

USask Master Specification Directions: The master specifications are intended to be incorporated into the Consultant's final, project specific specification package. The project specific specifications are expected to include any and all sections or portions of sections (Part 1, Part 2, Part 3) that are required to create a fully executable project specification. USask Master Specs only provide information that USask **requires** be a part of the final specification package. Components or sections not included in the Master USask Specifications may still be required for a complete, well-designed project. **It is the consultant's responsibility to ensure all specifications match USask requirements. Any deviations or revisions to any section included in the master specifications requires written consent from the USask Engineering department. The consultant is liable for any omissions, errors, or incorrect equipment or components supplied to site.**

The Master Specifications shall be used in conjunction with USask's Design Guidelines. Any conflicts shall be brought to the attention of USask Engineering staff for clarification.

Part 1 General

.1 General

- .1 This Section covers items common to Sections 26. This section supplements requirements of Division 01.
- .2 See also Section 26 03 11 – Facility Commissioning and Section 26 08 00 - Electrical Commissioning for further testing requirements
- .3 Contractors shall verify all site elevations and underground services referenced on the drawings.

.2 Quality of Work

- .1 All electrical works shall be conducted under the onsite direction of a journeyman electrician, licensed to operate in the province of Saskatchewan.
- .2 Electricians undertaking high voltage work shall provide written proof of previous high voltage experience and approved training in high voltage electrical safety.
- .3 Electricians undertaking solar photovoltaic (PV) installations shall have a Construction Electrician (NOC 7241) – Solar Photovoltaic (PV) Systems personnel certification.
- .4 Carry out the work in accordance with the latest edition of CSA-Z462, Workplace Electrical Safety.

.3 Codes and Standards

- .1 Do complete installation in accordance with the latest edition of CSA C22.1 and Saskatchewan supplements except where specified otherwise.
- .2 Do overhead and underground systems in accordance with the latest edition of CSA C22.3 No.1, No. 6 and No. 7 except where specified otherwise.
- .3 Abbreviations for electrical terms to CSA Z85.
- .4 All references to codes and standards shall refer to the latest edition and any errata or addenda.

.4 Care, Operation and Start-up

- .1 Instruct Owner, Consultant, and operating personnel in the operation, care and maintenance of equipment.
- .2 Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components.

- .3 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with all aspects of its care and operation.

.5 Voltage Ratings

- .1 Operating voltages to CAN3-C235.
- .2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.
- .3 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

.6 Permits, Fees and Inspection

- .1 Submit to USask Electrical Inspection Department and Authority Having Jurisdiction necessary number of drawings and specifications for examination and approval prior to commencement of work.
- .2 Pay associated fees.
- .3 Consultant will provide drawings and specifications required by Electrical Inspection Department at no cost.
- .4 Notify Owner and Consultant of changes required by Electrical Inspection Department prior to making changes.
- .5 Furnish Certificates of Acceptance from Electrical Inspection Department upon completion of work to Owner and Consultant
- .6 Include copies of all permits and certificates in operating and maintenance manuals.
- .7 Electrical Contractor to submit a copy of the Electrical Permit to the Electrical Consultant at the start of the project.

.7 Materials and Equipment

- .1 All materials and equipment provided shall be new and unused. Provide materials and equipment in accordance with Section 01.
- .2 Materials and equipment shall be manufactured to the requirements of the Canadian Standards Association and shall clearly display acceptable certification marks, on the exterior of the equipment, for the Province of Saskatchewan where such CSA standard is available. Where approval or "special permission" has not been obtained for the equipment, make arrangements by contacting the Canadian Standards Association, Etobicoke ON (416) 747-2475 (or one of the regional CSA offices) or, by obtaining approvals from other testing/approval agency acceptable to SaskPower Electrical Inspections.
- .3 Materials and equipment shall be manufactured to NEMA specifications. IEC rated equipment will not be accepted.
- .4 Factory assemble control panels and component assemblies.
- .5 All floor mounted equipment shall be mounted on 100 mm concrete housekeeping pads unless otherwise specified.

.8 Electric Motors, Equipment and Controls

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

on Mechanical Equipment Schedule on mechanical drawings.

.9 Finishes

- .1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.
 - .1 Paint outdoor electrical equipment General Paint #8731W.
 - .2 Paint indoor switchgear and distribution enclosures manufacturer light grey (ANSI 49 or 61) to EEMAC 2Y-1 standard.
- .2 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.
- .3 Clean, prime and paint exposed non-galvanized hangers, racks and fastenings to prevent rusting.

.10 Equipment Identification

- .1 Identify electrical equipment with nameplates as follows and as shown on the drawings:
- .2 Nameplates:
 - .1 Lamicoid 3 mm thick plastic engraving sheet. Black face, white core, for systems on normal power; red face, white core, for systems on emergency power. Mechanically attach with self tapping screws.

NAMEPLATE SIZES

Size 1	10 x 50 mm	1 line	3 mm high letters
Size 2	12 x 70 mm	1 line	5 mm high letters
Size 3	12 x 70 mm	2 lines	3 mm high letters
Size 4	20 x 90 mm	1 line	8 mm high letters
Size 5	20 x 90 mm	2 lines	5 mm high letters
Size 6	25 x 100 mm	1 line	12 mm high letters
Size 7	25 x 100 mm	2 lines	6 mm high letters

- .3 Labels: Clear self-adhesive mylar tape with black lettering and [6] mm high letters unless specified otherwise.
- .4 Wording on nameplates to be approved by Owner and Consultant prior to manufacture. Equipment nomenclature/numbering shall be as follows:
xyz(z)-aaa.a-b where

x = 2 for 208V
= 6 for 600V

(Use this only on main and central distribution panels)

yz(z) = MDP = main (service entrance) distribution panel
= CDP = central distribution panel, normal power
= EDP = central distribution panel, emergency power
= LP = lighting panel, normal power
= PP = power panel, normal power
= EP = emergency power
= TX = transformer.

aaa.a = room number where panel/transformer is located

b = panel/transformer number 1, 2, 3, etc.
(Use only when more than one CDP, PP, LP or TX is located within a room)

For outdoor transformers, designate as follows:

“Building Name” TX-001, 002, etc.

Building name should be official name or acceptable abbreviation.

- .5 Allow for average of twenty-five (25) letters per nameplate.
- .6 Identification to be English.

.11 Manufacturers, Certification and Arc Flash Labels

- .1 Visible and legible on exterior of equipment after equipment is installed. Labels to be laser etched in permanent fashion.
- .2 Provide ARC-Flash labels on all electrical equipment, such as switchboards, panelboards, control panels, meter socket enclosures and motor control centers complying with CSA Z462 and IEEE.
- .3 Labels to include appropriate PPE required, flash hazard boundary and the limited, restricted and prohibited approach.

.12 Warning Signs

- .1 As specified and to meet requirements of Electrical Inspection Department and Owner.
- .2 Decal signs, minimum size [175 x 250 mm].

.13 Single Line Electrical Diagrams and Riser Diagrams

- .1 Provide single line electrical diagrams under plexiglass as follows:
 - .1 Electrical distribution system: locate in main electrical room.
 - .2 Electrical power generation and distribution systems: locate in power plant rooms.
- .2 Provide fire alarm riser diagram, plan and zoning of building under plexiglass at fire alarm control panel and annunciator.
- .3 Drawings: 600 x 600 mm minimum size.

.14 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: 1200 mm.
 - .2 Wall receptacles:
 - .1 General: 450 mm.
 - .2 Above top of continuous baseboard heater: 225 mm.
 - .3 Above top of counters or counter splash backs: 175 mm.
 - .4 In mechanical rooms: 1400 mm.
 - .5 In computer closets: 1220 mm.

- .3 Computer outlets:
 - .1 General: 450 mm.
 - .2 Above top of work surfaces in computer labs: 175 mm.
- .4 Panelboards and CCMS cabinets: 1800 mm to top or as required by Code or as indicated.
- .5 Telephone and interphone outlets: 450 mm.
- .6 Wall mounted telephone and interphone outlets: 1300 mm.
- .7 Fire alarm stations: 1050 to 1150 mm.
- .8 Fire alarm end of line resistors: 1500 mm.
- .9 Fire alarm isolators: 1800 mm.
- .10 Fire alarm bells/horns/strobes: 2100 mm.
- .11 Motor starters: 1200 mm.
- .12 Emergency lighting units:
 - .1 Battery packs: 2100 mm.
 - .2 Lighting heads: 150 mm below finished ceiling to a maximum of 3000 mm.
- .13 Wall mounted exit signs: 2200 mm.
- .14 Hand dryers: 1100 mm.
- .15 Television outlets: 450 mm. Refer also to notes on drawings for A/V monitor receptacle mounting locations.
- .16 Wall mounted speakers: 2100 mm.
- .17 Clocks: 2100 mm.
- .18 Door bell pushbuttons: 1200 mm.

.15 Load Balance

- .1 Measure phase current to panelboards with normal loads (lighting) operating at time of acceptance. Adjust branch circuit connections as required to obtain best balance of current between phases and record changes.
- .2 Measure phase voltages at loads and adjust transformer taps to within 2% of rated voltage of equipment.
- .3 Submit, at completion of work, report listing phase and neutral currents on panelboards, dry-core transformers and motor control centres, operating under normal load. State hour and date on which each load was measured, and voltage at time of test.

.16 Field Quality Control & Testing

- .1 Contractor shall be responsible for retaining and paying for a qualified testing service satisfactory to the Owner to perform all testing.
- .2 Conduct testing, including but not limited to:
 - .1 Power distribution system including phasing, voltage level, grounding, load balancing, circuit breakers, relays, trip devices.
 - .2 Power generation system including phasing, voltage level, grounding, load balancing, operational test, full load, cycle crank, ventilation, alarms and shutdowns.
 - .3 Lighting and its control.
 - .4 Motors, variable speed drives, heaters and associated control equipment including sequenced operation of systems where applicable.
 - .5 Systems: fire alarm system, communications.
- .3 Furnish manufacturer's certificate or letter confirming that entire installation as it

pertains to each system has been installed to manufacturer's instructions.

- .4 Insulation resistance testing.
 - .1 Megger circuits, feeders and equipment up to 350 V with a 500 V instrument.
 - .2 Megger 350-600 V circuits, feeders and equipment with a 1000 V instrument.
 - .3 Megger circuits, feeders and equipment over 600 V with a 5000 V instrument.
 - .4 Check resistance to ground before energizing.
- .5 Phase rotation shall be positive, A-B-C, counter-clockwise, red, black, blue (red, yellow, blue over 1000 V). Where the phase rotation in an existing facility is clockwise the Owner shall be notified immediately. Note the instrument used for testing rotation. Motor rotation meters will indicate a clockwise direction for counter-clockwise phase rotation.
- .6 Where emergency power is obtained from another building source, test for rotation and phasing between the buildings. Where a discrepancy exists, the Owner shall be notified immediately.
- .7 Carry out tests in presence of Owner and Consultant.
- .8 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.
- .9 Submit test results for Consultant's review. Test reports shall include the date, time, temperature, serial number of equipment tested, test equipment used to perform test and recommendations.
- .10 Immediately after testing is completed all equipment shall be closed so as to be inaccessible to all electrical parts. If equipment must be reopened, then meggering shall be performed again.

.17 Coordination of Protective Devices

- .1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

.18 Maintenance Manuals

- .1 Contractor shall provide three sets of maintenance manuals containing the following information:
 - .1 Names of the pieces of equipment used in the project, the manufacturer's name on each piece of equipment and the name and address of the supplier of the equipment. Wherever pieces of equipment form part of a complete system, the system name shall be used on the list: i.e. Fire Alarm System.
 - .2 Part numbers of all replaceable items.
 - .3 Manufacturer's brochures, pictures, descriptive data, cut sheets, engineering data, wiring and schematic diagrams and rating tables of all equipment supplied and/or installed.
 - .4 Serial numbers of all principal pieces of equipment.
 - .5 Copy of all shop drawings submitted and reviewed.
 - .6 Recommended maintenance procedures for various systems.
 - .7 Results of all tests performed including test instruments used and local conditions (temperature, humidity).
 - .8 Complete electrical load data from operating tests: Voltages on all phases, line to line and line to neutral and ampacity on each phase, with the building in normal operating condition. Measurements to be taken on the main incoming feeder.

- .9 All testing, verification, inspection and deficiency notices and certificates including SaskPower Inspection.
- .10 Contractors and manufacturers' warranties.
- .2 Refer to Section 01 78 00– Closeout Submittals.

.19 As Built Drawings

- .1 As built drawings as per Section 01 78 00– Closeout Submittals.
- .2 Contractor to provide one (1) set of marked up electrical as-built drawings. Provide sets of clean, white prints of the construction drawings. Mark thereon all changes as work progresses and as changes occur, including all approved change orders/directives. This shall include changes to all electrical systems as shown in the tender documents. Ensure that items marked correspond to the drawing title.
 - .1 Use different color waterproof ink for each service on a per drawing basis.
 - .2 Up to date mark-ups to be made available for reference purposes and inspection at all times.
- .3 Interim mark-up drawings to be provided to Consultant for review prior to closing ceiling or installing ceiling tiles. Provide at least 1 week prior to request for an above-ceiling inspection. In addition to items indicated in 19.2, drawings to also indicate at minimum the following above ceiling items:
 - .1 Routing of Panel feeders/conduits, showing any pull boxes.
 - .2 Routing of 1" and larger conduit, including branch circuit conduit rack groupings from panel.
 - .3 Junction box locations for spare panel conduits
 - .4 Routing of cable tray
 - .5 Exact routing of all fire alarm system conduit and junction boxes, indicating inter-connection wiring of devices.
- .4 Present finalized as-built mark up drawings to Engineer/Consultant at time of Substantial Performance inspection. Provide at least 1 week prior to request for an inspection.

.20 Demolition

- .1 For any system, remove all redundant conduit and wire to the source of supply. Where redundant conduit is embedded in concrete or other inaccessible locations, it shall be abandoned.
- .2 Tender shall include unit pricing for removal of redundant conduit and wire which is deemed to be outside the scope of this project.
- .3 Boxes, fittings, electrical equipment and accessories which become redundant shall be completely removed. All such material shall become the property of the Contractor and he shall remove it from the site. Re-usable items of electrical equipment shall be reinstalled where indicated on the drawings or turned over to the Owner.
- .4 Where existing equipment is shown to be re-installed, only the best quality items shall be selected for re-use.
- .5 The Contractor must visit the site prior to submitting a bid to determine the amount of demolition work involved.

.21 Removal and Disposal of Electrical Ballasts Containing Polychlorinated Biphenyl Liquids (PCB's)

- .1 Comply with the regulations, acts and bylaws of the authorities having jurisdiction

- including the Occupational Health and Safety (OH&S) Act and Regulations to provide full protection for public, occupants of building and workers.
- .2 Workers employed for the removal of electrical equipment shall be qualified electricians.
 - .3 Where contact with liquid PCB is possible, personnel shall be instructed in handling procedures, safety precautions, use of safety equipment and applicable Saskatchewan and Federal legislation and regulations.
 - .4 All employees involved with PCB removal must be familiar with the safe and proper use of all equipment and materials which they will be required to use.
 - .5 Handling and transportation of PCB-containing materials shall be performed by a company registered as a carrier with Saskatchewan Environment and Resource Management (SERM).
 - .6 Workers shall wear PCB resistant gloves in addition to normal work clothing where exposure risk is low.
 - .7 Provide workers with additional protective clothing and equipment where contact with liquid PCBs may occur. Provide clothing and equipment appropriate for the potential level of exposure.
 - .8 Restrict access to the PCB storage area in compliance with provincial and federal acts and regulations to all personnel excepting those with authorization from the Consultant.
 - .9 Any property damaged as result of work done by this section shall be replaced or repaired to satisfaction of Owner.
 - .10 PCB storage facilities shall be located on site and shall conform with current federal and provincial regulations.
 - .11 The Contractor shall develop, in consultation with the local fire department, a fire control and emergency procedures plan. One copy will be given to the local fire department, and one copy will be kept at the storage site.
 - .12 Inspect luminaires to identify ballasts containing PCBs. Take care to accurately identify ballasts as PCB type or non-PCB type.
 - .13 The Contractor shall develop an inventory and record of PCBs stored in the storage facility containing at least the following information:
 - .14 Inventory of each item of PCB waste, with manufacturer name, serial number, manufacture date code and waste description.
 - .15 Date of receipt of the PCB waste, source and condition of the waste.
 - .16 A description of the storage facility suitable for submission to the Minister of the Environment.
 - .17 The Contractor shall submit a copy of this inventory and record of disposal to the local fire department and the Owner.
 - .18 Remove all demolished materials, tools and equipment from site upon completion of work. Leave site in a condition acceptable to the Owner.
 - .19 Clean any black residue from luminaires using rags and solvent. Black residue may contain PCBs. Dispose of rags as PCB waste.
 - .20 Dispose of non-PCB-containing ballasts as construction waste.
 - .21 PCB waste shall be stored in proper and acceptable containers and shall comply with current federal and provincial regulations.
 - .22 Place contaminated materials into plastic bags. Close bags securely using specified ties. Handle bags containing materials to prevent bag puncture.
 - .23 Place minimum 75 mm of absorbent material in bottom of drum.
 - .24 Place plastic bags containing contaminated material into disposal drum.

- .25 Place capacitors into drum with terminals facing up.
- .26 Package PCB-contaminated gloves, work clothes and rags in plastic bags and place in drums.
- .27 Seal drums and store in a designated storage area pending transportation and disposal.
- .28 Label drums containing liquid PCB-contaminated material and equipment with a Number 4 – Severe Hazard Label.
- .29 On completion of the removal and packaging of the PCB-containing materials and equipment, the Contractor shall arrange for the disposal of the material. The Contractor shall provide for the necessary storage until the PCB-containing materials and equipment can be transported to the disposal or final storage site.

.22

Power Shutdowns & High Voltage Work

- .1 Excavation of or Near High Voltage Lines
 - .1 The Contractor shall provide a work plan when excavating on or near high voltage services.
 - .2 Excavation within three (3) meters of high voltage lines shall be supervised by Maintenance, Electrical Department, U of S.
 - .3 As deemed necessary by the U of S, high voltage lines will first be “daylighted” by hydrovac to determine their exact location and depth. Excavation by other methods (hand or machinery) may then proceed if deemed safe to do so.
- .2 Shutdowns/startups:
 - .1 The Contractor shall request from the project manager a power shutdown or work notice for energizing. The Contractor shall document a work plan and procedure and, provide a copy to the U of S when the request is made (at least 10 business days in advance). The work plan and procedure shall be a detailed listing of each step of the work including specific tasks, worker(s) assigned to task and time if appropriate. The Contractor’s work plan shall be reviewed by the Electrical Inspector and revised where mutually acceptable to ensure a safe shutdown and/or start-up. A copy of the work plan shall be made available to all workers.
 - .2 The Electrical Inspector shall notify occupants of other buildings on campus if a power outage is necessary.
 - .3 Equipment and installations rated 1000 amps or more or, greater than 750 volts, shall be inspected by SaskPower Inspections prior to being energized. The Contractor shall arrange for the inspection of his work. The University shall be given 10 business days notice for energizing.
 - .4 Power shutdowns shall occur outside of regular University business hours unless otherwise noted.
 - .5 For shutdowns, U of S personnel will open the circuit as requested by the Contractor, check to ensure that no voltage is present and apply grounds to the system.
 - .6 U of S will install hasp and departmental lock on opened disconnect device.
 - .7 The Contractor shall ensure each person working on the de-energised system installs his or her own personal lock. In addition, a new tag will be attached to the hasp with the date, time, company, whose locks have been applied, what work is taking place and when it will be complete. This information must be clear and legible.
 - .8 When the Contractor has completed the work, systems will be tested as required. If the results are satisfactory to the U of S, personnel will remove the departmental lock and hasp and power will be restored.

- .3 Failure to comply with this safety procedure could result in an order to stop the work.

.23

Testing:

- .1 The following testing shall be by a third party hired by the Contractor and approved by the U of S:
 - .1 Hipot test all high voltage switchgear.
 - .2 Megger high voltage cables with a 5000 V instrument
 - .3 Conductor phasing
- .2 U of S personnel will witness all testing and verify phasing.
- .3 Test reports shall be prepared and submitted to the Owner prior to energizing. Reports shall include equipment tested, equipment serial number, date, ambient temperature, relative humidity, test equipment used.
- .4 Existing systems shall be checked for phase rotation. The new system will be counter-clockwise. If the old system is CW changes will be made at motor terminal boxes where necessary. The new system will be red - yellow - blue at, respectively:
 - .1 terminal 1, 2 and 3 on the PMH switch
 - .2 H1, H2 and H3 on the primary of the transformer

.24

Mechanical Coordination

- .1 Terminal units: 120V circuits from the nearest emergency/utility power 120/208V panel are to be provided as required for mechanical single and dual duct terminal units. No more than 20 units are to be connected to one 15A circuit. Verification of circuit designation and location of terminal unit controllers should be confirmed with U of S Facilities Management Mechanical Department prior to installation. Each terminal unit controller shall be labelled with the power source and branch circuit number. Provide 120V, 15A, SPST disconnect switch at each terminal unit location. Refer also to detail on drawings for complete requirements.
- .2 Fume hoods: Lighting and controls (face velocity alarm) shall be on separate emergency power circuits regardless of the power source for the fume hood fan. Receptacles within fume hoods shall always be supplied from a normal power source.

.25

Sprinkler Proof Equipment

- .1 All electrical equipment installed in areas where sprinklers are also installed shall be constructed so that exposure to water from the sprinkler heads will not impair the effectiveness of the equipment.
- .2 A separate and complete noncombustible cover or roof shall be provided on all equipment. An overhang at the front, rear and sides shall effectively prevent the entrance of water either at the top or through projecting face plates, meters, etc.
- .3 Ventilation louvers shall be of the outdoor type where falling water or water running down the sides of the enclosure will not enter the enclosure. Where openings in the top are required for outgoing conduits, etc. a removable gasketed plate shall be provided and conduits and cables shall be installed using waterproof fittings.
- .4 Surface mounted panelboards installed in the same areas as sprinkler heads shall be complete with drip hoods (and shall have gasketed covers and doors).
- .5 All sprinkler proofing shall comply with the latest Code requirements and with requirements of the local inspection authorities.

.26

Asbestos Training

- .1 Because of the fact that the electrical trade may on occasion be required to enter and

do work within an asbestos abatement enclosure, each contractor must allow within their bids a sum to address the necessary training of their personal (or provide company certification), and the provision of all PPE which may be required for their employees to work within the enclosure during the asbestos abatement process. This would also include any tools which must be provided for and cleaned because of the work.

.27

Contract Breakdown

- .1 Electrical Contractor to submit a copy of the project Cost Breakdown to the Electrical Consultant at the start of the project. The Breakdown shall be as detailed below (Separate material and labour for each component noted):
 - .1 Demolition
 - .2 Main distribution (panels, panel feeders, etc)
 - .3 Branch distribution (circuitry, receptacles, equipment connections, raceways, etc)
 - .4 Network Systems
 - .5 Motor Control
 - .6 Mobilization
 - .7 Commissioning
 - .8 Miscellaneous

.28

Salvage

- .1 All existing electrical equipment and materials which are removed but which are not required to be utilized elsewhere or wanted by the owner (including unwanted breaker salvage) shall become the property of the Sub-Contractor and shall be removed from the site.

.29

Cutting And Remedial Work

- .1 There shall be no cutting, drilling, coring, sleeving, etc., of the existing structural elements (including grade supported slabs) of a building without written permission from the Owner, who may request a structural engineer's validation. If permission is given to cut, drill, core, sleeve, etc., a structural element, the Contractor shall be required to determine the existence of concealed pipes, conduits, etc., within the structural element by x-raying or other approved methods. The Contractor is responsible for all damage and subsequent repairs for failing to comply with this requirement.
- .2 The Contractor shall visit the site prior to submitting a bid to determine the amount of coring work involved.

END OF SECTION