

PART 1 - GENERAL

1.1 REFERENCES

- .1 American National Standards Institute (ANSI) / American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
  - .1 ANSI/ASHRAE 52.1, Gravimetric and Dust Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter.
- .2 American National Standards Institute (ANSI) / Canadian Standards Association (CSA International)
  - .1 ANSI Z21.47/ CSA 2.3A, Gas-Fired Central Furnaces.
  - .2 ANSI Z83.8/CSA 2.6, CSA Standard for Gas Unit Heaters and Gas-Fired Duct Furnaces.
- .3 Canadian Electrical Code
- .4 Canadian Standards Association (CSA International) / Canadian Gas Association (CGA)
  - .1 CGA 3.2, Industrial and Commercial Gas-Fired Package Furnaces.
- .5 Canadian Standards Association (CSA International)
  - .1 CAN/CSA-B140.2.1, Oil Burners, Atomizing Type.
  - .2 CSA B140.2.2, Pressure Atomizing Oil Burner Nozzles.
  - .3 CAN/CSA B140.4, Oil-Fired Warm Air Furnaces.
  - .4 CSA B140.14, Automatic Flue-Pipe Dampers for Use with Oil Fired Appliances.
  - .5 CAN/CSA-B139, Installation Code for Oil Burning Equipment.
  - .6 CAN/CSA-B149.1, Natural Gas and Propane Installation Code.
  - .7 CAN/CSA-B149.2, Propane Storage and Handling Code.
  - .8 CSA C22.2 No. 24, Temperature-Indicating and Regulating Equipment.
  - .9 CSA C22.2 No.46, Electric Air-Heaters.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Provide manufacturer's printed product literature and datasheets for furnace units and furnace parts, and include product

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| <u>1.2 ACTION AND<br/>INFORMATIONAL<br/>SUBMITTALS<br/>(Cont'd)</u> | <ul style="list-style-type: none"><li>.2 Product Data:(Cont'd)<ul style="list-style-type: none"><li>.1 (Cont'd)<br/>characteristics, performance criteria,<br/>physical size, finish and limitations.</li></ul></li><li>.3 Shop Drawings:<ul style="list-style-type: none"><li>.1 Provide drawings stamped and signed by<br/>professional engineer registered or licensed<br/>in Province of NL, Canada.</li><li>.2 Submit manufacturer's written<br/>recommendations.</li></ul></li></ul> |
| <u>1.3 CLOSEOUT<br/>SUBMITTALS</u>                                  | <ul style="list-style-type: none"><li>.1 Provide operation and maintenance data for<br/>incorporation into manual specified in Section<br/>01 78 00 - Closeout Submittals.</li></ul>   |
| <u>1.4 MAINTENANCE<br/>MATERIAL SUBMITTALS</u>                      | <ul style="list-style-type: none"><li>.1 Provide spare parts as follows:.</li><li>.2 Extra Stock Parts:<ul style="list-style-type: none"><li>.1 Spare filters: in addition to filters<br/>installed immediately prior to acceptance by<br/>Departmental Representative, supply 1 complete<br/>set of filters for each filter unit or filter<br/>bank in accordance with section 01 78 00 -<br/>Closeout Submittals.</li></ul></li></ul>  |
| <u>1.5 DELIVERY,<br/>STORAGE AND<br/>HANDLING</u>                   | <ul style="list-style-type: none"><li>.1 Deliver, store and handle in accordance with<br/>Section 01 61 00 - Common Product<br/>Requirements.</li><li>.2 Deliver materials to site in original factory<br/>packaging, labelled with manufacturer's name,<br/>address.</li></ul>  |

## PART 2 - PRODUCTS

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| <u>2.1 GENERAL</u> | <ul style="list-style-type: none"><li>.1 Provide CSA approved, packaged factory<br/>assembled unit consisting of cabinet, fan, fan<br/>motor, intake/exhaust assembly, heat<br/>exchanger, combustion chamber, burner,<br/>controls, air filter, condensate drain.</li><li>.2 Mid efficiency level range: 80%.</li><li>.3 Certification of components and construction<br/>of factory assembled oil-fired unit: to<br/>CAN/CSA B140.4.</li></ul> |
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- 2.2 CAPACITY .1 Output: 32,000 W sea level rating.
- .2 Air flow rate: 565 L/s standard air.
- .3 External static pressure: 75 Pa.
- .4 Input:
- .1 0.0012 L/s (oil).
- .5 Electrical characteristics: 120 V, single phase, 60 Hz.
- 2.3 TYPE .1 Upflow type with oil burner gas burner.
- 2.4 CABINET .1 1.0 mm thick minimum steel with baked enamel finish.
- .2 Welded steel base for floor type.
- .3 Easily removed and secured access doors for components requiring service.
- .4 Thermally insulated cabinet with 25 mm minimum insulation.
- 2.5 HEAT EXCHANGER .1 Primary: stainless steel tube with stainless steel fins.
- .2 Secondary: stainless steel tube with stainless steel fins.
- .3 Warranty: 10 years.
- 2.6 COMBUSTION CHAMBER .1 Power vent, forced draft: to manufacturers standard.
- 2.7 CIRCULATION BLOWER MOTOR ASSEMBLY .1 Blower: centrifugal type:
- .1 Statically and dynamically balanced.
- .2 Rubber mounted.
- .3 Speed adjustment: adjustable V-belt shieve.
- .2 Motor: 248 W motor, 1750 r/min. single speed, overload protection, adjustable mounts.
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2.8 AIR FILTERS .1 25 mm thick, glass fiber, disposable type 35% efficiency to ASHRAE 52.

2.9 HEATER BURNER .1 General: to bear CSA and ULC labels.  
.2 Oil burner:  
.1 High pressure atomizing type, certified to CAN/CSA B140.2.1.  
.2 Pressure atomizing oil burner nozzle, certified to CSA B140.2.2 and flame retention head.  
.3 Two stage fuel pump.

2.10 CONTROLS .1 General: conform to CSA C22.2 No.24.  
.2 Oil firing;  
.1 Operating controls: thermostat, fan operating control switch with continuous operating switch, solenoid oil delay valve, burner, draft control.  
.2 Safety controls; flame safeguard-cadmium sulphide sensor, fan high limit control switch.  
.3 Automatic flue-pipe damper: to CSA B140.14.

### PART 3 - EXECUTION

3.1 APPLICATION .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION .1 Install in accordance with manufacturer's instructions, regulations of authorities having jurisdiction and to CAN/CSA-B139 CAN/CSA-B149.1 CAN/CSA-B149.2 Canadian Electric Code.  
.2 Co-ordinate with Concrete Division regarding concrete bases as indicated.  
.3 Provide Departmental Representative written report of test results.  
.4 Bacharach smoke density number not to exceed #1.

- 3.3 CLEANING .1 Clean in accordance with Section 01 74 11 -  
Cleaning.  
.1 Remove surplus materials, excess  
materials, rubbish, tools and equipment.