PART E

SPECIFICATIONS

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.

E1.1.1 *The City of Winnipeg Standard Construction Specifications* is available in Adobe Acrobat (.pdf) format on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division internet site at http://www.winnipeg.ca/matmgt.

E1.1.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.

E1.1.3 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.

General

E2. GENERAL & RELATED WORK

E2.1 This Section shall be read in conjunction with all other sections so as to comply with the General Requirements of the Contract.

E3. OUTLINE OF WORK

E3.1 Visit the site prior to Bid Opportunity close to confirm the location and extent of lead-contaminated materials.

E3.2 Contractor to provide approx. 24 " x 24" opening in foundation wall for conveyor access. This access to be later repaired by the City upon completion of abatement work.

E3.3 Isolate the Work area from adjoining Occupied and Non-Occupied Areas. Provide dust-tight enclosures as specified.

E3.4 Isolate or otherwise disable HVAC system, vents and diffusers located within the Work area. System shall remain disabled until completion of Work and clean-up of Work Area.

E3.5 Provide worker protection as specified.

E3.6 Remove and dispose of the following in its entirety as lead-contaminated waste from the Firing Range:

a) Wood, framing and supports located on the walls, ceiling and adjacent columns.
b) Wood boardwalks.
c) Ground lighting.
d) Cardboard targets.
e) OSB behind targets.
f) Fibreglass and canvas lagged pipewrap.
g) Asbestos-containing fittings on piping systems by the Glove Bag method.
h) Soil to 4 inches below current lowest grade to allow for concrete.
i) Soil to facilitate the installation of new sump pump.

E3.7 Remove and dispose of the following in its entirety as lead-contaminated waste from the Board Room:

a) 12" x 24" lay-in ceiling tiles.
b) Fibreglass and canvas lagged pipewrap.

c) Asbestos-containing fittings on piping systems by the Glove Bag method.
d) Treat the Board Room and Firing Range as two separate Work areas.
e) Dispose of all waste including but not limited to, wash water, vacuum collected dust, polyethylene, coveralls, cleaning materials, etc., as hazardous waste.
f) Final clean all remaining Work Area surfaces to remove all lead dust, other debris or settled dust.
g) Paint all surfaces in the Firing Range scheduled to remain with one coat of a good quality latex suitable for this application and paint acceptable to the owner.
h) Install 6 mil polyethylene vapour barrier over top of remaining soil following required excavation and remediation.
i) Provide a dust-free condition at completion of Work.
J) Include leachate testing and Hazardous Waste disposal as part of base bid.

E4. SITE CONDITIONS

E4.1 All surfaces, materials and soil present throughout the Firing Range are known to be contaminated with lead-containing dust.

E4.2 All surfaces above the 12" x 24" lay-in ceiling tile in the Board Room are known to be contaminated with lead-containing dust.

E4.3 All parging cement fittings located throughout the Work area are known to be asbestos-containing.

E5. CONTRACTOR AND SUPERVISOR QUALIFICATIONS

E5.1 The Contractor shall implement a training program to ensure workers are aware of the presence of lead on the project, health effects, specific work practices to minimize lead exposure, use and care of personal protective equipment and good hygiene practices.

E5.2 All Contractor employees exposed to lead shall be monitored and protected in accordance with OSHA standard 29 DFR 1926.62.

E6. QUALITY ASSURANCE

E6.1 Ensure that the removal and handling of lead-contaminated materials is performed by persons experienced in the methods, procedures and industry practices of lead or asbestos abatement.

E6.2 Ensure that Work proceeds to schedule, meeting all requirements of this Specification.

E6.3 Complete Work so that at no time airborne lead, visible solid residue, or water runoff contaminate areas outside Work area. Consultant is empowered to order a shutdown of Work when such a leakage has occurred or is likely to occur. Additional Work by Contractor or Consultant to rectify unsatisfactory conditions will be back-charged to the Contractor.

E7. DEFINITIONS

E7.1 Negative Pressure: A reduced pressure within the Lead Work Area established by extracting air directly from the Lead Work Area, and discharging this air outside the building.

E7.2 Work Area: Area where Work takes place which will, or may, disturb lead-containing material.

E7.3 Authorized Visitors: Building Owner, Consultant or designated representative, and persons representing regulatory agencies.

E7.4 Curtained Doorway: Doorway consisting of two (2) flaps of rip-proof polyethylene.

E7.5 DOP Test: A testing method used to determine the integrity of the Negative Pressure unit using dioctyl phthalate (DOP) HEPA filter leak test.

E7.6 Fitting: Individual segments or pieces of a mechanical service line which may include but is not limited to the hangers, tees, elbows, joints, valves, unions, etc.

E7.7 HEPA Filter: High Efficiency Particulate Aerosol filter that is at least 99.97 percent efficient in collecting a 0.3 micrometre aerosol.

E7.8 Occupied Area: Any area of the building outside the Lead Work Area(s).

E7.9 Pipewrap: Any thermal or vapour covering present on straight runs and/or fittings of mechanical services. Include with the above, metal or other rigid jacketing associated straps, ties, fastenings, etc.

E7.10 Polyethylene: Rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide a continuous polyethylene membrane to protect underlying surfaces from water damage or damage by lock-down agents, and to prevent escape of lead dust through sheeting into adjacent areas.

E8. REGULATIONS

E8.1 Comply with Federal, Provincial, and local requirements, provided that in any case of conflict among those requirements or with these Specifications the more stringent requirements shall apply. Work shall be performed under regulations in effect at the time Work is performed. Regulations include but are not limited to the following:

E8.2 Manitoba Department of Labour, Workplace Safety and Health Division, Workplace Health and Safety Act W210 and Workplace Health Hazard Regulation MR 53/88, current at the time of Bid Opportunity close.

E8.3 Contact Manitoba Conservation for information on disposal (945-7100).

E9. NOTIFICATION

E9.1 Inform all sub-trades of the presence of lead-contaminated materials identified in the contract documents.

E10. SUBMITTALS

E10.1 Submit prior to commencing Work within two (2) Working Days of a request of the Contract Administrator:

a) Names of the Superintendent(s).
b) Proof of worker training for lead abatement Work.
c) Worker's Compensation Board status and transcription of insurances.
d) Certificate proving that each worker on site has been fit-tested for the respirator appropriate for the Work being performed.
e) Written worker protection program in accordance with OSHA standard 29 CFR 1926.62 including the name of laboratory that will be used for the Contractor's worker's blood analysis where a worker has been, or is expected to be, exposed to lead above the action limit (25 μg/m3) for more than thirty (30) Calendar Days per year.
f) Results of negative air unit DOP Testing.

E11. WORKER PROTECTION

General

E11.1 Provide instruction to personnel before allowing entry to Lead Work Area. Instruction shall include training in health effects of lead exposure, importance of good personal hygiene, use of respirators, dress, entry and exit from Work areas, and Work procedures and protective measures for use of lead cleaning agent. Instruction must be provided by a competent person as defined by the Workplace Safety and Health Act.

E11.2 Do not eat, drink, smoke or chew gum or tobacco except in established locations outside the Lead Work Area.

E11.3 Workers shall be fully protected at all times when lead-contaminated dust could be disturbed.

E11.4 Provide and post in Clean Change Room the procedures described under Worker Protection.

Respiratory Protection

E11.5 Provide appropriate respiratory equipment for the Work being performed for persons who are required to enter the Work Area. Selection of respiratory equipment must ensure that the current Occupational Exposure Limit (OEL) of 50 ug/m3 is not exceeded.

E11.6 Workers must have respirators fit checked by qualitative or quantitative fit-testing.

E11.7 Respiratory protective devices shall be certified by the National Institute of Occupational Safety and Health (NIOSH).

E11.8 Maintain respiratory equipment in proper functioning and clean condition or remove from site.

E11.9 Used filters shall be replaced or tested according to the manufacturer's specifications and replaced as necessary.

E11.10 Ensure that no person required to enter a Work Area has facial hair which affects the seal between respirator and face.

Protective Clothing and Equipment

E11.11 Provide all workers with full body protective coveralls including attached head covering and boot covers with non-slip soles. Once protective coveralls and boot covers are worn, they must be treated as lead-contaminated waste and disposed of.

E11.12 Wear hard hats, safety shoes and other protective apparel required by Manitoba Labour regulations.

Work Area Entry Procedures

E11.13 Use the following procedure to enter the Work Area:

a) Put on respirator with new or tested filters and coveralls prior to entering the Work Area.

Work Area Exit Procedures

E11.14 Use the following procedures to exit contaminated Work Area:

a) Remove gross contamination from protective clothing and equipment using HEPA vacuum or by wet wiping.
b) Proceed to egress area and remove disposable coveralls and boot covers.
c) Dispose of suits and boot covers into labelled waste receptor.
d) Wash exposed skin and respirator with soap and water.

e) Remove respirator.
f) Seal inlet side of respirator filters with tape then remove filters for testing or dispose of as lead-contaminated waste into labelled waste receptor.

E12. VISITOR PROTECTION

E12.1 Provide clean protective clothing and equipment and approved respirators to Authorized Visitors.

E12.2 Ensure Authorized Visitors have received required training for entry into Work Area.

E13. AIR MONITORING

E13.1 Air monitoring will be performed both inside and outside the Lead Work Area, following methods acceptable to Manitoba Labour.

E13.2 If airborne dust levels exceed the Maximum Use Concentration specified for the respirator in use, the Work will be halted. The Contractor will have to modify Work practices to observe the Maximum Use Concentrations specified.

E13.3 Co-operate with the Consultant in collection of air samples, including providing workers to wear sampling pumps for up to full-shift periods. Contractor's forces must exercise care with air sampling equipment. The Owner reserves the right to back-charge the Contractor for re-sampling of samples damaged by tampering or abuse.

E14. INSPECTION

E14.1 From commencement of Work until completion of clean-up operations, the Consultant will be present periodically on site both inside and outside the Work area.

E14.2 Inspection of the Lead Work Area will be performed to confirm compliance with the requirements of the Specification and governing authorities. Any deviations from these requirements that have not been approved in writing may result in a stoppage of Work, at no cost to the Owner.

E14.3 The Consultant is empowered by the Owner to inspect adherence to specified procedures and materials, and to inspect for final cleanliness and completion. Additional labour or materials expended by the Contractor to provide performance to the level specified shall be at no additional cost.

E14.4 The Consultant is empowered by the Owner to order a shutdown of Work when a leakage of lead from the controlled Work area has occurred or is likely to occur. Additional labour or materials to rectify unsatisfactory conditions shall be at no cost to the Owner.

E14.5 Inspection and air monitoring performed as a result of the Contractor's failure to perform satisfactorily regarding quality, safety, or schedule, shall be back-charged to the Contractor.

E15. CLEANLINESS INSPECTION AND TESTING

E15.1 Acceptance of the cleanliness of walls, floors, etc., will be based on surface contaminant wipe testing. For the purposes of this Specification, all clearance wipe sampling results must be below the EPA Guideline of 40 μg/m3.

E16. PRODUCTS AND FACILITIES
Materials and Equipment

E16.1 All materials and equipment brought to Work site must be clean and in good condition. New materials only.

E16.2 HEPA Vacuum: Vacuum with necessary fittings, tools and attachments. Only a vacuum fitted with HEPA filter can be used for Work of this Section.

E16.3 Flexible Ducting: Tubing with metal reinforcement or approved equal. Diameter to equal negative air discharge.

E16.4 Ground Fault Panel: Electrical panel, installed by licensed electrician and equipped as follows:
- a) Ground fault circuit interrupters of sufficient capacity to power temporary electrical equipment and lights in the Work Area.
- b) Interrupters to have a 5 mA ground fault protection.
- c) Necessary accessories including main switch disconnect, ground fault interrupter lights, test switch to ensure unit is working, and reset switch.
- d) Openings sealed to prevent moisture or dust penetration.

E16.5 Lock-down Agent: Sealant for purpose of trapping residual dust. Product must have flame spread and smoke development ratings both less than 50. Product shall leave no stain when dry.

E16.6 Negative Air Unit: Portable air handling system which extracts air directly from the Work Area and discharges the air to the exterior of the building. Equipped as follows:
- a) Pre-filter and HEPA filter. Air must pass HEPA filter before discharge.
- b) Pressure differential gauge to monitor filter loading.
- c) Auto shut off and warning system for HEPA filter failure.
- d) Separate hold down clamps to retain HEPA filter in place during change of pre-filter.

E16.7 Lead Cleaning Agent: Multi-purpose industrial grade cleaner for lead dust. Acceptable product: Lead-Clean, Back to Nature Products. Available from Latoplast Ltd., 1280 Border Street, Winnipeg, Manitoba. Use full strength (or dilute 3:1 as per product label). Retain and dispose of all used wash water, as hazardous waste.

E16.8 Lead Waste Container: An impermeable container acceptable to disposal site and Manitoba Conservation. New materials only. Labelled as required by Manitoba Conservation. Comprised of one of the following:
- a) A 6 mil (0.15 mm) sealed polyethylene bag, inside a second 6 mil (0.15 mm) sealed polyethylene bag.
- b) Barrel suitable for containing lead wash waste and/or sludge and soil. Container must be acceptable to hazardous waste hauler and dumpsite accepting the waste.

E16.9 Protective Coveralls: Disposable full body coveralls complete with hoods manufactured of a material which does not permit penetration of lead fibres.

E16.10 Rip-Proof Polyethylene Sheeting: 8 mil (0.20 mm) fabric made up from 5 mil (0.13 mm) weave and two (2) layers of 1.5 mil (0.05 mm) poly laminate or approved equal. In sheet size to minimize on-site seams and overlaps. New Materials Only.

E16.11 Sprayer: Garden reservoir type, low velocity, capable of producing mist or fine spray.

E17. EXECUTION
Site Preparation

E17.1 Install temporary lighting at a level so as to provide for safe and efficient use of Work area - minimum 550 LUX.

E17.2 Seal all openings to the Work Areas using polyethylene, tape, caulking, etc., including but not limited to windows, doors, etc.

E17.3 Provide a fire extinguisher at each emergency exit, in the decontamination facilities. Protect extinguishers with polyethylene in a manner that will not hamper emergency use.

E17.4 Post signs at doorways leading into a contaminated area.
Such signs shall read:

.1 CAUTION.
.2 Lead Hazard Area.
.3 No Unauthorized Entry.
.4 Wear Assigned Protective Equipment.
.5 Breathing Lead Dust May Cause Serious Bodily Harm.

E17.5 Establish negative pressure in Work Area as follows:

a) Provide negative pressure units in place sufficient to maintain pressure differential of -0.04 inches of water between contaminated Work Area and Occupied Areas.
b) Provide sufficient negative air pressure to exchange a volume of air equivalent to that of the Work Area a minimum of every 20 minutes.
c) Distribute negative air units evenly throughout site.
d) Arrange negative air units to maximize the distance between units and decontamination facilities.
e) Provide weighted flaps in perimeter seal as necessary to provide make-up air.
f) Operate negative pressure units continuously from completion of Clean Preparation until start of dismantling.
g) Replace pre-filters frequently to maintain specified flow rate.
h) Replace HEPA filter as required to maintain flow rate and integrity of unit.
i) Provide additional negative pressure units as required to provide required negative pressure.
j) Install and make airtight all negative air discharge ducting. Use rigid sheet metal ductwork with joints sealed with tape in Occupied Areas.
k) Locate negative air discharge ductwork away from active construction areas.
l) Have negative air units leak-tested prior to start of contaminated Work. Testing agency to be acceptable to Consultant.

E17.6 Maintenance of Contaminated Work Area

a) Maintain enclosures in tidy condition.
b) Ensure that Work Area enclosures, barriers and polyethylene enclosures are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

E17.7 Site Dismantling

a) Place polyethylene seals, tape, cleaning material, clothing and other contaminated waste in plastic bags for transportation.
b) Remove and dispose of as lead-contaminated, all debris and materials resulting from Work of this Section.

E17.8 Waste Classification and Disposal

a) Retain and dispose of all waste generated by this Section, as hazardous waste, unless testing suitable to Consultant shows otherwise.
b) Ensure waste that could tear a 6 mil (0.15 mm) polyethylene bag is disposed of in sealed rigid waste containers (drums) specified.

c) Clean up visible materials from waste routes and loading area after each load. Use lead abatement procedures for clean-up of dust and friable materials, or if requested by Owner's Representative.
d) Drop garbage bins at designated locations. Keep bins covered and enclosed while at the site. Bin loading area shall be kept clean at all times.
e) Transport lead-contaminated waste to a Hazardous Materials Disposal Facility licensed by Manitoba Conservation.