

GUIDE SPECIFICATION

SRP mWAVE SERIES ELECTRIC INFRARED

SECTION 238333 – ELECTRIC RADIANT HEATERS

(Alternate – SECTION 238323 – RADIANT HEATING ELECTRIC PANELS)

This section is based on the products of Superior Radiant Products, located at:

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| • <u>Canadian Location:</u>
563 Barton St.
Stoney Creek, ON, Canada L8E 5S1 | • <u>United States Location:</u>
315 N Madison Street
Fortville, IN, USA 46040 |
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Email: sales@superiorradiant.com
Web: <http://www.superiorradiant.com>

Superior Radiant Products manufactures a full range of electric short, medium and long wave infrared space heating equipment.

1.0 PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electric Infrared Heaters.

1.2 RELATED SECTIONS

- A. Section 26 05 00 – Basic Electrical Materials and Methods: Power service and connections.

1.3 REFERENCES

- A. UL 2021, Standard for Fixed and Location-Dedicated Electric Room Heaters.
B. CSA C22.2 No. 46, Canadian Standard for Electric Air Heaters.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.

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- B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Rated capacities, operating characteristics, and accessories for each model electric radiant heater.
 2. Preparation instructions and recommendations.
 3. Storage and handling requirements and recommendations.
 4. Installation methods.
 5. Shop Drawings: Submit complete shop drawings indicating system components, control diagrams and load calculations.
 6. Field quality-control test reports.
 7. Installation, Operation and Service Data: Provide copy of Installation, Operation & Service document.
 8. Warranty: Provide a copy of manufacturer's warranty statement.

1.5 QUALITY ASSURANCE

- A. Assemblies: Assemblies shall be certified.
1. The heater shall be designed and manufactured for residential / commercial heating applications for indoor and outdoor use, according to the Standard for Fixed and Location-Dedicated Electric Room Heaters, UL 2021, and the Canadian Standard for Electric Air Heaters, CSA C22.2 No. 46.
- B. Approval shall include components of the complete heater, including elements, hangers, reflectors, and associated controls, and/or other accessories as noted in Contract Document plans and specifications.
- C. Code Compliance: Installations of units shall comply with local building codes, or in their absence, the latest edition of the national regulations and procedures listed below:
1. Electrical: Heaters shall be electrically grounded in accordance with the National Electric Code, ANSI/NFPA 70 in the US, and the Canadian Electric Code, CSA C22.1 in Canada, and shall comply with all local requirements.
- D. Manufacturer Qualifications: Successfully completed and passed the auditing requirements for ISO 9001-2015 Quality Management System (QMS).

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.

1.7 PROJECT CONDITIONS

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- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 WARRANTY

- A. Manufacturer's standard warranty agrees to provide parts to repair or replace components of electric radiant heater that fails in materials or workmanship within specified warranty period.

1. Warranty Period: 12 months warranty on all components.

2.0 PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Superior Radiant Products

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- Canadian Location:
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- United States Location:
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- B. Substitutions: Not permitted.

2.2 HIGH EFFICIENCY MEDIUM WAVE ELECTRIC RADIANT HEATERS

- A. Design and Performance:
1. Heaters shall be capable of operating on a variety of voltages including 120/208/240 VAC single phase, in wattages from 1500 W to 5000 W, as called for in the Contract Documents.
 2. Suitability: Heaters shall be designed and manufactured for residential and commercial heating applications, for both indoor and outdoor use. Enclosures shall carry an IP65 ingress protection rating.
 3. Control Options: Heaters shall be available in two control configurations as called for in the Contract Documents:
 - a. SMART models ("V" suffix): Integrated Wi-Fi control (2.4 GHz) with smartphone app operation, plus infrared handheld remote control.

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b. External control models.

4. Modulation: SMART models shall be capable of modulating operation across five power levels (L1 through L5), corresponding to approximately 33%, 50%, 66%, 80% and 100% of rated output. Modulation allows operation of the heater at reduced output when required to provide additional comfort and to extend element life.
5. Timer: SMART models shall include an integral auto-off timer adjustable from 0 to 9 hours.
6. External Control Models: External control models shall be capable of reduced-output operation when supplied with the manufacturer's factory-supplied cCSAus certified control. Where output adjustment is required, the control shall be furnished by the heater manufacturer and shall be as called for in the Contract Documents.
7. Mounting Flexibility: Heaters shall be capable of installation on a wall or ceiling using manufacturer supplied swivel installation brackets, or suspended from the ceiling using chains. Brackets shall permit mounting the heater in the desired direction at the desired angle: horizontal to 67.5 degrees for wall installation, horizontal to 45 degrees for ceiling installation, and horizontal to 30 degrees for chain suspended installation.
8. Serviceability: Connection components shall be located in an included junction box with cord grip approved with the heater assembly. The junction box shall be easily accessible to facilitate installation. Heating elements shall be field replaceable.
9. Minimum installation height from the floor to the heater shall be 8 ft (2438 mm). Clearances to combustibles shall be as stated in the manufacturer's Installation, Operation and Service instructions for the mounting configuration and angle specified.
10. Radiant Efficiency: Assembly shall have output radiant efficiency of minimum 90% when tested in accordance with the latest AHRI 1330 testing methods for radiant efficiency.
11. Certified for both US and Canadian applications.

B. Construction:

1. Electric Radiant Element: Shall be quartz infrared lamp type, carbon sock filament, providing medium wave radiant energy output. Heaters shall be provided in single lamp or two lamp configurations according to model. Elements shall be enclosed within the reflector housing with water-resistant wire connectors and shall be easily replaceable as an assembly.
2. Integral Reflector Design: The reflector shall feature a 12-sided configuration engineered to direct virtually 100% of the infrared energy outward and away from the heating element. The reflector shall utilize a deep-dish design, with the heating

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elements fully recessed within the reflector cavity. The reflector assembly shall be complete with enclosed end caps.

3. **Housing:** The heating elements, reflector assembly, and controls shall be fully integrated within a heavy-duty extruded housing. Heating elements shall be completely enclosed and recessed within the reflector assembly and shall include gasketed end-cap enclosures as standard. A protective wire guard shall be provided as a standard feature to ensure personnel safety and element protection.
4. **Junction Box:** Shall be included with the heater assembly and shall include a cord grip to facilitate incoming wire conductors. Heaters shall be suitable for connection to permanent fixed wiring.
5. **Connection Means:** Heaters shall be provided with grounding means as standard. Heaters must be grounded in accordance with applicable electrical codes.
6. **Mounting Hardware:** Two installation hooks and two swivel installation brackets with wing screws and wing nuts shall be provided as standard, permitting wall or ceiling installation at fixed angles. Installation brackets shall include holes at each end to accept chains for suspended installation.
7. **Finish:** Standard configuration shall be black; white shall be available where called for in the Contract Documents.

C. Products.

1. **Medium Wave Electric Infrared Heaters:** Residential/commercial electric infrared heater suitable for indoor and outdoor applications. Wattage shall be as called for in the Contract Documents within the range of 1500 W to 5000 W.
2. Product shall be Medium Wave electric Infrared Heater Model mWave manufactured by Superior Radiant Products.
 - a. Wattage shall be as called for in the Contract Documents within the range of 1500 W to 5000 W.
 - b. Length shall be as called for on the Contract Documents: 37.8 inches (960 mm) for single lamp SMART models and 66.5 inches (1690 mm) for two lamp SMART models; 33.7 inches (860 mm) for single lamp external control models and 62.2 inches (1580 mm) for two lamp mechanical models. Refer to drawing schedule and manufacturer instructions.
 - c. Recommended Range of Minimum Hanging Heights shall be as called for in the Contract Documents, and not less than 8 ft (2438 mm) above the floor.
 - d. All operating components shall be enclosed in the heater housing.

2.3 PART 3 EXECUTION

3.0 EXAMINATION

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- A. Do not begin installation until services and supports have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.1 INSTALLATION

- A. Installation shall comply with manufacturer supplied Installation, Operation and Service Instructions, approved drawings, and applicable local codes and/or electric utility requirements. In the absence of any of the former, reference should be made to local and national Installation Codes. Comply with manufacturer's recommendations including the following:
 - 1. Clearance to combustibles shall comply with those in the Installation, Operation and Service Instructions supplied by the manufacturer for the mounting configuration and angle specified.
 - 2. Wire heaters in accordance with the National Electrical Code ANSI/NFPA 70 and local ordinances and/or Canadian Electrical Code as applicable. Heaters shall be installed by a qualified person and connected by a certified electrician. Heaters must be grounded.
 - 3. Protect the heater with the appropriate circuit breakers or fuses, referring to the nameplate. Verify that the supply voltage corresponds to that shown on the nameplate.
 - 4. For suspended installations, hang heater units from the ceiling using two chains hooked into the holes at the ends of each installation bracket, with anchors rated to support the weight of the heater and to meet all seismic requirements for the specific building location.
 - 5. Install products in accordance with manufacturer's written Installation, Operation and Service instructions.
 - 6. Connections: Provide all electrical connections required for complete installation including installation of electrical devices furnished with heaters but not specified to be factory mounted.

3.2 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test and adjust components, assemblies, and equipment installations, including connections, and to assist in testing. Testing shall include the following:
 - 1. Test and adjust controls and safeties.
 - 2. Verify normal heater operation at all control settings.
 - 3. Test Reports: Prepare a written report to record the following:

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- a. Test procedures used.
 - b. Test results that comply with requirements.
 - c. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
- B. As required, remove, and replace malfunctioning units and retest until satisfactory results are obtained.

3.3 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain electric radiant heaters.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

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