

# Trade Scopes

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## MECHANICAL SCOPE

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Revised 2005

All bidders shall include a complete mechanical installation in accordance with plans, specifications, issued addenda and Saskatchewan Bid Depository Incorporated Rules and Regulations.

The format under this Division (Item of Scope) is based on the premise that the mechanical Tender normally includes the basic categories of Plumbing, Heating, Ventilation and Sheet Metal, Refrigeration, Automatic Temperature Controls, Sprinklers, Incinerators, Insulation and all the standard items commonly associated with the above categories which are normally laid out in the Drawings and Specifications. The purpose of this definition lists items which will serve to identify, but not limit, areas or items of particular concern in an attempt to clarify the work forming part of the mechanical tender.

### **DEFINITIONS: This Trade Definition consists of three sections as follows:**

- Section 1. Items common to more than one section of the Mechanical Scope.
- Section 2. Items specific to the plumbing portion of the Mechanical Scope.
- Section 3. Items specific to the HVAC portion of the Mechanical Scope.

Where equipment is not supplied by the mechanical trade, mechanical services are to be roughed in only as shown on tender documents. Suppliers of specialty items, cabinets or equipment if other than the mechanical trade, will be responsible for any alterations of service required, if these differ from the tender documents.

### **PACKAGED EQUIPMENT NOTE #1**

Prewired factory-packaged equipment, so specified under the Mechanical Scope, shall mean equipment in a completely electrically operable state after one final connection of power wiring and remote control connections if specified. (See related item - General Mechanical Terms - inclusion #30.)

### **AUTOMATIC TEMPERATURE CONTROLS NOTE #2**

Automatic temperature controls shall mean controls, which must:

1. Be intended for equipment whose main purpose is to affect the temperatures, humidity or pressures within a building, and
2. Produce these changes automatically, and
3. Include all items in the Automatic Temperature Control Scope.

Provided, however, that if the controls directly switch the power lines to the equipment, the wiring of such controls to remain the responsibility of the electrical contractor.

### **SUB TRADES TO THE MECHANICAL CONTRACTOR**

- a) Automatic Temperature Controls (through Bid Depository as per sub-sub regulations).
- b) Insulation (through Bid Depository as per sub-sub regulations).
- c) Sprinklers (through Bid Depository as per sub-sub regulations).
- d) Incinerators and chimneys fabricated or constructed on site.

Each tender in each section shall include and exclude applicable items, regardless of where they may appear in the tender document, unless specifically noted otherwise in this Scope.

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### SECTION 1 - GENERAL MECHANICAL TERMS

#### INCLUDED:

1. The mechanical contractor shall include contingency funds specifically called for in the mechanical specifications.
2. In renovated areas, capping, disconnect and removal of ALL mechanical items as defined by the Scope.
3. All services and service charges – gas, water, sewer – as levied by the town, city or Utility Company.
4. Fuel (excluding fuel for testing as per Electrical Included Item 55), fuel, water and exhaust piping and vent ducting for generator prime movers. Flex connections, valving and muffler to be supplied with units. (See Electrical Scope.)
5. Permits as required for mechanical work only.
6. Manufacturer's warranty only, beyond the normal one-year warranty.
7. Trade clean up.
8. Protection of other trades' work from damage by this trade.
9. Hoisting for materials and equipment.
10. Inspection.
11. X-rays of welded joints when required by code or specified.
12. Shop drawings.
13. Scaffolding.
14. Licenses as required for mechanical work.
15. Vibration isolation for equipment supplied by this trade.
16. Supply of floating concrete floor supports when specified or detailed on mechanical drawings. Wood; sub base and concrete work to be done by others.
17. Pipe identification lettering; color banding and directional markers, valve tags and glass covered code charts and directories.
18. Balancing of air and hydronic systems.
19. All direct reading temperature and pressure gauges connected directly to piping and duct systems.
20. Catwalks, ladders and gratings servicing mechanical equipment which are specified as part of Mechanical Equipment Package when specified or detailed on mechanical drawings.
21. All steel bases and steel supports for mechanical equipment when specified or detailed only on mechanical drawings.
22. Air compressors, vacuum pumps, regulators and accessories.
23. Anchor bolts, steel and metal frames for equipment bases when used for isolation purpose only.
24. Access panels and clean out covers (supply only). Supply and install when required in sheet metal plenums or ducts.
25. Mechanical to connect piping and ductwork only to factory built fume hoods and/or cabinets, supplied by other specification sections.
26. Coil Supports and hangers.
27. Cutting of round openings for pipe only up to 12 inches in diameter and smaller when pertaining to renovations or alterations (except sheet metal).
28. Process Instrumentation – In-line instruments and sensor wells, mechanical piping, pneumatic tubing and associated pneumatic equipment. Calibration of equipment supplied by Mechanical. Refer to Electrical Scope Included Item 30.
29. Firestopping of all kinds for mechanical systems only.
30. Variable frequency drives in packaged air handlers (as defined by package equipment note #1 under mechanical scope page 1 of 7) are supplied and installed by Division 15. All other variable frequency drives are supplied and installed by Division 16.

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### EXCLUDED:

Temporary heat, light, power (up to a maximum of 120/280 volts and an adequate amperage for temporary lighting, heating and convenience outlets, sanitation) or as specified.

1. Painting of on site mechanical items, which are specified to be painted except as noted in Inclusions.
2. Any and all portion of the building permit.
3. Cutting and patching when pertaining to renovations, alterations, or additions except cutting of round openings for pipe only up to 12" in diameter and smaller.
4. Vapour barrier and insulation not applied to mechanical systems.
5. Electric wiring except as provided herein.
6. Motor starters, disconnects, multi-speed and variable speed switches, protection switches, manual and magnetic starters, etc., without exception.
7. Plaster, caulking and grouting of all types.
8. Temporary heat, light, power, sanitation.
9. Hoarding.
10. Temporary water services or connections.
11. Final cleaning.
12. Catwalks, ladders, grating and support unless specified as part of mechanical equipment package or detailed on the mechanical drawings only.
13. Vapour barrier, insulation heat grid for recessed floor slabs under refrigerated fixtures and area.
14. Fabrication or installation of wooden frost boxes.
15. Audiometric room. Mechanical to connect services only.
16. Architectural features – special on-site glazing or caulking.
17. All appliances (e.g. refrigerators, ranges, dishwashers, clothes washer, clothes dryer).
18. Paint spray booths.
19. Welding booths.
20. Backing for mechanical equipment, rough bucks and installation of same. Location only by mechanical.
21. Cutting of all holes for mechanical components into millwork items.
22. Sleeving and rough bucking for 150mm or larger openings. Location only by mechanical.
23. All cast in place concrete, including rebar, formwork, void forms and granular fill (except as noted in Section 2 - Plumbing Included Item 3).
24. Flashing gum pots, roof curbs and related water proofing except counter flashings, lead flashings for roof drains, floor drains and vents that apply to this trade scope. Roof curbs unless specified with Mechanical equipment.

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### SECTION 2 - PLUMBING ITEMS

All plumbing systems, including fixtures, hot water heaters, water conditioning equipment, sewage pumps, sewage ejectors, sump pumps, circulating pumps, and drainage products.

1. All yard and storm drainage, including sanitary and storm sewers, precast manholes, and water services except culverts for yard drainage.
2. Non-electrical smoke detection systems, Fire Hose Cabinets, hosereels, all types of portable fire extinguishers, and hose cabinet tubs for modular units.
3. Excavation – the mechanical contractor shall be responsible for all excavating and backfill and compaction (with-in the confines of the mechanical trench or excavation) to facilitate the installation of his work, including shoring, pumping, bedding, tamping and disposal of surplus excavated material. Repair surface conditions of excavated areas to pre-excavation standard.
4. Drymop systems and central vacuum cleaning systems.
5. Medical gas systems, piping and permanently connected equipment.
6. Piping and connections only to automotive hoists.
7. Mechanical to connect services only to medical and mortuary equipment such as sterilizers, autopsy tables.
8. Water treatment and all associated piping, meters, tanks, pumps, filters, softeners.
9. Prefabricated septic tanks of all types, also supply and install fittings and piping for those poured in place.
10. Cast iron catch basin and manhole covers, trade name gratings, sump frames and covers when specified or detailed on mechanical drawings.
11. Weeping tile for sewage disposal systems only.
12. Leeching lines for sewage disposal systems (including backfill of gravel, straw and loam to provide a complete installation for field) to finish grade.
13. Flashings for roof drains, floor drains and vents.
14. Soap dispensing systems complete with piping tanks.
15. Laboratory sinks, faucets and gas outlets where specified in Division 15.
16. Factor shower cabinets or surrounds complete with manufactured receptors and curtain rods or doors.
17. Supply and installation of preformed counter and vanity tops incorporating molded sinks, hand basins.
18. Molded tubs.
19. Vitrified pipe.
20. Refrigeration compressors, liquid receivers, thermal expansion valves, refrigeration piping, related refrigeration controls, direct expansion refrigeration coils in built up or add on systems, direct expansion fan coil units.
21. Evaporative condensers complete with interconnection refrigeration piping.
22. Air-cooled condensers complete with interconnecting refrigeration piping.
23. Water-cooled condensers complete with field installed interconnecting refrigeration piping.
24. Refrigeration chillers, liquid and air condensing complete with interconnection refrigeration on piping.
25. Prefabricated walk-in coolers and freezers and/or associated refrigeration equipment when specified in Division 15.
26. Whirlpool and therapeutic baths including chair lifts unless specified as owner supplied. Installation included in all cases.
27. Manufactured sumps complete with pumps (NEW).

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### EXCLUDED:

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1. Washroom accessories.
2. Shower curtains.
3. *Number not used.*
4. Prefabricated coolers and freezers and associated refrigeration equipment when not part of Mechanical Scope as outlined in Included Item 25.
5. Excavation, backfill, compaction or disposal of surplus excavated material except as provided for in Included Item 3.
6. Culvert sump pits, precast sum pits and precast interceptor pits.
7. Unit kitchens, mini-prep units, nourishment tables, combining sinks, refrigerators, ranges, etc. – mechanical to connect services only.
8. All modular unit components. (Refer to Included Item 2.)
9. Caulking of all plumbing fixtures supplied under Mechanical Scope.

### SECTION 3 – HVAC

All heating, air conditioning, ventilation systems, piping, equipment and components, including all propeller type fans and all heat reclaim systems.

1. Sheet metal and non-metallic air handling ductwork of all types including hangers and supports except concrete masonry and drywall construction shafts or tunnels.
2. All wet and dry type solar heating and air conditioning systems complete with associated accessories (not including controls).
3. Solar energy systems prefabricated and pre-engineered components for the collection and storage of solar energy for the purpose of conversion to mechanical energy – includes collectors, collector components and packaged solar systems.
4. Fuel tanks for power plant equipment complete with Dispensing Units and Piping.
5. Lubrication equipment, fuel and oil storage tanks complete with dispensing units, piping and monitoring wiring.
6. Dust or material collector systems complete with all associated equipment and accessories.
7. Carbon monoxide exhaust systems complete with all associated equipment and accessories.
8. Steel chimneys for all equipment, 3.5mm or lighter, types A, B and C not factory lined.
9. Forced and induced draft fans of all descriptions except when in conjunction with incinerators.
10. Top outlets and bottom inlet grilles for wall fin radiation, induction units and cabinet heaters, installed in architectural cabinets including extension collars excluding wood manufactured grilles.
11. Humidifiers.
12. Induction units.
13. Manually operated balancing dampers.
14. Installation only of motorized dampers.
15. Fire dampers.
16. Plenums and casings.
17. Air ducts, silencers and other special types of sound insulated air ducts.

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18. Flexible type air ducts.
19. Duct insulation, acoustic lining – interior.
20. Weather louvres complete with bird screen and blank-off panels, penthouses and vents where specified in Division 15.
21. Back draft dampers.
22. Gravity relief vents and intakes and roof hoods when specified or detailed on mechanical drawings.
23. Attenuator boxes, turbulators and pressure reducing valves for air supply.
24. Air Filters:
  - a) Throw-away type
  - b) Flat permanent type
  - c) Dry pak filters
  - d) Roll type filters
  - e) Electronic filters
  - f) Grease filters (when canopy supplied by this contractor)
  - g) Filter gauges.
25. Supply air fans.
26. Return air fans, exhaust air fans and kitchen hood fans, mechanical attic or crawlspace ventilation.
27. Canopies and hoods where called for under specification Section 15. Ductless range hood requiring only electrical connections to be supplied by Electrical Trade.
28. Furnaces.
29. Fire Places and Wood Burning Stoves.
30. Duct Furnaces.
31. Indirect fired self-contained heating and/or cooling units.
32. Registers, grilles, diffusers and supply only of door grilles.
33. Air troffer boots except where part of an integrated ceiling and specified as by ceiling contractor.
34. Direct fired make-up air units.
35. Terminal reheat boxes with coils or electric element.
36. Sanitary napkin incinerator units and vents.
37. Air curtains.
38. Electric Duct heaters.
39. Self-contained gas fired classroom heating and ventilating units complete with all shelving, counters and accessories.
40. Metal cladding heavier than 1.6mm for exposed stack complete with installation.
41. Garbage and linen chutes of metal construction.
42. Manual smoke dampers.
43. Counter flashing that pertains to this trade Scope.
44. Spray eliminator units.
45. Unit heater gas fired.
46. Air washers.
47. Heat pumps of every type – water or air-cooled.
48. Any electric heating units requiring duct or piping connections.
49. Electric heating boilers and electric furnaces (excluding wiring).
50. Absorption and centrifugal chillers.

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51. Packaged and self-contained water-cooled air conditioning units.
52. Packaged self-contained air-cooled air conditioning units.
53. Packaged self-contained integral D.X. fan coil compressor section for use condensing section.
54. Refrigerated dew point controlled units (Environment Chambers where specified in Division 15).
55. Refrigerated room (window or wall type) air conditioners.
56. Refrigeration controls, cooling only (excluding wiring) (when not specified under Automatic Controls) for equipment under Mechanical Scope.
57. Supply and installation of evaporative cooling towers, condenser water pumps, tanks and piping when part of a refrigeration system for an ice area or ice making plant.
58. Radiant hydronic ceiling panels (active or non active), accessories, surface finishes as specified.
59. Propeller ceiling fans ducted or non-ducted c/w guards if specified.

### EXCLUDED:

Temporary heat, light, power (up to a maximum of 120/280 volts and an adequate amperage for temporary lighting, heating and convenience outlets, sanitation) or as specified.

1. Underground concrete duct or concrete for encasing of underground ductwork.
2. Cutting in and installation of door grilles.
3. Ductless range hoods.
4. Fireplace accessories to include shovels, brushes, poker, hearths, and mantels which do not form a part of a packaged unit.
5. Architectural louvers when no duct connected to them unless specified in Division 15.