction of Project Authority that the construction equipment and plant are adequate to manufacture, transport, place and finish work to quality and production rates specified. If inadequate, replace or provide additional equipment or plant as directed.
  
- .2 Maintain construction equipment and plant in good operating order.

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- 1.1 General .1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
- .2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .3 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- 1.2 Materials .1 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- 1.3 Cleaning During Construction .1 Maintain the work site and adjacent areas in a tidy condition, free from accumulations of waste material and debris. Clean areas on a daily basis.
- .2 Provide on-site containers for collection of waste materials and debris.
- .3 Use separate collection bins, clearly marked as to purpose, for the collection of waste and debris intended for source separation and recycling procedures specified in Section 01 35 43.
- .4 Remove waste materials, and debris from site on a daily basis.
- .5 No waste or waste dumpsters will be allowed to remain on site between work shifts, including at exterior of building.
- .6 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

- 1.4 Cleaning Agency .1 Employ and use the services of a professional and recognized cleaning agency to provide personnel on site to perform cleaning at end of each work shift.
- .2 Personnel from cleaning agency shall :
- .1 Wash walls, floors and other surfaces dirtied or smeared by work.
  - .2 Vacuum carpets in immediate work areas as well as any corridors and stairs used by workers in the course of their work.
  - .3 Vacuum and dust employee workstations (ie: fabric partitions and work surfaces) located in vicinity of where work was performed during the given work shift.
  - .4 Arrive at an appropriate time near end of work shift to conduct all required cleaning before Facility employees arrive at building for their work.
  - .5 Stay on premises for one additional hour after Contractor's off-hour work shift has terminated to address any complaints and concerns from Facility tenants and their employees on degree of cleanliness required and perform additional cleaning as required.
- 1.5 Final Cleaning .1 In preparation for acceptance of the project on an interim or final certificate of completion perform final cleaning.
- .2 Remove grease, dust, dirt, stains, labels, fingerprints, marks and other foreign materials, from new and existing surfaces marred by work.
- .3 Vacuum clean new carpets. Wash and wax new flooring.
- .4 Broom clean and wash exterior paved surfaces and walks; rake clean other surfaces of ground.

- 1.1 Section Includes .1 Administrative procedures preceding inspections and acceptance of work.
- 1.2 Inspection and Declaration .1 Contractor's Inspection: Coordinate and perform, in concert with subcontractors, an inspection and check of all work. Identify and correct deficiencies, defects, repairs and perform outstanding items as required to complete work in conformance with Contract Documents.  
.1 Notify Project Authority in writing when deficiencies from Contractor's inspection have been rectified and that work is deemed to be complete and ready for Project Authority's Inspection.
- .2 Notwithstanding the Contractor's attention is drawn to the fact that the Project Authority will not issue an Interim Certificate of Completion until such time that Contractor performs following work and/or turns over to Project Authority specified documents:  
.1 Operations and Maintenance manuals;  
.2 Maintenance materials;  
.3 Certificates of test and test results;  
.4 Manufacturer's Guarantee certificates.
- .3 Correct all discrepancies before final inspection and acceptance of work will be issued by Project Authority.

- 1.1 Section Includes .1 Requirements for submitting product maintenance literature and maintenance materials.
- 1.2 Operations & Maintenance Manual .1 Definition: an organized compilation of operating and maintenance data including detailed technical information, documents and records describing operation and maintenance of individual products or systems as specified in individual sections of the specifications.
- .2 Number of copies required:  
.1 Submit one (1) interim copy of the manual for review and inspection by Project Authority. Make revisions and additions as directed and resubmit.  
.2 Upon review and acceptance by Project Authority, submit two (2) final copies. Initialed copies will not be considered as the final copies unless they have been fully revised and are identical to the final approved version.
- .3 Submission Date: submit complete operation and maintenance manual to Project Authority two (2) weeks prior to application for Interim Certificate of Completion of project.
- .4 Binding:  
.1 Assemble, coordinate, bind and index required data into Operation and Maintenance Manual.  
.2 Use vinyl, hard covered, 3 "D" ring binder, loose leaf, sized for 215 x 280 mm paper, with spine pocket.  
.3 Identify contents of binder spine.  
.4 Organize and divide data into sections same as 16 division numerical order of contract specifications.  
.5 Material: separate each section by use

of cardboard dividers and labels. Provide tabbed fly leaf for each separate product or system within each section and with typed description of product and major component parts of equipment.

.6 Type lists and notes. Do not hand write.

.7 Drawings, diagrams and manufacturers' literature must be legible. Provide with reinforced, punched binder tab. Bind in with text; fold larger drawings to size to text pages.

.6 Manual Contents:

.1 Cover sheet containing:

.1 Date submitted.

.2 Project title, location and project number.

.3 Names and addresses of Contractor, sub-contractors and suppliers.

.2 Table of Contents: indicate contents in each binder.

.3 List of maintenance materials.

.4 List of spare parts.

.5 Original or certified copy of Warranties and Guarantees.

.6 Copies of approvals, and certificates issued by Inspection Authorities.

.7 Copies of reports and results from tests designated as Contractor's responsibilities.

.8 Data on all products, equipment and systems as specified in individual sections of the specifications to include:

.1 Manufacturer's name, supplier, local source of supplies and service depot(s). Provide full addresses and telephone numbers.

.2 Nameplate information including equipment number, make, size, capacity, model number and serial number.

.3 Parts list.

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- .4 Installation details.
- .5 Operating instructions.
- .6 Maintenance instructions for equipment.

1.3 Maintenance  
Materials

- .1 Provide extra material for maintenance purposes in quantities specified in trade section.
- .2 Provide items of same manufacturer and quality as products incorporated into work.
- .3 Deliver to site in well packaged condition. Store in location as directed by Engineer.
- .4 Clearly mark as to contents indicating:
  - .1 Product name and product number.
  - .2 Identification of where particular item was installed or intended use in building.
  - .3 Installation instructions.
  - .4 Name, address and telephone number of nearest supplier.
- .5 Prepare and submit complete inventory list of items supplied. Include list within Maintenance Manual.

PART 1 - GENERAL

- 1.1 Related Work .1 Protection of salvaged items.  
—
- .2 Removal and making safe of existing mechanical and electrical services and equipment.
- .3 Security and erecting of temporary hoardings.
- 1.2 Scope of Work .1 Demolition and removal will consist of, but not necessarily limited to, the demolition, removal and disposal of miscellaneous items as designated and directed by the Project Authority to facilitate the installation of new materials and equipment to be installed under the terms of the Standing Offer. Remove resultant debris from the site on a daily basis.  
—
- .2 Remove and turn over to the Project Authority all existing security equipment indicated for removal.
- 1.3 Quality Assurance .1 Requirements of Regulatory Agencies:  
—
- .1 Conform to the requirements of all pertinent codes, by-laws and regulations.
- .2 Conform to the requirements of NFPA 51B Fire Prevention in use of cutting and welding processes.
- .2 Carry out demolition in strict accordance with provincial and municipal regulations as applicable.



1.4 Job  
Conditions

## .1 Protection:

.1 Protect immediate and adjacent property against damage which might occur from falling debris or other cause; do not interfere with use of or safe passage to and from building.

.2 Take precautions to guard against movement or settlement of adjacent portions of structure; design, provide and place bracing or shoring as required; be responsible for safety and support of such elements; be liable for any such movement or settlement, any damage or injury caused thereby or resulting there from. If at any time safety of any adjacent portion of building appears to be endangered, cease operations, notify Project Authority, take precautions to support structure; do not resume operations until permission has been granted. If such movement or settlement of adjacent portion of building is caused by negligence or default of Contractor, restore the structural integrity of the structure to the Engineer's design at no extra cost. When Engineer considers additional bracing or shoring necessary to safeguard or prevent such movement or settlement, install bracing and shoring upon order.

.3 Should any demolition of building commence before any new construction work, provide and maintain legal and necessary guards, railings, lights, warning signs, morality lights and watchmen during execution of work to fully protect all persons from loss, damage, death or injury through neglect, carelessness or incompetence of Contractor or his employees or condition or handling of materials.

- .2 Maintaining Traffic:
  - .1 Do not close nor obstruct, place nor store materials in roadways, sidewalks, alleys, stairways, doorways or passageways beyond the designated area of construction without approval.
  - .2 Conduct operations with minimum interference with roadways, sidewalks, alleys or passageways.

PART 2 - PRODUCTS

- 2.1 General
  - .1 Unless otherwise indicated, all materials requiring demolition and not forming permanent part of the building shall become the property of the Project Authority. The Contractor shall review with the Project Authority the extent of items to be removed from the site prior to disposal by the Contractor.

PART 3 - EXECUTION

- 3.1 General
  - .1 When contaminated or dangerous material is encountered, remove from site and dispose of by safe means so that no danger is involved at job site or in disposing operations. Selling from site is not permitted.
  - .2 Contractors as part of this Standing Offer will arrange and pay for testing of these materials. Submit invoice to Project Authority for payment, no mark-up.
  - .3 Demolition of spray or trowel-applied asbestos can be hazardous to health. Should material resembling spray or trowel-applied asbestos or pipe covering containing asbestos be encountered in the course of demolition work, stop work and notify the Project Authority immediately.

Do not proceed until written instructions have been received from the Project Authority.

- .4 When making alterations to existing building, confine operations to those parts of building which are to be changed and exercise great care; do not damage existing construction beyond that necessary for carrying out of new work and make good any such damage in every respect. Do not interfere with the operation within existing building.
- .5 During demolition operations, keep work wetted down thoroughly to prevent dust and dirt rising.
- .6 Arrange with appropriate trades to have all services within and leading from existing building elements being demolished to be disconnected and sealed as applicable.
- .7 Remove resultant debris from site.
- .8 Provide all demolition required to permit the various parts of the work.
- .9 Remove elements that are continuous with or connected to that which is to remain in a manner to preserve the integrity, and leave good that which is to remain and allow for efficient completion of the work.
- .10 All new openings in reinforced concrete block or reinforced concrete to be saw-cut.
- .11 At end of day's work, leave work in safe condition so that no part is in danger of toppling or falling.

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- 1 General .1 This section covers items common to all specified sections
- .2 Except where dimensioned, the drawings indicate general mechanical layouts only.
- 2 Scope of Work .1 Heating, Ventilation and Air Conditioning, Radon Systems, etc.: install new and modify existing systems where indicated on drawings or in this specification. Includes service work on items such as furnaces, HRV's, HVAC systems, Radon Detection, etc.
- .2 Plumbing:  
.1 Install new and modify existing systems where indicated on drawings or in this specification.  
.2 Service Work on Backflow Valves, Water Filtration Systems, Wells, etc.
- 3 Permits & Fees .1 Comply with all regulations of Authorities having jurisdiction, where applicable, including but not limited to the following:  
.1 Provincial Department of Labour.  
.2 Provincial Fire Marshal.  
.3 Municipal Board of Insurance Underwriters.  
.4 Provincial Department of Health.
- .2 Obtain and pay for any permits required by Local Codes and Regulations and arrange for all inspections.
- .3 Any additional materials or labour required to conform to any of these regulations will be the responsibility of this Contractor.
- 4.4 Guarantees .1 Guarantee all work free from defects for a period of one (1) year from Interim Certificate, unless specifically noted otherwise after final acceptance of such

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work by the Owner. Make good all defects other than normal wear and tear during the life of the guarantee. At any time during this period, make any necessary changes, adjustments or replacements.

- 5 Equipment List .1 Provide list of equipment and materials to be used on this project and forming part of tender documents by adding manufacturer's name, model number and details of materials, and submit for approval.
- .2 Submit for approval within ten (10) days after award of contract.
- 6 Redundant Equipment and Services .1 Remove and dispose of all redundant services and equipment.
- 7 Existing Conditions .1 Verify all existing conditions measurements on site.
- .2 Drawings represent approximate as-built location of equipment and services.
- 8 Equipment Installation .1 Unions or flanges: provide for ease of maintenance and disassembly.
- .2 Space for servicing, disassembly and removal of equipment and components: provide as recommended by manufacturer or as indicated.
- .3 Equipment drains: pipe to floor drains.
- .4 Install equipment, rectangular cleanouts and similar items parallel to or perpendicular to building lines.
- 9 Anchor Bolts and Templates .1 Supply anchor bolts and templates for installation by other divisions.

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- 10 Electrical .1 Electrical work to conform to Division 26 including the following:
- .1 Supplier and installer responsibility is indicated in Motor, Control and Equipment Schedule on electrical drawings and related mechanical responsibility is indicated on Mechanical Equipment Schedule on mechanical drawings.
  - .2 Control wiring and conduit is specified in Division 26 except for conduit, wiring and connections below 50 V which are related to control systems specified in Division 26. Refer to Division 26 for quality of materials and workmanship.
- 11 Protection of Openings .1 Protect equipment and systems openings from dirt, dust and other foreign materials with materials appropriate to system.
- 12 Preparation for Firestopping .1 Firestopping material and installation within annular space between pipes, ducts, insulation and adjacent fire separation: specified in Section 01 47 15.
- .2 Uninsulated unheated pipes not subject to movement: no special preparation.
  - .3 Uninsulated heated pipes subject to movement: wrap with non-combustible smooth material to permit pipe to move without damaging firestopping material.
  - .4 Insulation pipes and ducts: ensure integrity of insulation and vapour barrier at fire separation.

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- 13 Tests
- .1 Give 24 hour written notice of date for tests.
  - .2 Insulate or conceal work only after testing and approval by Engineer.
  - .3 Conduct test in presence of Engineer.
  - .4 Bear costs including retesting and making good.
  - .5 Piping:
    - .1 General: maintain test pressure without loss for 4 h unless otherwise specified.
    - .2 Hydraulically test piping systems at 1-1/2 times system operating pressure or minimum 860 kPa, whichever is greater.
    - .3 Test drainage, waste and vent piping to National Building Code and authorities having jurisdiction.
  - .6 Equipment: test as specified in relevant sections.
  - .7 Prior to tests, isolate all equipment or other parts which are not designed to withstand test pressures or test medium.
- 14 Painting
- .1 Apply at least one coat of corrosion resistant primer paint to ferrous supports and site fabricated work.
  - .2 Prime and touch up marred finished paintwork to match original.
  - .3 Restore to new condition, finishes which have been damaged too extensively to be merely primed and touched up.
- 15 Spare Parts
- .1 Furnish spare parts in accordance with Section 01 78 00.

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- 16 Special Tools .1 Provide one set of special tools required to service equipment as recommended by manufacturers and in accordance with Section 01 78 00
- 17 Access Doors .1 Supply access doors to concealed mechanical equipment for operating, inspecting, adjusting and servicing. Install fire damper access doors in all duct work at new fire damper locations.
- .2 Material:
- .1 Special areas such as tiled or marble surfaces: use stainless steel with brushed satin or polished finish as directed by Engineer.
- .2 Remaining areas: use prime coated steel.
- .3 Installation:
- .1 Locate so that concealed items are accessible.
- .2 Locate so that hand or body entry (as applicable) is achieved.
- .3 Installation is specified in applicable sections.
- .4 Acceptable material: Buensod, Le Hage, Zurn, Acudor.
- 18 Dielectric Couplings .1 .1 General:  
Isolating unions to be compatible with and to suit pressure rating of piping system.  
.2 Where pipes of dissimilar metals are joined.
- 19 Drain Valves .1 Locate at low points and at section isolating valves unless otherwise specified.
- .2 Minimum NPS 3/4 unless otherwise specified: bronze, with hose end male thread and complete with cap and chain.



20 Demonstration  
and Operating and  
Maintenance  
Instructions

- .1 Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating, controlling, adjusting, trouble-shooting and servicing of all systems and equipment during regular work hours, prior to acceptance.
- .2 Where specified elsewhere in Division 15, manufacturers to provide demonstrations and instructions.
- .3 Use operation and maintenance manual, as-built drawings, audio visual aids, etc., as part of instruction materials.
- .4 Instruction duration time requirements as specified in appropriate sections.

21 Operation and  
Maintenance Manual

- .1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00.
- .2 Operation and maintenance manual to be approved by, and final copies deposited with, Project Authority before final inspection.
- .3 Where applicable, operation data to include:
  - .1 Controls schematics for each system including environmental controls.
  - .2 Description of each system and its controls.
  - .3 Description of operation of each system at various loads together with reset schedules and seasonal variances.
  - .4 Operation instruction for each system

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- and each component.
- .5 Valve schedule and flow diagram.
  
  - .4 Maintenance data shall include:
    - .1 Servicing, maintenance, operation and trouble-shooting instructions for each item of equipment.
    - .2 Data to include schedules of tasks, frequency, tools required and task time.
  
  - .5 Performance data to include:
    - .1 Equipment manufacturer's performance data sheets with point of operation as left after commissioning is complete.
    - .2 Equipment performance verification test results.
    - .3 Special performance data as specified elsewhere.
    - .4 Testing, adjusting and balancing reports as specified.
  
  - .6 Approvals:
    - .1 Submit two (2) copies of draft Operation and Maintenance Manual to Project Authority for approval. Submission of individual data will not be accepted unless so directed by Project Authority.
    - .2 Make changes as required and re-submit as directed by Project Authority.
  
  - .7 Additional data:
    - .1 Prepare and insert into operation and maintenance manual when needed for same becomes apparent during demonstrations and instructions specified above.
- 22 Shop Drawings and Product Data
- .1 Submit shop drawings and product data in accordance with Section 01 33 00 - Shop Drawings, Product Data, Samples and Mock-ups.

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- .2 Shop drawings and product data shall show:
    - .1 Mounting arrangements.
    - .2 Operating and maintenance clearances; eg. access door swing spaces.
  - .3 Shop drawings and product data shall be accompanied by:
    - .1 Acoustical sound power data, where applicable.
    - .2 Points of operation on performance curves where applicable.
    - .3 Certification of compliance to applicable codes.
  - .4 In addition to transmittal letter referred to in Section 01 33 00 - Shop Drawings, Product Data, Samples and Mock-ups: use MCAC "Shop Drawing Submittal Title Sheet". Identify section and paragraph number.
- 23 Cleaning
- .1 Clean mechanical (building) systems in accordance with Section 01 74 11 - Cleaning.
  - .2 Clean interior and exterior of all new systems including strainers. Vacuum interior of all new ductwork and air handling units.
  - .3 In preparation for final acceptance, clean and refurbish all new equipment and leave in operating condition including replacement of all filters in all air and piping systems.
- 24 As-Built Drawings
- .1 Site records and as-built drawings in accordance with this Section.
  - .2 As-built drawings:
    - .1 Prior to start of Testing, Adjusting and Balancing (TAB), finalize production of as-built drawings.
    - .2 Identify each drawing in lower right hand corner in letters at least 12 mm high

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as follows: - "AS-BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED"

(Signature of Contractor) (date).

.3 Submit to Project Authority for approval and make corrections as directed.

.4 TAB to be performed using as-built drawings.

.5 Submit completed reproducible as-built drawings with Operating and Maintenance Manuals.

.3 Submit copies of as-built drawings for inclusion in final TAB report.

PART 1 - GENERAL

1.1 General

.1 This Section covers items common to Sections of Division 26. This section supplements requirements of Division 01.

.2 Additional sections of Division 26 may be issued separately under the terms of the Standing Offer. These additional sections are to be coordinated with sections 26 05 01 and shall form part of the contract.

1.2 Scope of work

.1 Scope of work under this Contract generally includes, but not limited to the following:

.1 Modifications of existing panels as indicated.

.2 Supply and installation of breakers and wiring as indicated

.3 Modifications to existing fire alarm system as required.

.4 Relocation of electrical equipment as indicated; supply and installation of new electrical items as indicated; supply and installation of new switches and receptacles as indicated.

.5 Supply and installation of communication wiring as indicated.

.6 Supply and installation of telephone and data outlets as indicated and connection to existing or new racks.

.7 Service Work on Electrical Panels, Service Mast, Metre Base, Distribution Panel, Smoke/Gas Detection Panels, Lighting Fixtures, Receptacles, etc.

1.3 Codes and Standards

.1 Do complete installation in accordance with CSA C22.1-2002 except where specified

otherwise.

.2 Do overhead and underground systems in accordance with CSA C22.3 No.1-M1987 except where specified otherwise.

.3 Abbreviations for electrical terms: to CSA Z-85-1983.

1.4 Care, Operation and Start-up

.1 Instruct Project Authority and operating personnel in the operation, care and maintenance of systems, system equipment and components. Provide five (5) days written notice to Project Authority prior to providing instruction.

.2 Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel.

.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 all aspects of its care and operation.

1.5 Voltage Ratings

.1 Operating voltages: to CAN3-C235-83.

.2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard. Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

1.6 Permits, Fees and Inspection

.1 Submit to local Electrical Inspection Department and Supply Authority necessary number of drawings and specifications for examination and approval prior to commencement

of work.

.2 Pay associated fees.

.3 Owner will provide drawings and specifications required by local Electrical Inspection Department and Supply Authority at no cost.

.4 Notify Project Authority of changes required by local Electrical Inspection Department prior to making changes.

.5 Furnish Certificates of Acceptance from local Electrical Inspection Department authorities having jurisdiction on completion of work to Project Authority.

1.7 Materials and Equipment

.1 Provide materials and equipment in accordance with Section 01 61 00 - Common Product Requirements.

.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 local Electrical Inspection Department.

.3 Factory assemble control panels and component assemblies.

1.8 Electric Motors, Equipment and Controls

.1 Supplier and installer responsibility will indicated in Motor, Control and Equipment Schedule on electrical drawings and related mechanical responsibility is indicated on Mechanical Equipment Schedule on mechanical drawings.

.2 Control wiring and conduit is specified in Division 26

1.9 Finishes

.1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.

.1 Paint outdoor electrical equipment "equipment green" finish to EEMAC Y1-1-1955.

.2 Paint indoor switchgear and distribution enclosures light grey to EEMAC 2Y-1-1958.

.2 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.

.3 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.

1.10 Equipment  
Identification

.1 Identify electrical equipment with nameplates and labels as follows:

.2 Nameplates:

.1 Lamicoid 3 mm thick plastic engraving sheet, black white face, black white core, mechanically attached with self tapping screws.

NAMEPLATE SIZES

Size 1	10 x 50 mm	1 line	3 mm high letters
Size 2	12 x 70 mm	1 line	5 mm high letters
Size 3	12 x 70 mm	2 lines	3 mm high letters
Size 4	20 x 90 mm	1 line	8 mm high letters
Size 5	20 x 90 mm	2 lines	5 mm high letters
Size 6	25 x 100 mm	1 line	12 mm high letters



Size 7	25 x 100 mm	2 lines	6 mm high letters
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.3 Labels:

.1 Embossed plastic labels with 6 mm high letters unless specified otherwise.

.4 Wording on nameplates and labels to be approved by Engineer Consultant prior to manufacture.

.5 Allow for average of twenty-five (25) letters per nameplate and label.

.6 Identification to be English and French.

.7 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.

.8 Disconnects, starters and contactors: indicate equipment being controlled voltage phase and power source designation.

.9 Terminal cabinets and pull boxes: indicate system and voltage.

1.11 Wiring

.1 Concealed wiring shall be in conduit. Surface mounted wiring shall be in wirehold. All cable shall be neatly installed parallel to building lines. Support cable in accordance with the Canadian Electrical Code.

.2 All wiring to be copper R-90 unless noted otherwise. Branch wiring shall be No. 12 AWG up to 70 feet (21.4m) and No. 10 AWG from 71 feet (21.6m) to 120 feet (36.6m). The voltage drop shall be calculated at 3 percent.

1.12 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.

.4 Use colour coded wires in communication cables, matched throughout system.

1.13 Conduit and Cable Identification

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.1 Colour code conduits, boxes and metallic sheathed cables.

.2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.

.3 Colours: 25 mm wide prime colour and 20 mm wide auxiliary colour.

	Prime	Auxiliary
up to 250 V	Yellow	
up to 600 V	Yellow	Green
up to 5 kV	Yellow	Blue
up to 15 kV	Yellow	Red
Telephone	Green	
Other	Green	Blue
Communication Systems		
Fire Alarm	Red	
Emergency	Red	Blue
Voice		
Other	Red	Yellow
Security Systems		Purple

1.14 Wiring Terminations

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.1 Lugs, terminals, screws used for termination of wiring to be suitable for either copper or aluminum conductors.

1.15 Manufacturers

.1 Visible and legible, after equipment is

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and CSA Labels installed.

1.16 Warning Signs .1 As specified and to meet requirements of Electrical Inspection Department and Engineer Consultant.

.2 Porcelain enamel decal signs, minimum size 175 x 250 mm.

1.17 Mounting Heights .1 Mounting height of equipment is from finished floor to centerline of equipment unless specified or indicated otherwise.

.2 If mounting height of equipment is not specified or indicated, verify before proceeding with installation.

.3 Install electrical equipment at following heights unless indicated otherwise.

.1 Local switches: 1400 mm.

.2 Wall receptacles:

.1 General: 300 mm.

.2 Above top of continuous baseboard heater: 200 mm.

.3 Above top of counters or counter splash backs: 175 mm.

.4 In mechanical rooms: 1400 mm.

.3 Panelboards: as required by Code or as indicated.

.4 Telephone & interphone outlets: 300 mm.

.5 Wall mounted telephone and interphone outlets: 1500 mm.

.6 Fire alarm stations: 1500 mm.

.7 Fire alarm bells: 2100 mm.

.8 Television outlets: 300 mm.

.9 Wall mounted speakers: 2100 mm.

.10 Clocks: 2100 mm.

.11 Door bell pushbuttons: 1500 mm.

1.18 Conduit and Cable Installation

.1 Install conduit and sleeves prior to pouring

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of concrete. Sleeves through concrete: schedule 40 steel pipe plastic sheet metal, sized for free passage of conduit, and protruding 50 mm.

.2 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.

.3 Install cables, conduits and fittings to be embedded or plastered over, neatly and close to building structure so furring can be kept to minimum.

.4 Cabling installation shall be done under a communication cabling permit issued by the local electrical inspection department and by holding a communications cabling specialist certificate recognized by the New Brunswick Department of labour.

#### 1.19 Temporary Services

.1 The Electrical Contractor will be held responsible for maintaining all electrical services in a safe operating condition at all times.

.2 Any temporary wiring and services must comply with the requirements of the Canadian Electrical Code and all jurisdictional authorities.

#### 1.20 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 The work of this division to be carried out by a contractor who holds a valid Master Electrical contractor license as issued by the Province that the work is being constructed.

.3 Conduct and pay for following tests:

.1 Power generation and distribution system 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 system, communications.

.6 Panels shall be balanced within 5% of load per phase. Grounding shall be as required by the Canadian Electrical Code.

.7 Test all system grounding conductors to detect phase to ground loads. Meter shall read less than one ampere

.4 Furnish manufacturer's certificate or letter confirming that entire installation as it pertains to each system has been installed to manufacturer's instructions.

.5 Carry out tests in presence of Engineer. Provide five (5) days written notice to Engineer prior to performing tests.

.6 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

.7 Submit test results for Project Authority review and approval.