



## Specification

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Abbotsford, BC  
Matsqui Complex

**Internal Lighting Upgrade to LED**

Requisition No.

EZ899-181823/A

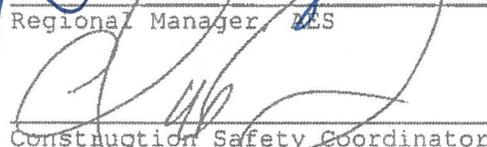
Project No. R.090363.001  
October 2017

**APPROVED BY:**

  
A/ Regional Manager / ES

2017-10-25

Date

  
Construction Safety Coordinator

2017-09-17

Date

**TENDER:**

  
Project Manager

2017-10-27

Date



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END OF INDEX



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Discipline	Seal / Signature / Date
Electrical	 <p>A circular red seal for a Professional Engineer in the Province of British Columbia. The seal contains the text: "PROFESSIONAL PROVINCE OF BRITISH COLUMBIA ENGINEER". Below the seal is a blue ink signature and the date "Oct. 19, 2017".</p>

**END OF SECTION**



**INTERNAL LIGHTING UPGRADE TO LED**

**1 CODES**

- .1 Perform work to all current Codes, Construction Standards and Bylaws, including Amendments up to the tender closing date.

**2 SUMMARY OF WORK**

- .1 Work under this Contract is at Matsqui Complex, 33344 King Road, Abbotsford, BC.
- .2 This is a mixed facility of minimum and medium-security institutions and consisted of the following individual institutions;
  - Matsqui Institution
  - Fraser Valley Institution
  - Pacific Institution
- .3 Work includes but is not limited to;
  - Replacement of the existing exterior lighting (wall packs, down lights and pole lights) with new LED luminaires within the facility. Works and detailed requirements are shown on the contract drawings.
- .4 Complete the work on time as indicated in Clause 5 of this section. Provide multiple work crews (minimum of three crews – one crew for each institution) to operate concurrently and to complete the project on time. Submit a detailed list of work crews to Departmental Representative at the project start up meeting.

**3 CONTRACTOR'S USE OF PREMISES**

- .1 Contractor has controlled use of site within the areas of work as directed by Departmental Representative.
- .2 Use of all areas are controlled by the Departmental Representative.
- .3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .4 The Institution site will be operational during work of this Contract.

**4 WORK RESTRICTIONS**

- .1 Notify, Departmental Representative of intended interruption of any services and provide schedule for review.
- .2 Security Requirements: refer to Section 01 14 10 – Security Requirements.

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- .3 Hours of work:
  - .1 Perform work during normal working hours of the site (0730 to 1600), Monday through Friday except holidays.
  - .2 Work may be performed after normal working hours of Institution, Monday through Friday, on weekends and holidays, with a minimum forty-eight (48) hours advance notice and approval of the Departmental Representative.
  - .3 Provide schedule for prior approval by Departmental Representative.
  - .4 Notify department representative with a minimum forty-eight (48) hours advance notice and obtain approval for any proposed power shut downs throughout the facility.
  
- .4 Access into Institution:
  - .1 Vehicular access through the Principal Entrance Sally Port will be restricted during the Inmate "count" at breakfast, lunch and dinner hours.
  - .2 Confirm "count" times with Departmental Representative. Delays may occur when entering and exiting the Institution with vehicles during "count" times and due to security situations and heavy traffic.
  - .3 Construction escorts will be provided by the Departmental Representative, at no cost to the Contract. Notify Departmental Representative minimum 48 hours in advance of when Construction Escort is required.

**5 CONSTRUCTION WORK SCHEDULE**

- .1 Commence work immediately upon official notification of acceptance of offer and complete the work within 12 weeks from the date of such notification.
  
- .2 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Substantial Certificate and Final Certificate as defined times of completion are essence of this contract.
  
- .3 Carry on Work as follows:
  - .1 Within 5 working days after Contract Award, provide a schedule showing anticipated progress stages and final completion of the work within the time period required by the Contract documents. Indicate the following:
    - .1 Submission of shop drawings, product data, MSDS sheets and samples.
    - .2 Commencement and completion of work for each phase/task.
    - .3 Final completion date within the time period required by the Contract documents.
  
- .4 Project Scheduling Reporting:
  - .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
  - .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

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.5 Project Meetings:

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.
- .3 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price. After approval by Departmental Representative cost breakdown will be used as basis for progress payments.

**6 SUBMITTAL PROCEDURES**

.1 Administrative:

- .1 Submit to Departmental Representative submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work.
- .2 Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .3 Do not proceed with work affected by submittal, until review is complete.
- .4 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units converted values are acceptable.
- .6 Review submittals prior to submission to Departmental Representative . This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .8 Verify field measurements and affected adjacent Work are coordinated.
- .9 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative review of submittals.
- .10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .11 Keep one reviewed copy of each submission on site.

.2 Shop Drawings:

- .1 Drawings to be originals prepared by Contractor, Subcontractor, Supplier or Distributor, which illustrate appropriate portion of work; showing fabrication, layout, setting or erection details as specified in appropriate sections.

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- .3 Product Data:
  - .1 Certain specification Sections specify that manufacturer's standard schematic drawings, catalogue sheets, diagrams, schedules, performance charts, illustrations and other standard descriptive data will be accepted in lieu of shop drawings, provided that the product concerned is clearly identified. Submit in sets, not as individual submissions.
  
- .4 Submission Requirements:
  - .1 Schedule submissions at least ten days before dates reviewed submissions will be needed.
  - .2 Submit number of copies of product data, shop drawings which Contractor requires for distribution plus four (4) copies which will be retained by Departmental Representative.
  - .3 Accompany submissions with transmittal letter in duplicate.
  - .4 Submit either bond copies or one (1) electronic pdf file of each shop drawing and product data as directed by Departmental Representative.
  
- .5 Coordination of Submissions:
  - .1 Review shop drawings, product data and samples prior to submission.
  - .2 Coordinate with field construction criteria.
  - .3 Verify catalogue numbers and similar data.
  - .4 Coordinate each submittal with requirements of the work of all trades and contract documents.
  - .5 Responsibility for errors and omissions in submittals is not relieved by Departmental Representative's review of submittals.
  - .6 Responsibility for deviations in submittals from requirements of Contract documents is not relieved by Departmental Representative's review of submittals, unless Departmental Representative gives written acceptance of specified deviations.
  - .7 Notify Departmental Representative, in writing at time of submission, of deviations in submittals from requirements of Contract documents.
  - .8 Make any changes in submissions which Departmental Representative may require consistent with Contract Documents and re-submit as directed by Departmental Representative.
  - .9 After Departmental Representative's review, distribute copies.
  - .10 Shop Drawings Review:
    - .1 Review of shop drawings by Public Works and Government Services Canada (PWGSC) is for the sole purpose of ascertaining conformance with the general concept.
    - .2 The Departmental Representative's review does not mean that PWGSC approves the detail design inherent in the shop drawings, responsibility remains with the contractor submitting same, and such review will not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the construction and contract documents.

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- .3 Without restricting the generality of the foregoing, the Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation, and for co-ordination of the work of all subtrades.

**7 HEALTH AND SAFETY**

- .1 Specified in Section 01 35 33 - Health and Safety Requirements.

**8 ENVIRONMENTAL PROCEDURES**

- .1 Fires and burning of rubbish on site not permitted.
- .2 Do not bury rubbish and waste materials on site unless approved by Departmental Representative.
- .3 Do not dispose of waste or volatile materials such as oil, paint thinner or mineral spirits into waterways, storm or sanitary systems.
- .4 Control disposal of run-off of water containing suspended materials or other harmful substances in accordance with local authority requirements. Construct settlement ponds and silt fences as required by the Provincial Environmental authority.
- .5 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.
- .6 Under no circumstances dispose of rubbish or waste materials on property or CSC waste bins.

**9 REGULATORY REQUIREMENTS**

- .1 References and Codes:
  - .1 Perform Work in accordance with National Building Code of Canada (NBCC2015) including all amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
  - .2 Meet or exceed requirements of:
    - .1 Contract documents.
    - .2 Specified standards, codes and referenced documents.

**10 QUALITY CONTROL**

- .1 Inspection:
  - .1 Give timely notice requesting inspection if Work is designated for special tests,

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- inspections or approvals by Departmental Representative instructions, or law of Place of Work.
  - .2 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
  - .3 Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.
  - .2 Procedures:
    - .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
    - .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
    - .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.
  - .3 Rejected Work:
    - .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
    - .2 Make good other Contractor's work damaged by such removals or replacements promptly.
  - .4 Reports:
    - .1 Submit (4) four copies or one scanned pdf copy of inspection and test reports to Departmental Representative.

**11 TEMPORARY UTILITIES**

- .1 Water Supply:
  - .1 Existing water supply system may be used for construction purposes provided that damaged components are replaced when damaged. Provide own hoses from source.
- .2 Temporary Power and Light:
  - .1 Electrical power and lighting in existing buildings may be used for construction purposes at no extra cost, provided that electrical components used for temporary power are replaced when damaged.
- .3 Temporary Communication Facilities:
  - .1 Temporary telephone and fax hook up, line(s) are not permitted on site. Conform

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to Section 01 14 10 Security Requirements for use of cell phones inside institution.

**12 CONSTRUCTION FACILITIES**

- .1 Installation and Removal:
  - .1 Provide construction facilities in order to execute work expeditiously.
  - .2 Remove from site all such work after use.
- .2 Scaffolding:
  - .1 Design, construct and maintain scaffolding in rigid, secure and safe manner, in accordance with WCBBC regulations and Section 01 35 33.
  - .2 Erect scaffolding independent of walls. Remove promptly when no longer required.
- .3 Site Storage/Loading:
  - .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
  - .2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.
- .4 Construction Parking:
  - .1 Parking space is available outside double fence.
- .5 Equipment, Tools and Material Storage:
  - .1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials outside the double fence.
- .6 Sanitary Facilities:
  - .1 Sanitary facilities for work force are available on site as directed by Departmental Representative.

**13 COMMON PRODUCT REQUIREMENTS**

- .1 Reference Standards:
  - .1 If there is a question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
  - .2 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.
  - .3 Conform to latest date of issue of referenced standards in effect on date of submission of Bids, except where specific date or issue is specifically noted.
- .2 Quality:
  - .1 Products, materials, equipment and articles (referred to as products throughout

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- specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
  - .3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
  - .4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
  - .5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.
- .3 Storage, Handling and Protection:
- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
  - .2 Store products subject to damage from weather in weatherproof enclosures.
  - .3 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative .
  - .4 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.
- .4 Transportation:
- .1 Pay costs of transportation of products required in performance of Work.
  - .2 Transportation cost of products supplied by Departmental Representative will be paid for by Departmental Representative. Unload, handle and store such products.
- .5 Manufacturer's Instructions:
- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
  - .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative may establish course of action.
  - .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.
- .6 Quality of Work:
- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify

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- Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
  - .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.
- .7 Co-ordination:
- .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
  - .2 Be responsible for coordination and placement of openings, sleeves and accessories.
- .8 Remedial Work:
- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
  - .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.
- .9 Location of Equipment:
- .1 Inform Departmental Representative of conflicting installation. Install as directed.
  - .2 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.
- .10 Fastenings:
- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
  - .2 Prevent electrolytic action between dissimilar metals and materials.
  - .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
  - .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
  - .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
  - .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.
- .11 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.

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- .12 Protection of Work in Progress:
  - .1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Departmental Representative.
  
- .13 Asbestos
  - .1 Asbestos containing materials (ACM) are not permitted.

**14 EXAMINATION AND PREPARATION**

- .1 Location of Equipment and Fixtures:
  - .1 Location of equipment indicated or specified are to be considered as approximate.
  - .2 Locate equipment to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
  - .3 Inform Departmental Representative of impending installation and obtain approval for actual location.
  - .4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

**15 EXECUTION REQUIREMENTS**

- .1 Preparation:
  - .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
  - .2 After uncovering, inspect conditions affecting performance of Work.
  - .3 Beginning of cutting or patching means acceptance of existing conditions.
  - .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
  - .5 Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.
  
- .2 Execution:
  - .1 Execute cutting, fitting, and patching, including excavation and fill, to complete Work.
  - .2 Fit several parts together, to integrate with other Work.
  - .3 Uncover Work to install ill-timed Work.
  - .4 Remove and replace defective and non-conforming Work.
  - .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
  - .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

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- .7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .9 Restore work with new products in accordance with requirements of Contract Documents.
- .10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .11 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material, full thickness of the construction element.
- .12 Refinish surfaces to match adjacent finishes: For continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.
- .13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

**16 CLEANING**

- .1 Project Cleanliness:
  - .1 Maintain Work in tidy condition, free from accumulation of waste products and debris.
  - .2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
  - .3 Provide on-site containers for collection of waste materials and debris.
  - .4 Provide and use clearly marked separate bins for recycling. Refer to- Construction/Demolition Waste Management And Disposal.
  - .5 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.
- .2 Final Cleaning:
  - .1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
  - .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
  - .3 Prior to final review, remove surplus products, tools, construction machinery and equipment.
  - .4 Remove waste products from site.

**17 CONSTRUCTION/DEMOLITION WASTE MANAGEMENT AND DISPOSAL**

- .1 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and/or recyclable materials and waste. Separate non-salvageable materials from salvaged items. Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes. Transport and deliver non-salvageable items to licensed disposal facility.

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- .2 Provide containers to deposit reusable and/or recyclable materials. Locate containers in locations, to facilitate deposit of materials without hindering daily operations. Provide containers to deposit reusable and/or recyclable materials.
- .3 Collect, handle, store on-site and transport off-site, salvaged materials in separate condition. Transport to approved and authorized recycling facility and/or users of material for recycling. Submit a copy of receipt / documentation for proof of appropriate disposal and recycling.
- .4 Locate waste and salvage bins on site as directed by Departmental Representative.

**18 CLOSEOUT PROCEDURES**

- .1 Inspection and Declaration:
  - .1 Contractor's Inspection: Conduct an inspection of Work with all subcontractors, identify deficiencies and defects, and repair as required to conform to Contract Documents.
  - .2 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
  - .3 Request Departmental Representative's Inspection.
- .2 Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
  - .1 Work has been completed and inspected for compliance with Contract Documents.
  - .2 Defects have been corrected and deficiencies have been completed.
  - .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
  - .4 Operation of systems have been demonstrated to Department's personnel.
  - .5 Work is complete and ready for Final Inspection.
  - .6 Asbestos containing materials were not used in this project.
- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request reinspection.

**19 CLOSEOUT SUBMITTALS**

- .1 Record Drawings:
  - .1 As work progresses, maintain accurate records to show all deviations from the Contract Drawings. Note on as-built drawings as changes occur. Provide AutoCAD drafting services to transfer all changes to electronic copy of drawings. At completion supply:
    - .1 Three paper sets of as-built drawings,

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- .2 Three copies of as-built drawings in dwg and pdf formats, on USB storage devices.
  - .3 Place "As Built" and the date on the drawings.
- .2 Operation and Maintenance manuals:
- .1 On completion of project submit to Departmental Representative three (3) electronic (pdf) copies on USB storage devices and four paper copies (in loose leaf type binder) of Operations Manual and the Maintenance Manual, made up as follows:
    - .1 Organize manuals into industry standard maintenance manual tabs with links in index to each descriptive section describing the component or maintenance procedure etc.
    - .2 Organize files into CSI Masterformat numbering system or other approved descriptive titles.
    - .3 Label binders "Operation Manual" and "Maintenance Manual", project name, date, names of Contractor, subcontractors, consultants and subconsultants.
    - .4 Include scanned guarantees, diagrams and drawings.
    - .5 Organize contents into applicable sections of work to parallel project specification break-down. Mark each section by labeled tabs (navigational buttons).
    - .6 Drawings, diagrams and manufacturer's literature must be legible.
  - .3 Maintenance Materials, Special Tools and Spare Parts:
    - .1 Specific requirements for maintenance materials, tools and spare parts are specified in individual sections.
    - .2 Deliver maintenance materials, special tools and spare parts to Departmental Representative and store in designated area as directed by Departmental Representative.
    - .3 Prepare lists of maintenance materials, special tools and spare parts for inclusion in Manual specified in Clause 19.2.
    - .4 Maintenance materials:
      - .1 Deliver wrapped, identify on carton or package, colour, room number, system or area as applicable where item is used.
    - .5 Special tools:
      - .1 Assemble as specified;
      - .2 Include identifications and instructions on intended use of tools.
    - .6 Spare parts:
      - .1 Assemble parts as specified;
      - .2 Include part number, identification of equipment or system for which parts are applicable;
      - .3 Installation instructions;
      - .4 Name and address of nearest supplier.
- .4 Warranties and Bonds:

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- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing in maintenance manual.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
  - .4 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until the Date of Interim Completion is determined.
  - .5 Verify that documents are in proper form, contain full information, and are notarized.
  - .6 Retain warranties and bonds until time specified for submittal.

**20 DEMONSTRATION AND TRAINING**

- .1 Demonstration and Training:
  - .1 Demonstrate operation and maintenance of equipment and systems to maintenance personnel following interim Completion and prior to date of final certificate of completion.
  - .2 Departmental Representative will provide list of personnel to receive instructions, and will coordinate their attendance at agreed-upon times.

**END OF SECTION**

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**1 PURPOSE**

- .1 To ensure that both the construction project and the institutional operations may proceed without undue disruption or hindrance and that the security of the Institution is maintained at all times.

**2 DEFINITIONS**

- .1 "Contraband" means:
- (a) an intoxicant, including alcoholic beverages, drugs and narcotics
  - (b) a weapon or a component thereof, ammunition for a weapon, and anything that is designed to kill, injure or disable a person or that is altered so as to be capable of killing, injuring or disabling a person, when possessed without prior authorization,
  - (c) an explosive or a bomb or a component thereof,
  - (d) currency over any applicable prescribed limit, \$25.00, and
  - (e) any item not described in paragraphs (a) to (d) that could jeopardize the security of a Penitentiary or the safety of persons, when that item is possessed without prior authorization.
- .2 "Unauthorized smoking and related Items" means all smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing tobacco, cigarette making machines, matches and lighters.
- .3 "Commercial Vehicle" means any motor vehicle used for the shipment of material, equipment and tools required for the construction project.
- .4 "CSC" means Correctional Service Canada.
- .5 "Director" means Director or Warden of the Institution as applicable or their representative.
- .6 "Construction employees" means persons working for the general contractor, the sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies. Workers 18 years or younger are not permitted within Institution.
- .7 "Departmental Representative" means the Public Works and Government Services Canada representative defined in General Conditions.
- .8 "Perimeter" means the fenced or walled area of the institution that restrains the movement of the inmates.
- .9 "Construction zone" means the area, as indicated in the contract documents, that the contractor will be allowed to work". This area may or may not be isolated from the security area of the institution. Limits to be confirmed at construction start-up meeting.

### 3 PRELIMINARY PROCEEDINGS

- .1 At construction start-up meeting:
  - .1 Discuss the nature and extent of all activities involved in the Project.
  - .2 Establish mutually acceptable security procedures in accordance with this instruction and the institution's particular requirements.
- .2 The contractors's responsibilities:
  - .1 Ensure that all construction employees are aware of the CSC security requirements.
  - .2 Ensure that a copy of the CSC security requirements is always prominently on display at the job site.
  - .3 Co-operate with institutional personnel in ensuring that security requirements are observed by all construction employees.

### 4 CONSTRUCTION EMPLOYEES

- .1 Submit to the Departmental Representative a list of the names with date of birth of all construction employees to be employed on the construction site and a security clearance form for each employee.
- .2 Allow 10 working days for processing of security clearances. Employees will not be admitted to the Institution without a valid security clearance in place and a recent picture identification such as a provincial driver's license. Security clearances obtained from other CSC institutions are not valid at this Institution except as approved otherwise.
- .3 The Director may require that facial photographs may be taken of construction employees and these photographs may be displayed at appropriate locations in the Institution or in an electronic database for identification purposes. The Director may require that Photo ID cards be provided for all construction workers. ID cards will then be left at the designated entrance to be picked upon arrival at the institution and shall be displayed prominently on the construction employees clothing at all time while employees are at the institution.
- .4 Entry to Institutional Property will be refused to any person there may be reason to believe may be a security risk.
- .5 Any person employed on the construction site will be subject to immediate removal from Institutional Property if they:
  - .1 appear to be under the influence of alcohol, drugs or narcotics.
  - .2 behave in an unusual or disorderly manner.
  - .3 are in possession of contraband.
  - .4 are 18 years old or younger.

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**5 VEHICLES**

- .1 All unattended vehicles on CSC property must have windows closed; fuel caps locked, doors and trunks locked and keys removed. The keys must be securely in the possession of the owner or an employee of the company that owns the vehicle.
- .2 The director may limit at any time the number and type of vehicles allowed within the Institution.
- .3 Drivers of delivery vehicles for material required by the project will require security clearances and must remain with their vehicle the entire time that the vehicle is in the Institution. The director may require that these vehicles be escorted by Institutional staff or PWGSC Construction Escorts while in the Institution.
- .4 If the Director permits trailers to be left inside the secure perimeter of the Institution, the trailer doors must be locked at all times. All windows must be securely locked bars when left unoccupied. Cover all windows with expanded metal mesh. When not in use lock all storage trailers located inside and outside the perimeter. All storage trailers inside and outside the perimeter must be locked when not in use.

**6 PARKING**

- .1 The parking area(s) to be used by construction employees will be designated by the Director. Parking in other locations will be prohibited and vehicles may be subject to removal.

**7 SHIPMENTS**

- .1 To avoid confusion with the Institution's own shipments, address all shipments of project material, equipment and tools in the Contractor's name and have a representative on site to receive any deliveries or shipments. CSC or PWGSC staff will **NOT** accept receipt of deliveries or shipments of any material equipment or tools for the contractor.

**8 TELEPHONES**

- .1 The installation of telephones, facsimile machines and computers with Internet connections is not permitted within the Institution perimeter.
- .2 Wireless cellular and digital telephones, including but not limited to devices for telephone messaging, pagers, Blackberries, PDAs, telephone used as 2-way radios are not permitted within the Institution unless approved by the Director. If wireless cellular telephones are permitted, the user will not permit their use by any inmate.
- .3 The Director may approve but limit the use of 2-way radios.

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**9 WORK HOURS**

- .1 Work hours within the Institution are: conform to Division 1.
- .2 Work is not permitted during weekends and statutory holidays without the permission of the Director. A minimum of seven days advance notice will be required to obtain the required permission. In case of emergencies or other special circumstances, this advance notice may be waved by the Director.

**10 OVERTIME WORK**

- .1 Conform to Division 1.
- .2 Provide 48 hours advance notice to Director for all work to be performed after normal working hours of the Institution. Notify Director immediately if emergency work is required, such as to complete a concrete pour or make the construction site safe and secure.

**11 TOOLS AND EQUIPMENT**

- .1 Maintain a complete list of all tools and equipment to be used during the construction project. Make this inventory available for inspection when required by the Institution.
- .2 Throughout the construction project maintain up-to-date the list of tools and equipment specified above.
- .3 Keep all tools and equipment under constant supervision, particularly power-driven and cartridgedriven tools, cartridges, files, saw blades, rod saws, wire, rope, ladders and any sort of jacking device.
- .4 Store all tools and equipment in approved secure locations.
- .5 Lock all tool boxes when not in use. Keys to remain in the possession of the employees of the contractor. Secure and lock scaffolding when not erected and when erected Secure in a manner agreed upon with the Institution designate.
- .6 Report all missing or lost tools or equipment immediately to the Departmental Representative/Director.
- .7 The Director will ensure that the security staff members carry out checks of the Contractor's tools and equipment against the list provided by the Contractor. These checks may be carried out at the following intervals:
  - .1 At the beginning and conclusion of every work day or shift upon entering and exiting the Institution.
  - .2 At any time when contractor is on Institution property.

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- .8 Certain tools/equipment such as cartridges and hacksaw blades are highly controlled items. The contractor will be given at the beginning of the day, a quantity that will permit one day's work. Used blades/cartridges will be returned to the Director's representative at the end of each day. Maintain up to date inventory of all used blades/cartridges.
- .9 If propane or natural gas is used for heating the construction, the institution will require that the contractor supervise the construction site during non-working hours.

**12 PRESCRIPTION DRUGS**

- .1 Employees of the contractor who are required to take prescription drugs during the workday shall obtain approval of the Director to bring a one day supply only into the Institution.

**13 SMOKING RESTRICTIONS**

- .1 Smoking is not permitted inside correctional facilities or outdoors within the perimeter of a correctional facility and persons must not possess unauthorized smoking items within the perimeter of a correctional facility.
- .2 Persons in violation of this policy will be requested to immediately cease smoking or dispose of any unauthorized smoking items and, if they persist will be directed to leave the Institution.
- .3 Smoking is permitted outside the perimeter of a correctional facility in an area designated by the Director.

**14 CONTRABAND**

- .1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are prohibited on institutional property.
- .2 The discovery of contraband on the construction site and the identification of the person(s) responsible for the contraband shall be reported immediately to the Director.
- .3 Contractors should be vigilant with both their staff and the staff of their sub-contractors and suppliers that the discovery of contraband may result in cancellation of the security clearance of the affected employee. Serious infractions may result in the removal of the company from the Institution for the duration of the construction.
- .4 Presence of arms and ammunition in vehicles of contractors, sub-contractors and suppliers or employees of these will result in the immediate cancellation of security clearances for the driver of the vehicle.

**15 SEARCHES**

- .1 All vehicles and persons entering institutional property may be subject to search.

**SECURITY REQUIREMENTS**

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- .2 When the Director suspects, on reasonable grounds, that an employee of the Contractor is in possession of contraband, he may order that person to be searched.
- .3 All employees entering the Institution may be subject to screening of personal effects for traces of contraband drug residue.

**16 ACCESS TO AND REMOVAL FROM INSTITUTIONAL PROPERTY**

- .1 Construction personnel and commercial vehicles will not be admitted to the institution after normal working hours, unless approved by the Director.

**17 MOVEMENT OF VEHICLES**

- .1 Escorted commercial vehicles may not be allowed to enter or leave the institution through the vehicle access gate during the regular "inmate count" occurring at breakfast, lunch and dinner hour as established by the institution. Confirm "count times" with Director or Departmental Representative to reduce down times for deliveries to institution and movement of contractors vehicles through institution vehicle access gate.
- .2 Construction vehicles will not be allowed to leave the institution until an inmate count is completed.
- .3 The contractor will advise the Director twenty four (24) hours in advance to the arrival on the site of heavy equipment such as concrete trucks, cranes, etc.
- .4 Vehicles being loaded with soil or other debris, or any vehicle considered impossible to search, must be under continuous supervision by CSC staff or PWGSC construction escorts working under the authority of the Director.
- .5 Commercial vehicles will only be allowed access to institutional property when their contents are certified by the Contractor or his representative as being strictly necessary to the execution of the construction project.
- .6 Vehicles will be refused access to institutional property if, in the opinion of the Director, they contain any article which may jeopardize the security of the Institution.
- .7 Private vehicles of construction employees will not be allowed within the security fence of the Institution without the authorization of the Director.
- .8 With the approval of the Director, certain equipment may be permitted to remain on the construction site overnight or over the weekend. This equipment must be securely locked, with the battery removed. The Director may require that the equipment be secured with a chain and padlock to another solid object.

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**18 MOVEMENT OF CONSTRUCTION EMPLOYEES ON INSTITUTIONAL PROPERTY**

- .1 Subject to the requirements of good security, the Director will permit the Contractor and his employees as much freedom of action and movement as is possible.
- .2 However, notwithstanding paragraph above, the Director may:
  - .1 Prohibit or restrict access to any part of the Institution.
  - .2 Require that in certain areas of the Institution, either during the entire construction project or at certain intervals, construction employees only be allowed access when accompanied by a member of the CSC Security Staff or PWGSC Construction Escort Officer.

**19 SURVEILLANCE AND INSPECTION**

- .1 Construction activities and all related movement of personnel and vehicles will be subject to surveillance and inspection by CSC security staff members to ensure that established security requirements are met.
- .2 CSC staff members will ensure that an understanding of the need to carry out surveillance and inspections, as specified above, is established among construction employees and maintained throughout the construction project.

**20 STOPPAGE OF WORK**

- .1 The director may request at any time that the contractor, his employees, sub-contractors and their employees not enter or leave the work site immediately due to a security situation occurring within the Institution. The contractor's site supervisor will note the name of the staff member giving the instruction, the time of the request and obey the order as quickly as possible.
- .2 The contractor shall advise the Departmental Representative of this interruption of the work within 24 hours.

**21 CONTACT WITH INMATES**

- .1 Unless specifically authorized, it is forbidden to come into contact with inmates, to talk with them, to receive objects from them or to give them objects. Any employee doing any of the above will be removed from the site and his security clearance revoked.
- .2 Digital cameras (or any other type) are not allowed on CSC property.
- .3 Notwithstanding the above paragraph, if the director approves of the use of cameras, it is strictly forbidden to take pictures of inmates, of CSC staff members or of any part of the Institution other than those required as part of this contract.

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**22 COMPLETION OF CONSTRUCTION PROJECT**

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- .1 Upon completion of the construction project or, when applicable, the takeover of a facility, the Contractor shall remove all remaining construction material, tools and equipment that are not specified to remain in the Institution as part of the construction contract.

**END OF SECTION**

## 1 GENERAL

### PSPC Update on Asbestos Use

Effective April 1, 2016, all Public Works and Government Services of Canada (PWGSC) contracts for new construction and major rehabilitation will prohibit use of asbestos-containing materials.

Further information can be found at:

<http://www.tpsgc-pwgsc.gc.ca/comm/vedette-features/2016-04-19-00-eng.html>

## 1.1 REFERENCES

- .1 Government of Canada.
  - .1 Canada Labour Code - Part II.
  - .2 Canada Occupational Health and Safety Regulations.
- .2 National Building Code of Canada (NBC):
  - .1 Part 8, Safety Measures at Construction and Demolition Sites.
- .3 The Canadian Electrical Code (as amended)
- .4 Canadian Standards Association (CSA) as amended:
  - .1 CSA Z797-2009 Code of Practice for Access Scaffold.
  - .2 CSA S269.1-1975 (R2003) Falsework for Construction Purposes.
  - .3 CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures.
  - .4 CSA Z1006-10 Management of Work in Confined Spaces.
  - .5 CSA Z462- Workplace Electrical Safety Standard
- .5 National Fire Code of Canada 2010 (as amended)
  - .1 Part 5 – Hazardous Processes and Operations and Division B as applicable and required.
- .6 American National Standards Institute (ANSI):
  - .1 ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.

- .7 Province of British Columbia:
  - .1 Workers Compensation Act Part 3-Occupational Health and Safety.
  - .2 Occupational Health and Safety Regulation.

## 1.2 RELATED SECTIONS

- .1 Refer to the following current NMS sections as required:
  - .1 Section 01 01 50 - General Instructions

## 1.3 WORKERS' COMPENSATION BOARD COVERAGE

- .1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
- .2 Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

## 1.4 COMPLIANCE WITH REGULATIONS

- .1 PWGSC may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- .2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

## 1.5 SUBMITTALS

- .1 Submit to Departmental Representative submittals listed for review in accordance with Section 01 01 50.
- .2 Work affected by submittal shall not proceed until review is complete.
- .3 Submit the following:
  - .1 Health and Safety Plan.
  - .2 Copies of reports or directions issued by Federal and Provincial health and safety inspectors.

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- .3 Copies of incident and accident reports.
- .4 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
- .5 Emergency Procedures.
- .4 The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 5 days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative.
- .5 Medical surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of work, and submit additional certifications for any new site personnel to Departmental Representative.
- .6 Submission of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:
  - .1 Be construed to imply approval by the Departmental Representative.
  - .2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.
  - .3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

**1.6 RESPONSIBILITY**

- .1 Assume responsibility as the Prime Contractor for work under this contract.
- .2 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable Federal, Provincial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

**1.7 HEALTH AND SAFETY COORDINATOR**

- .1 The Health and Safety Coordinator must:

- .1 Be responsible for completing all health and safety training, and ensuring that personnel that do not successfully complete the required training are not permitted to enter the site to perform work.
- .2 Be responsible for implementing, daily enforcing, and monitoring the sitespecific Health and Safety Plan.
- .3 Be on site during execution of work.

**1.8 GENERAL CONDITIONS**

- .1 Provide safety barricades and lights around work site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.
  - .1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.
  - .2 Secure site at night time or provide security guard as deemed necessary to protect site against entry.

**1.9 PROJECT/SITE CONDITIONS**

- .1 Work at site will involve contact with:
  - .1 Multi-employer work site.
  - .2 Federal employees and general public.
  - .3 Energized electrical services.
  - .4 Working from heights.
  - .5 Persons incarcerated in the federal institutional system.

**1.10 UTILITY CLEARANCES**

- .1 The Contractor is solely responsible for all utility detection and clearances prior to starting the work.
- .2 The Contractor will not rely solely upon the Reference Drawings or other information provided for Utility locations.

HEALTH AND SAFETY REQUIREMENTS

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**1.11 REGULATORY REQUIREMENTS**

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.
- .2 In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.

**1.12 WORK PERMITS**

- .1 Obtain specialty permit related to project before start of work.

**1.13 FILING OF NOTICE**

- .1 The General Contractor is to file Notice of Project with Provincial authorities prior to beginning of work.
- .2 Provide copies of all notices to the Departmental Representative.

**1.14 SITE SPECIFIC HEALTH AND SAFETY PLAN**

- .1 Conduct a site-specific hazard assessment based on review of Contract documents, required work, and project site. Identify any known and potential health risks and safety hazards.
- .2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
  - .1 Primary requirements:
    - .1 Contractor's safety policy.
    - .2 Identification of applicable compliance obligations.
    - .3 Definition of responsibilities for project safety/organization chart for project.
    - .4 General safety rules for project.
    - .5 Job-specific safe work, procedures.
    - .6 Inspection policy and procedures.

HEALTH AND SAFETY REQUIREMENTS

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- .7 Incident reporting and investigation policy and procedures.
  - .8 Occupational Health and Safety Committee/Representative procedures.
  - .9 Occupational Health and Safety meetings.
  - .10 Occupational Health and Safety communications and record keeping procedures.
  - .2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
  - .3 List hazardous materials to be brought on site as required by work.
  - .4 Indicate Engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
  - .5 Identify personal protective equipment (PPE) to be used by workers.
  - .6 Identify personnel and alternates responsible for site safety and health.
  - .7 Identify personnel training requirements and training plan, including site orientation for new workers.
  - .3 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
  - .4 Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.
  - .5 Departmental Representative's review: the review of Health and Safety Plan by Public Works and Government Services Canada (PWGSC) shall not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract documents.

**1.15 EMERGENCY PROCEDURES**

- .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names/telephone numbers) of:
  - .1 Designated personnel from own company.

- .2 Regulatory agencies applicable to work and as per legislated regulations.
- .3 Local emergency resources.
- .4 Departmental Representative.
- .2 Include the following provisions in the emergency procedures:
  - .1 Notify workers and the first-aid attendant, of the nature and location of the emergency.
  - .2 Evacuate all workers safely.
  - .3 Check and confirm the safe evacuation of all workers.
  - .4 Notify the fire department or other emergency responders.
  - .5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
  - .6 Notify Departmental Representative.
- .3 Provide written rescue/evacuation procedures as required for, but not limited to:
  - .1 Work at high angles.
  - .2 Work in confined spaces or where there is a risk of entrapment.
  - .3 Work with hazardous substances.
  - .4 Underground work.
  - .5 Work on, over, under and adjacent to water.
  - .6 Workplaces where there are persons who require physical assistance to be moved.
- .4 Design and mark emergency exit routes to provide quick and unimpeded exit.
- .5 Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

#### **1.16 HAZARDOUS PRODUCTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information

**HEALTH AND SAFETY REQUIREMENTS**

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System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.

- .2 Where use of hazardous and toxic products cannot be avoided:
  - .1 Advise Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents as per Section 01 01 50.
  - .2 In conjunction with Departmental Representative schedule to carry out work during "off hours" when tenants have left the building.
  - .3 Provide adequate means of ventilation in accordance with Section 01 51 00.
  - .4 The contractor shall ensure that the product is applied as per manufacturers recommendations.
  - .5 The contractor shall ensure that only pre-approved products are bought onto the work site in an adequate quantity to complete the work.

**1.17 ASBESTOS HAZARD**

- .1 Carry out any activities involving asbestos in accordance with applicable Provincial Regulations.
- .2 Removal and handling of asbestos will be in accordance with applicable Provincial / Federal Regulations.

**1.18 PCB REMOVALS**

- .1 Mercury-containing fluorescent tubes and ballasts which contain polychlorinated biphenyls (PCBs) are classified as hazardous waste.
- .2 Remove, handle, transport and dispose of as indicated in Division 2 specifications.

**1.19 REMOVAL OF LEAD-CONTAINING PAINT**

- .1 All paint containing TCLP lead concentrations above 5 ppm are classified as hazardous.
- .2 Carry out demolition and/or remediation activities involving lead-containing paints in accordance with applicable Provincial / Territorial Regulations.

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- .3 Work with lead-containing paint shall be completed as per Provincial and Federal regulations.
- .4 Dry Scraping/Sanding of any materials containing lead is strictly prohibited.
- .5 The use of Methylene Chloride based paint removal products is strictly prohibited.

**1.20 ELECTRICAL SAFETY REQUIREMENTS**

- .1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.
  - .1 Before undertaking any work, coordinate required energizing and de-energizing of new and existing circuits with Departmental Representative.
  - .2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.

**1.21 ELECTRICAL LOCKOUT**

- .1 Develop, implement and enforce use of established procedures to provide electrical lockout and to ensure the health and safety of workers for every event where work must be done on any electrical circuit or facility.
- .2 Prepare the lockout procedures in writing, listing step-by-step processes to be followed by workers, including how to prepare and issue the request/authorization form. Have procedures available for review upon request by the Departmental Representative.
- .3 Keep the documents and lockout tags at the site and list in a log book for the full duration of the Contract. Upon request, make such data available for viewing by Departmental Representative or by any authorized safety representative.

**1.22 OVERLOADING**

- .1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

**1.23 FALSEWORK**

- .1 Design and construct falsework in accordance with CSA S269.1-1975 (R2003).

**1.24 SCAFFOLDING**

- .1 Design, construct and maintain scaffolding in a rigid, secure and safe manner, in accordance with CSA Z797-2009 and B.C. Occupational Health and Safety Regulations.

**1.25 CONFINED SPACES**

- .1 Carry out work in compliance with Provincial / Territorial regulations.

**1.26 POWDER-ACTUATED DEVICES**

- .1 Use powder-actuated devices in accordance with ANSI A10.3 only after receipt of written permission from the Departmental Representative.

**1.27 FIRE SAFETY AND HOT WORK**

- .1 Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.
- .2 Hot work includes cutting/melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which produces sparks.

**1.28 FIRE SAFETY REQUIREMENTS**

- .1 Store oily/paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
- .2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.
- .3 Portable gas and diesel fuel tanks are not permitted on most federal work sites. Approval from the Departmental Representative is required prior to any gas or diesel tank being brought onto the work site.

**1.29 FIRE PROTECTION AND ALARM SYSTEM**

- .1 Fire protection and alarm systems shall not be:
  - .1 Obstructed.
  - .2 Shut off.
  - .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

firefighting.

- .3 Be responsible/liable for costs incurred from the fire department, the building owner and the tenants, resulting from false alarms.

**1.30 UNFORESEEN HAZARDS**

- .1 Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and advise the Departmental Representative verbally and in writing.

**1.31 POSTED DOCUMENTS**

- .1 Post legible versions of the following documents on site:
  - .1 Site Specific Health and Safety Plan.
  - .2 Sequence of work.
  - .3 Emergency procedures.
  - .4 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
  - .5 Notice of Project.
  - .6 Floor plans or site plans. Must be posted in a non-inmate access area and locked up when not being used.
  - .7 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.
  - .8 Workplace Hazardous Materials Information System (WHMIS) documents.
  - .9 Material Safety Data Sheets (MSDS).
  - .10 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- .2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of this Contract includes construction activities adjacent to occupied areas.

**HEALTH AND SAFETY REQUIREMENTS**

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- .3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as approved by the Departmental Representative.

**1.32 MEETINGS**

- .1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.

**1.33 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
- .3 The Departmental Representative may issue a "stop work order" if noncompliance of health and safety regulations is not corrected immediately or within posted time. The General Contractor/subcontractors will be responsible for any costs arising from such a "stop work order".

**2 PRODUCTS**

- .1 Not used.

**3 EXECUTION**

- .1 Not used.

**END OF SECTION**

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**Part 1      General**

**1.1      RELATED REQUIREMENTS**

- .1      Section 01 01 50 – General Instructions
- .2      Section 01 35 33 – Health and Safety Requirements

**1.2      REFERENCES**

- .1      Definitions:
  - .1      Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
  - .2      Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
  - .3      Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.
  - .4      Hazardous Building Material: component of a building or structure that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when altered, disturbed or removed during maintenance, renovation or demolition.
- .2      Reference Standards:
  - .1      Canadian Environmental Protection Act, 1999 (CEPA 1999)
    - .1      Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).
  - .2      Department of Justice Canada
    - .1      Transportation of Dangerous Goods Act, 1992 (TDG Act) [1992], (c. 34).
    - .2      Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
  - .3      Health Canada / Workplace Hazardous Materials Information System (WHMIS)
    - .1      Material Safety Data Sheets (MSDS).
  - .4      National Research Council Canada Institute for Research in Construction (NRC-IRC)
    - .1      National Fire Code of Canada (2010).
  - .5      WorkSafe BC

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- .1 British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97, including amendments to date of work)
  - .2 "Safe Work Practices for Handling Asbestos" (2012)
  - .3 "Lead-Containing Paints and Coatings; Preventing Exposure in the Construction Industry" (2011)
  - .6 British Columbia Hazardous Waste Regulation (BC Reg. 63/88)
  - .7 The Federal PCB Regulations (SOR/2008-273).
  - .8 Canadian Construction Association
    - .1 Standard Construction Document CCA 82 "Mould Guidelines for the Canadian Construction Industry" (2004)

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 01 50 – General Instructions / Submittal Procedures.
- .2 Product Data for hazardous materials to be used by the Contractor to complete the Work:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets, and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 33 - Health and Safety Requirements to Departmental Representative for each hazardous material required prior to bringing hazardous material on site.
  - .3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.
  - .4 Construction/Demolition Waste Management:
    - .1 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating percentage of construction/demolition wastes were recycled or salvaged
  - .5 Low-Emitting Materials: submit listing of adhesives and sealants used in building, comply with VOC and chemical component limits or restrictions requirements.

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle hazardous materials to be used by the Contractor to complete the Work in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver hazardous materials to be used by the Contractor to site in original factory packaging, labelled with manufacturer's name and address.

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- .3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
  - .4 Storage and Handling Requirements:
    - .1 Co-ordinate storage of hazardous materials to be used by the Contractor to complete the Work with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
    - .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
    - .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.
    - .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
      - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
      - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.
    - .5 Transfer of flammable and combustible liquids is prohibited within buildings.
    - .6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
    - .7 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.
    - .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
    - .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
    - .10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
      - .1 Store hazardous materials and wastes in closed and sealed containers.
      - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
      - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
      - .4 Segregate incompatible materials and wastes.
      - .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.
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- .6 Store hazardous materials and wastes in secure storage area with controlled access.
  - .7 Maintain clear egress from storage area.
  - .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
  - .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
  - .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
  - .11 When hazardous waste is generated on site:
    - .1 Co-ordinate transportation and disposal with Departmental Representative.
    - .2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.
    - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
    - .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
    - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
    - .6 Only trained personnel handle, offer for transport, or transport dangerous goods.
    - .7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.
    - .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Departmental Representative.
    - .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.
  - .12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
  - .13 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.
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**HAZARDOUS MATERIALS USE AND ABATEMENT**

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**Part 2 Products**

**2.1 MATERIALS**

.1 Description:

- .1 Bring on site only quantities hazardous material required to perform Work.
- .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

**Part 3 Execution**

**3.1 HAZARDOUS MATERIALS ABATEMENT**

.1 Scope of Abatement Activities.

- .1 Abatement shall be conducted to handle, alter, remove and/or dispose of hazardous building materials in accordance with applicable regulations, guidelines, standards and/or best practices for such work, where such identified hazardous building materials will be impacted (handled, altered, damaged, removed) by the Work.
- .2 Contractor is responsible for reviewing plans, specifications and reports such that they understand the locations and amounts of hazardous materials that will be impacted by the Work of this contract, and such that appropriate plans and budgets can be included in their overall bids.
- .3 The listing below is a summary of the identified hazardous building material categories and associated removal and disposal regulations, guidelines and/or standards.
  - .1 Asbestos-Containing Materials (ACMs)
    - .1 Removal, alteration and/or disposal of ACMs is not anticipated to be required during the Work.
    - .2 If discovered during upgrade, Notify Departmental Representative of suspected ACM discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Departmental Representative.
  - .2 Lead and Lead-Containing Paints (LCPs)
    - .1 Actions that will disturb lead-containing materials (including paints and materials coated with LCPs) are to be conducted in accordance with the requirements of the current version of the WorkSafe BC publication "Lead-Containing Paint and Coatings: Preventing Exposure in the Construction Industry", keeping airborne exposure to lead

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- dust to less than the 8-hour Occupational Exposure Limit (OEL) for lead of 0.05 milligram per cubic metre (mg/m<sup>3</sup>).
  - .2 Although LCPs and items coated with LCPs may be disturbed and/or removed for disposal during the Work, unless deemed necessary through risk assessment or cost analysis conducted by the Contractor, comprehensive removal of LCPs from items or surfaces is not expected to be required during the Work.
  - .3 Refer to the provisions of the 2012 WorkSafe BC publication "Lead-Containing Paint and Coatings: Preventing Exposure in the Construction Industry" for removal of LCPs from surfaces before any welding and torch-cutting, should the Contractor plan to use such methods to complete the Work.
  - .4 Contractor will be responsible for verification testing of surfaces where LCPs have been removed. Confirmation of acceptable results is to be provided to the Departmental Representative for review before proceeding with any welding or torch-cutting on surfaces where LCPs were present.
  - .5 Waste transportation to be conducted in accordance with BC Reg. 63/88 and the Federal Transportation of Dangerous Goods Regulation.
  - .6 Waste disposal to be conducted in accordance with BC Reg. 63/88.
  - .3 Polychlorinated Biphenyls (PCBs)
    - .1 When decommissioned, verify the PCB content of lamp ballasts as per the Environment Canada publication Identification of Lamp Ballasts Containing PCBs, 1991.
    - .2 PCB-containing items identified for removal and disposal should be handled, transported, stored and disposed of in accordance with the following:
      - .1 The transportation and disposal requirements of BC Reg. 63/88 .
      - .2 The transportation requirements of the Federal Transportation of Dangerous Goods Regulation.
      - .3 The Federal PCB Regulations (SOR/2008-273)
  - .4 Mercury
    - .1 When mercury-containing items are removed, ensure all mercury waste is handled, stored and disposed of in accordance with the requirements the following:
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- .1 The transportation and disposal requirements of BC Reg. 63/88.
  - .2 The transportation requirements of the Federal Transportation of Dangerous Goods Regulation.
  - .2 Precautions should be taken if workers may potentially be exposed to mercury or mercury vapours to ensure that workers exposure levels do not exceed the occupational exposure limit of 0.025 mg/m<sup>3</sup> as per the BC Reg. 296/97. This can be achieved by providing respiratory and skin protection applicable to the hazard and task to be completed.
  - .5 Silica
    - .1 When silica-containing materials are to be disturbed and/or removed (e.g., coring through concrete slabs, demolition of masonry or concrete units), ensure dust control measures are employed such that airborne silica dust concentrations do not exceed the exposure limit as stipulated by BC Reg. 296/97 (Cristobalite and Quartz – each 0.025 mg/m<sup>3</sup>). This would include, but not be limited to, the following:
      - .1 Providing workers with respiratory protection
      - .2 Wetting the surface of the materials, use of water or dust suppressing agents to prevent dust emissions
      - .3 Providing workers with facilities to properly wash prior to exiting the work area.

**3.2 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 01 50 – General Instructions / Cleaning. Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 01 50 – General Instructions / Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling.
  - .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
  - .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
  - .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
  - .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.

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- .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
  - .6 Dispose of hazardous wastes in timely fashion in accordance with applicable federal and provincial regulations.
  - .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
  - .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
    - .1 Hazardous wastes recycled in manner constituting disposal.
    - .2 Lead-acid battery recycling.

END OF SECTION

**INTERNAL LIGHTING UPGRADE TO LED**

**1 General**

**1.1 GENERAL**

- .1 The General Conditions, Supplements and Amendments shall govern this Section (read in conjunction with Instructions to Tenders/Bidders). This Section covers items common to Sections of Division 26, 27 and 28. This section supplements requirements of Division 01.
- .2 Reference to "Electrical Division" shall mean all related Electrical Sections and components including Division 26, 27 and 28.
- .3 The word "Provide" shall mean "Supply & Install" the product and services specified. "As Indicated" means that the item(s) specified are shown on the drawings.
- .4 Provide materials, equipment and devices of specified design, performance, intent and quality; and, current models with published certified ratings for which replacement parts are readily available. Provide project management and on-site supervision to undertake administration, meet schedule, ensure timely performance, ensure co-ordination and establish orderly completion and the delivery of a fully commissioned installation.
- .5 The most stringent requirements of this section, other electrical sections and drawings shall govern.
- .6 All work shall be in accordance with the Contract Drawings and Specifications and their intents, complete with all necessary components, including those not normally shown or specified but required for a complete installation.

**1.2 CODES AND STANDARDS**

- .1 Do complete installation in accordance with Canadian Electrical Code, CSA C22.1-2015.
- .2 Comply with CSA Certification Standards and Electrical Bulletins in force at time of tender at time of tender submission.
- .3 Perform work in accordance with CSA Z426 - Workplace Electrical Safety and Worksafe BC.

**1.3 DEFINITIONS**

- .1 Electrical and Electronic terms: unless otherwise specified or indicated, terms used in these specifications and on drawings are those defined by IEEE SP1122.

**INTERNAL LIGHTING UPGRADE TO LED**

**1.4 PERMITS, FEES**

- .1 Submit to Electrical Inspection Department necessary number of drawings and specifications for examination and approval prior to commencement of work.
- .2 Pay associated fees.
- .3 Obtain and pay for an electrical permit to cover all electrical, and Telecommunications work.
- .4 Submit a copy of electrical permit to the Departmental Representative prior to commencement of work on site.
- .5 Departmental Representative will provide drawings and specifications required by Electrical Inspection Department at no cost.
- .6 Notify Departmental Representative of changes required by Electrical Inspection Department prior to making changes.
- .7 Furnish Certificates of Acceptance from Electrical Inspection Department on completion of work to Departmental Representative.

**1.5 SUMMARY OF ELECTRICAL WORK**

Work under this contract includes but is not limited to:

- .1 Replace existing exterior luminaires (wall packs, down lights and pole mount flood lights) with new LED luminaires within the Matsqui Complex as indicated on the plans.
- .2 Upon completion of installation, provide demonstration of operation of all luminaires to Departmental Representative and maintenance personnel.
- .3 Refer to Specification Section 26 50 00 for detailed requirements of new luminaires (with the same tag names) for corresponding existing luminaires shown on the luminaire schedule.
- .4 Provide all necessary material, labour, attachments, brackets, back plates and braces for mounting and supporting equipment, apparatus and tools to complete the installation.

**1.6 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

- .1 Submit shop drawings, product data and samples in accordance with Section 01 01 50 – General Instructions.

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- .2 Indicate details of construction, dimensions, capacities, weights and electrical performance characteristics of equipment or material.
- .3 Where applicable, include wiring, single line and schematic diagrams.
- .4 Include wiring drawings or diagrams showing interconnection with work of other Sections.

**1.6 MAINTENANCE MATERIALS**

- .1 Provide maintenance materials in accordance with Section 01 01 50 – General Instructions.
- .2 Additional maintenance material requirements are included under various other Sections.

**1.7 OPERATION AND MAINTENANCE DATA**

- .1 Provide operation and maintenance data for incorporation into operation and maintenance manual specified in Section 01 01 50 – General Instructions.
- .2 Include in operations and maintenance data:
  - .1 Details of design elements, construction features, component function and maintenance requirements, to permit effective start-up, operation, maintenance, repair, modification, extension and expansion of any portion or feature of installation.
  - .2 Technical data, product data, supplemented by bulletins, component illustrations, exploded views, technical descriptions of items, and parts lists. Advertising or sales literature not acceptable.
- .3 Wiring and schematic diagrams and performance curves.
- .4 Names and addresses of local suppliers for items included in maintenance manuals.
- .5 Copy of reviewed shop drawings.

**1.8 CARE, OPERATION AND START-UP**

- .1 Instruct departmental representative and operating personnel in the operation, care and maintenance of equipment.

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- .2 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.

**1.9 VOLTAGE RATINGS**

- .1 Operating voltages: to CAN3-C235-83 (R1996).
- .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.

**1.10 MATERIALS AND EQUIPMENT**

- .1 Equipment and material to be new and CSA certified, and manufactured to standard quoted.
- .2 Where there is no alternative to supplying equipment which is not CSA certified, obtain special approval from Inspection Department.

**1.11 EQUIPMENT IDENTIFICATION**

- .1 Identify electrical equipment with nameplates as follows:
  - .1 Lamicoid 3 mm thick plastic engraving sheet, white face and black core, self adhesive unless specified otherwise.

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

- .2 Wording on nameplates and labels to be approved by departmental representative prior to manufacture.
- .3 Allow for average of twenty-five (25) letters per nameplate.
- .4 Identification to be English.

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.5 Nameplates for junction boxes to indicate system and/or voltage characteristics.

.6 Nameplates for pull boxes to indicate system and type of cable.

**1.12 WIRING IDENTIFICATION**

.1 Identify wiring with permanent indelible identifying markings, numbered plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.

.2 Maintain phase sequence and colour coding for 347/600 V, and 120/208V wiring throughout.

**1.13 WIRING TERMINATIONS**

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

**1.14 MANUFACTURERS AND CSA LABELS**

.1 Visible and legible after equipment is installed.

**1.15 WARNING SIGNS**

.1 As specified and to meet requirements of Electrical Inspection Department and Departmental Representative.

.2 Use decal signs, minimum 175 x 250 mm size.

**1.16 MOUNTING HEIGHTS**

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

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

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

.1 Local switches: 1 200 mm.

.2 Wall receptacles: 400 mm.

.3 Telephone outlets: 400 mm.

**1.17 PROTECTION**

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- .1 Protect exposed live equipment during construction for personnel safety.
- .2 Shield and mark live parts "LIVE 120 VOLTS", or with appropriate voltage.

**1.18 CONDUIT AND CABLE INSTALLATION**

- .1 Refer to drawings for type of conduit and cable to be used.
- .2 Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass.
- .3 Run parallel or perpendicular to building lines.
- .4 Install conduit and sleeves prior to pouring of concrete.
  - .1 Sleeves through concrete: plastic, sized for free passage of conduit, and protruding 50 mm.

**1.19 CUTTING, CORING AND PATCHING**

- .1 Make arrangements with General Contractor for all cutting, coring and patching in this work.
- .2 Conduct ground penetrating radar (GPR) scans prior to coring or cutting existing concrete slabs or walls.
- .3 Fill up all new conduit penetrations (and existing communication conduits – 6x103mm- from CER room to outside) with approved compound.

**1.20 FIRESTOPPING**

- .1 Where cables or conduits pass through fire rated ceilings and fire rated walls, pack space full with a ULC approved firestopping system.

**1.21 FIELD QUALITY CONTROL**

- .1 Conduct and pay for testing, commissioning, demonstration and training of the following:
  - .1 Insulation resistance testing:
    - .1 Megger circuits, feeders and equipment up to 600 V with a 1000 V instrument.
    - .2 Check resistance to ground before energizing.
- .2 Refer to each Section for additional testing requirements.

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- .3 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of contract.
- .4 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that each system is taken out of service the shortest possible amount of time.
- .5 Submit test results for Departmental Representative review.

**1.22 POWER INTERRUPTIONS**

- .1 Contractor shall work closely with Institutional personnel to arrange all interruptions of any portion of the existing electrical distribution systems.
- .2 All interruptions to existing electrical distribution systems and shutdown of existing Panel boards in the contract shall be carried out outside normal working hours, or on weekends. Normal working hours of the Institution are considered to be 0730 to 1600 hours, Monday through Friday, except holidays.
- .3 Contractor shall submit request for any power shutdown 10 working days prior to such power shutdown.  
Request shall indicate start time of interruption and duration of interruption. Indicate in request exactly what buildings and/or systems will be affected by the requested power shutdown.
- .4 No interruptions to power shall be carried out without the approval of the Departmental Representative.

**1.23 CLEANING**

- .1 Do final cleaning in accordance with Section 01 01 50 – General Instructions.
- .2 At time of final cleaning, clean lighting reflectors, lenses, and other lighting surfaces that have been exposed to construction dust and dirt.

**1.24 RECORD DRAWINGS**

- .1 Refer to Section 01 01 50 – General Instructions.
- .2 Indicate conduit and cable runs, junction boxes and circuit numbers.

**1.25 ENVIRONMENTAL PROTECTION AND WASTE MANAGEMENT**

- .1 Refer to Section 01 01 50 – General Instructions.

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**2 Products**

- .1 Not used.

**3 Execution**

**3.1 INSTALLATION**

- .1 Do complete installations in accordance with CSA C22.1 except where specified otherwise.

**END OF SECTION**

**INTERNAL LIGHTING UPGRADE TO LED**

**1 General**

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**1.1 SHOP DRAWINGS AND PRODUCT DATA**

- .1 Submit shop drawings and product data in accordance with Section 01 01 50 – General Instructions.

**1.2 WASTE MANAGEMENT AND DISPOSAL**

- .1 Refer to Section 01 01 50 – General Instructions.

**1.3 ENVIRONMENTAL PROTECTION**

- .1 Refer to Section 01 01 50 – General Instructions.

**2 Products**

**2.1 BUILDING WIRES**

- .1 Conductors: stranded for 10 AWG and larger, minimum size 12 AWG.
- .2 Copper conductors with 600 V insulation of chemically cross-linked thermosetting polyethylene material rated RW90.

**3 Execution**

**3.1 INSTALLATION OF BUILDING WIRES**

- .1 Install wiring as follows:
  - .1 In conduit systems in accordance with Section 26 05 34 – Conduits, Fastenings and Fittings.
- .2 Provide a green insulated bond conductor in all conduits sized in accordance with CSA C22.1-2015, Canadian Electrical Code, Part 1.

**END OF SECTION**



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**1 GENERAL**

**1.1 SHOP DRAWINGS AND PRODUCT DATA**

- .1 Submit shop drawings and product data in accordance with Section 01 01 50 – General Instructions.
- .2 Submit complete IES files and heat dissipation data prepared by recognized independent testing laboratory.
- .3 IES files to include VCP table and spacing criterion.
- .4 Details of luminaires listed in specifications, may include features considered exclusive to one manufacturer. It is not the intent of this specification to limit the submission of luminaires to one manufacturer and other manufacturers may submit bids on equal equipment.
- .5 All luminaires shall be delivered to the site completely assembled and in original cartons. Ensure the availability of a dry and protected storage space before delivery of fixtures.
- .6 Luminaires of the same or similar type shall be supplied by the same manufacturer.

**1.2 SAMPLE LUMINAIRES**

- .1 Submit sample luminaires (one sample for each luminaire type) for review during shop drawing stage when requested by the Departmental Representative.
- .2 Deliver samples to the Departmental Representative's office or to another location as directed. Collect the sample(s) at the conclusion of the review.

**1.3 REFERENCES**

- .1 Canadian Standards Association (CSA International) – CAN/CSA – C22.2 No. 250.13-17 – Light Emitting Diode (LED) equipment for lighting applications.

**1.3 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 01 50.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal packaging material for recycling in accordance

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with Waste Management Plan.

- .4 Divert unused metal and wiring materials from landfill to metal recycling facility approved by Departmental Representative.
- .5 Fold up metal banding, flatten and place in designated area for recycling.
- .6 Remove all debris and unused material from site.

**1.3 ENVIRONMENTAL PROTECTION**

- .1 Refer to Section 01 01 50 – General Instructions.

**2 PRODUCTS**

**2.1 GENERAL**

- .1 Provide luminaires new and complete with all mounting accessories, junction boxes, back plates to cover exposed areas, trims, frames and lamps.
- .2 All fixtures, mounting accessories, back boxes shall be cast aluminum.
- .3 Refer to electrical drawings for Luminaire Schedule showing existing luminaires and mounting details. Verify/confirm existing site conditions and mounting details of luminaires before ordering materials.
- .4 All luminaires, accessories and components shall be CSA approved.

**2.2 LUMINAIRES**

**.1 Type 'A' LUMINAIRE**

- .1 General Description:
  - .1 Flood Light Luminaire with Light Emitting Diode (LED) lamp to be installed on top of the poles – Galvanized Tenon / Yoke mount.
  - .2 Lumen Output: 47000 L.
  - .3 Color Temperature: 3000 K. CRI > 70.
  - .4 Life expectancy: 100,000 hours at 25 Deg. C., L70.
  - .5 Ambient Temperature: -40 to +40 Deg.C.
  - .6 Optics: IP66 rated borosilicate glass
  - .7 Beam Pattern: 6x5 NEMA Distribution
  - .7 Surge protection to ANSI C136.2 (10KV/5KA)
  - .9 Marine grade rugged die cast aluminum housing and door, luminaire shall be polyester powder-coated.
  - .11 Paint colour: Black - super durable with epoxy primer.
  - .12 Wire: Prewired with 14 Gauge 3 conductor cord

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- .13 Approval for use: Listed for Wet location
- .14 Tool-less access to electrical housing
- .15 Control: ANSI - Photocontrol Receptacle 7 Pin with shorting cap.
- .16 Warranty: 10 Years

**.2 LED Driver:**

- .1 Electronic: 90% min power factor, max 20% THD.
- .2 Built-in field adjustable light output module (0-100%), factory preset at 70% output
- .3 Input Wattage: Less than 400W.
- .4 Voltage: 347V.
- .5 Life Expectancy: 100,000 hours at 25 Deg. C.
- .6 Warranty: 10 Years

**.2 Type 'C1' LUMINAIRE**

**.1 General Description:**

- .1 Wall pack with Light Emitting Diode (LED) lamp.
- .2 Lumen Output: 4200 L.
- .3 Color Temperature: 3000 K. CRI > 70.
- .4 Life expectancy: 100,000 hours at 25 Deg. C., L70. .
- .5 Ambient Temperature: -40 to +40 Deg.C.
- .6 Lens: Prismatic Reflector / impact resistant polycarbonate lens.
- .7 Housing: Die cast aluminum – Marine Grade – IP65 Rated.
- .8 Surge protection: to ANSI C62.41 (10KV/5KA)
- .9 Beam Pattern: Flood wide distribution
- .10 Control: ANSI – 7 Pin Photocontrol receptical c/w short cap
- .11 Paint colour: Gray
- .12 Hardware: Tamper proof stainless steel screws
- .13 Warranty: 10 Years

**.2 LED Driver:**

- .1 Electronic: 90% min power factor, max 20% THD
- .2 Built-in field adjustable output module (0-100%), factory preset at 70% output
- .3 Input Wattage: Equal or Less than 45W.
- .4 Voltage: 347V.
- .5 Power factor 90% minimum. ROHS compliant and maximum 20% THD.
- .6 Life Expectancy: 100,000 hours at 25 Deg. C.
- .7 Warranty: 10 Years.

**.3 Type 'C2' LUMINAIRE**

- .1 Same wall pack as Type 'C1' luminaire with the exception of voltage, input wattage and Lumen output.

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- .2 Voltage: 120V
- .3 Input wattage: 105W.
- .4 Lumen Output: 6700 L.

**.4 Type 'C3' LUMINAIRE**

- .1 Same wall pack as Type 'C1' luminaire with the exception of voltage.
- .2 Voltage: 120V

**.5 Type 'C4' LUMINAIRE**

- .1 Acceptable Product: RAB (WLR-LED20-120V-BRZ-PC)
- .2 Match existing wall packs installed on the walls of Living Units.

**.6 Type 'C5' LUMINAIRE**

- .1 General Description:
  - .1 Full cutoff wall pack with Light Emitting Diode (LED) lamp.
  - .2 Lumen Output: 3000 L.
  - .3 Color Temperature: 3000 K. CRI > 70.
  - .4 Life expectancy: 100,000 hours at 25 Deg. C., L70. .
  - .5 Ambient Temperature: -40 to +40 Deg.C.
  - .6 Optics: Type 3 Medium,
  - .7 Housing: Die cast aluminum – Marine Grade – IP65 Rated.
  - .8 Surge protection: to ANSI C62.41 (10KV/5KA)
  - .9 Beam Pattern: Forward throw
  - .10 Control: ANSI – 7 Pin Photocontrol receptical c/w short cap
  - .11 Paint colour: Gray
  - .12 Hardware: Tamper proof stainless steel screws
  - .13 Warranty: 10 Years
- .2 LED Driver:
  - .1 Electronic: 90% min power factor, max 20% THD
  - .2 Built-in field adjustable output module (0-100%), factory preset at 70% output
  - .3 Input Wattage: Equal or Less than 35W.
  - .4 Voltage: 120V.
  - .5 Power factor 90% minimum. ROHS compliant and maximum 20% THD.
  - .6 Life Expectancy: 100,000 hours at 25 Deg. C.
  - .7 Warranty: 10 Years.

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**.7 Type 'C6' LUMINAIRE**

- .1 Same wall pack as Type 'C5' luminaire with the exception of input wattage and lumen output.
- .2 Input wattage: Equal or Less than 75W.
- .3 Lumen Output: 6000L

**.8 Type 'D' LUMINAIRE**

- .1 General Description:
  - .1 Rectangular shape roadway light fixture with Light Emitting Diode (LED) lamp to be installed on shoe box poles (5" x 5") single or double heads.
  - .2 Lumen Output: 16,500 L.
  - .3 Color Temperature: 3000 K. CRI > 70.
  - .4 Mounting: Arm mount - 2"x 5" tenon. Provide tenon adaptor.
  - .5 Life expectancy: 100,000 hours at 25 Deg. C., L70. .
  - .6 Ambient Temperature: -40 to +40 Deg.C.
  - .7 Optics: IP66 rated, 0% uplight and restricted backlight
  - .8 Distribution Types: Type II and Type III roadway distributions
  - .9 Surge protection to ANSI C136.2 (10KV/5KA)
  - .10 Rugged die cast aluminum housing and door shall be polyester powder-coated.
  - .11 Tool-less access to electrical housing
  - .12 Paint colour: Gray
  - .13 Warranty: 10 Years
- .2 LED Driver:
  - .1 Electronic: 90% min power factor, max 20% THD
  - .2 Built-in field adjustable output module (0-100%), factory preset at 70% output
  - .3 Input Wattage: Equal or Less than 135W.
  - .4 Voltage: 347V.
  - .5 Life Expectancy: 100,000 hours at 25 Deg. C.
  - .6 Controls: ANSI - 7 Pin Photocontrol receptacle complete with shorting cap.
  - .7 Warranty: 10 Years

**.9 Type 'E' LUMINAIRE**

- .1 General Description:

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- .1 Downlight luminaire, recessed mount in the existing soffit with Light Emitting Diode (LED) lamp.
- .2 Lumen Output: 5000 L.
- .3 Color Temperature: 3000 K. CRI > 70.
- .4 Mounting: Recessed in existing soffit – Provide Retrofit Kit.
- .5 Life expectancy: 100,000 hours at 25 Deg. C., L70. .
- .6 Ambient Temperature: -40 to +40 Deg.C.
- .7 Reflector: Clear, semi-specular, wet location listed.
- .8 Opening size: 10 Inches
- .9 Warranty: 10 Years
  
- .2 LED Driver:
  - .1 Electronic: 90% min power factor, max 20% THD
  - .2 Input Wattage: Equal or Less than 55W.
  - .4 Voltage: 347V.
  - .5 Life Expectancy: 100,000 hours at 25 Deg. C.
  - .6 Warranty: 10 Years
  
- .10 Type 'E1' LUMINAIRE**
  - .1 Same down light as type 'E' luminaire with the exception of lumen output, voltage and input wattage.
  - .2 Input wattage: Equal or Less than 45W.
  - .3 Voltage: 120V.
  - .4 Lumen Output: 4000 L.
  
- .11 Type 'E2' LUMINAIRE**
  - .1 Same down light as type 'E' luminaire with the exception of opening size, lumen output, voltage and input wattage.
  - .2 Input wattage: Equal or Less than 20W.
  - .3 Voltage: 120V.
  - .4 Lumen Output: 1500 L.
  - .5 Opening size: 8 Inches
  
- .12 Type 'E3' LUMINAIRE**
  - .1 Same down light as type 'E1' luminaire with the exception of opening size, lumen output, voltage and input wattage.
  - .2 Input wattage: Equal or Less than 20W.
  - .3 Voltage: 120V.
  - .4 Lumen Output: 1500 L.
  - .5 Opening size: 6 Inches.

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**.13 Type 'G' LUMINAIRE (Lamp Only)**

- .1 Existing outdoor type wall mount type 'G' luminaire shall remain.
- .2 Replace existing incandescent lamps with LED equivalent.

**.14 Type 'I' LUMINAIRE**

- .1 General Description:
  - .1 Flood Light luminaire with Light Emitting Diode (LED) lamp installed on post / pole.
  - .2 Lumen Output: 27,000 L.
  - .3 Color Temperature: 3000 K. CRI > 70.
  - .4 Mounting: 2" knuckle tenon.
  - .5 Life expectancy: 100,000 hours at 25 Deg. C., L70. .
  - .6 Ambient Temperature: -40 to +40 Deg.C.
  - .7 Lense: Glass with shielding to control light trespass and uplight
  - .8 Beam Pattern: 6 x 5 NEMA Distribution
  - .9 Surge protection to ANSI C136.2 (10KV/5KA)
  - .10 Housing: Die cast aluminum – Marine grade, IP65 rated
  - .11 Paint colour: Gray
  - .12 Tool-less access to electrical housing
  - .13 Controls: ANSI - 7 Pin Photocontrol receptacle complete with shorting cap.
  - .14 Warranty: 10 Years
- .2 LED Driver:
  - .1 Electronic: 90% min power factor, max 20% THD
  - .2 Built-in field adjustable output module (0-100%), factory preset at 70% output
  - .3 Input Wattage: Equal or Less than 220W.
  - .4 Voltage: 277V.
  - .5 Life Expectancy: 100,000 hours at 25 Deg. C.
  - .6 Warranty: 10 Years

**.15 Type 'I1' LUMINAIRE**

- .1 Same flood light as Type 'I' luminaire with the exception of voltage.
- .2 Voltage: 120V-208V

**.16 Type 'K' LUMINAIRE**

- .1 General Description:
  - .1 Flood Light luminaire with Light Emitting Diode (LED) lamp installed on post / pole or surface.

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- .2 Lumen Output: 8500 L.
- .3 Color Temperature: 3000 K. CRI > 70.
- .4 Mounting: Tenon / Yoke – to match existing site condition.
- .4 Life expectancy: 100,000 hours at 25 Deg. C., L70. .
- .5 Ambient Temperature: -40 to +40 Deg.C.
- .6 Lense: Glass with shielding to control light trespass and uplight shield.
- .7 Beam Pattern: 6 x 5 NEMA Distribution
- .8 Surge protection to ANSI C136.2 (10KV/5KA)
- .9 Housing: Die cast aluminum – Marine grade, IP65 rated
- .10 Paint colour: Gray
- .11 Tool-less access to electrical housing
- .12 Controls: ANSI - 7 Pin Photocontrol receptacle complete with shorting cap.
- .13 Warranty: 10 Years

**.2 LED Driver:**

- .1 Electronic: 90% min power factor, max 20% THD
- .2 Built-in field adjustable output module (0-100%), factory preset at 70% output
- .3 Input Wattage: Equal or Less than 80W.
- .4 Voltage: 208V.
- .5 Life Expectancy: 100,000 hours at 25 Deg. C.
- .6 Warranty: 10 Years

**.17 Type 'L' LUMINAIRE**

**.1 General Description:**

- .1 Surface mount (ceiling) luminaire with Light Emitting Diode (LED) lamp installed on the canopy.
- .2 Lumen Output: 3300 L.
- .3 Color Temperature: 3000 K. CRI > 70.
- .4 Life expectancy: 100,000 hours at 25 Deg. C., L70.
- .5 Ambient Temperature: -40 to +40 Deg.C.
- .6 Lense: Polycarbonate lense.
- .7 Surge protection to ANSI C136.2 (10KV/5KA)
- .9 Housing: Rugged Die cast aluminum, corrosion resistant with bronze polyester powder paint, Marine grade - IP65 rated
- .10 Paint colour: Bronze
- .11 Hardware: Tamper proof stainless steel screws
- .12 Controls: ANSI - 7 Pin Photocontrol receptacle complete with shorting cap.
- .13 Warranty: 10 Years

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- .2 LED Driver:
  - .1 Electronic: 90% min power factor, max 20% THD
  - .2 Built-in field adjustable output module (0-100%), factory preset at 70% output
  - .3 Input Wattage: Equal or Less than 80W.
  - .4 Voltage: 120V.
  - .5 Life Expectancy: 100,000 hours at 25 Deg. C.
  - .6 Warranty: 10 Years

**.18 Type 'L1' LUMINAIRE**

- .1 Existing outdoor type recessed 'L1' down light luminaire shall remain.
- .2 Remove the existing ballast of HPS lamp, by-pass the circuit and dispose the ballast and lamp in accordance with the specifications.
- .3 Provide conversion socket and replace existing HPS lamp with LED equivalent.
- .4 Clean the lenses and housing of the luminaires.

**.19 Type 'S' LUMINAIRE**

- .1 General Description:
  - .1 Cobra Head Roadway Light Fixture with Light Emitting Diode (LED) lamp to be installed on single davit pole (Type 2A arm).
  - .2 Lumen Output: 13500 L.
  - .3 Color Temperature: 3000 K. CRI > 70.
  - .4 Mast arm mount shall be adjustable for arms from 30mm to 60mm diameter.
  - .5 Life expectancy: 100,000 hours at 25 Deg. C., L70.
  - .6 Ambient Temperature: -40 to +40 Deg.C.
  - .7 Optics: IP66 rated borosilicate glass, 0% uplight and restricted backlight
  - .8 Distribution Types: Type II and Type III roadway distributions
  - .9 Surge protection to ANSI C136.2 (10KV/5KA)
  - .10 Rugged die cast aluminum housing and door shall be polyester powder-coated.
  - .11 Tool-less access to electrical housing
  - .12 Paint colour: Gray
  - .13 Warranty: 10 Years
- .2 LED Driver:
  - .1 Electronic: 90% min power factor, max 20% THD.
  - .2 Built-in field adjustable light output module (0-100%),factory preset at 70% output

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- .3 Input Wattage: Less than 115W.
- .4 Voltage: 120V.
- .5 Life Expectancy: 100,000 hours at 25 Deg. C.
- .6 Controls: ANSI - 7 Pin Photocontrol receptacle complete with shorting cap.
- .7 Warranty: 10 Years

**.19 Type 'S1' LUMINAIRE**

- .1 Same as Type 'S' luminaire with the exception of input wattage and lumen output.
- .2 Input Wattage: Less than 80W.
- .3 Lumen Output: 9500 L.

**.20 Type 'T' LUMINAIRE**

- .1 General Description:
  - .1 Post top down light luminaire (lamp standard) with Light Emitting Diode (LED) lamp installed on the post.
  - .2 Lumen Output: 5300 L.
  - .3 Color Temperature: 3000 K. CRI > 70.
  - .4 Mounting: 3" knuckle tenon. Provide tenon adaptor.
  - .5 Life expectancy: 100,000 hours at 25 Deg. C., L70.
  - .6 Ambient Temperature: -40 to +40 Deg.C.
  - .7 Lense: Prismatic Reflector with polycarbonate lense
  - .8 Optical: Type III Distribution
  - .9 Surge protection to ANSI C136.2 (10KV/5KA)
  - .10 Housing: Die cast aluminum – Marine grade, IP65 rated
  - .11 Paint colour: Gray
  - .12 Tool-less access to electrical housing
  - .13 Controls: ANSI - 7 Pin Photocontrol receptacle complete with shorting cap.
  - .14 Warranty: 10 Years
- .2 LED Driver:
  - .1 Electronic: 90% min power factor, max 20% THD
  - .2 Built-in field adjustable output module (0-100%), factory preset at 70% output
  - .3 Input Wattage: Equal or Less than 75W.
  - .4 Voltage: 120V.
  - .5 Life Expectancy: 100,000 hours at 25 Deg. C.
  - .6 Warranty: 10 Years

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**.20 SPARE LUMINAIRES**

- .1 Provide spare luminaires with the quantities noted below;
  - .1 Type A – (1)
  - .2 Type C1 – (1)
  - .3 Type C2 – (1)
  - .4 Type C3 – (1)
  - .5 Type C4 – (1)
  - .6 Type C5 – (1)
  - .7 Type C6 – (1)
  - .8 Type D – (1)
  - .9 Type E – (1)
  - .10 Type E1 – (1)
  - .11 Type E2 – (1)
  - .12 Type E3 – (1)
  - .13 Type I – (1)
  - .14 Type I1 – (1)
  - .15 Type K – (1)
  - .16 Type L – (1)
  - .17 Type S – (1)
  - .18 Type S1 – (1)
  - .19 Type T – (1)

**3 EXECUTION**

**3.1 INSTALLATION**

- .1 Install new luminaires on walls, soffits, poles and posts complete with LED lamps.
- .2 Correct orientation, level and tilt of pole mounted luminaires are important. When installing new luminaires on poles, match existing mounting angels. Keep records of existing angels and provide records in Maintenance Manual. Provide procedure to determine angels with shop drawings submittal.
- .3 Connect luminaire to lighting circuit.
- .4 Perform tests in accordance with Section 26 05 00 - Common Work Results - Electrical.
- .5 Provide a tag-out lock-out plan.
- .6 Protect all luminaires from construction dust and debris.
- .7 Clean all lighting reflectors, lenses and other lighting surfaces at time of final cleaning.

**END OF SECTION**

