STEFFES 2100 SERIES ROOM HEATING UNIT FEATURES

1. ***NORTH AMERICAN MADE:***
   Steffes, located in Dickinson, ND, is the only North American manufacturer of a family of Electric Thermal Storage (ETS) heating products, i.e., Room Units, Centrally Ducted Systems, Heat Pump Boosters, Hydronic Systems and Load Management Controls.

2. ***MULTI-FUNCTION MICROPROCESSOR:***
   - The microprocessor technology incorporated into the room heating units allows for customization to individual power company and end-user immediate needs as well as the possible adaptation to their future needs.
   - Allows for diagnostic testing of such things as brick core temperature, room temperature, outdoor temperature, and power line carrier operation from the digital display panel.
   - Built-in security lock out allows the power company to limit access to the units functions and programming.
   - User selectable control panel display options provide information to indicate unit operation.

3. ***DIGITAL ROOM TEMPERATURE THERMOSTAT:***
   A built-in digital thermostat monitors room temperature. When it is desired to monitor temperature at a location in the other than at the heater, a remote wall sensor is available.

4. ***CONTROL PANEL DIGITAL DISPLAY:***
   Various operating conditions can be set for digital display on the heater's control face plate such as current operating mode ("C" for charge or off-peak mode, "P" for peak control or on-peak mode, or "A" for anticipated peak or pre-peak mode) and current room temperature; current time; day of the week; current room temperature set point or current outdoor temperature.

5. ***MAXIMUM AND MINIMUM ROOM TEMPERATURE SET POINTS:***
   Controls both the minimum and maximum room temperature set points to which the heater's thermostat can be adjusted. This can be especially important in commercial installations such as hotels, motels, rental units, schools, churches, or other public facility applications.

6. ***ROOM TEMPERATURE DISPLAY CALIBRATION:***
   Allows for calibration of the room temperature displayed on the heater to owner preference.

7. ***ROOM TEMPERATURE SET BACK*:**
   If enabled, allows room temperature to set back automatically at specified times to maintain occupied/not occupied room temperature set points. The set back temperature can be individually set in each heater. (This feature does require a signaling device to initiate the set back.)

8. ***AUTOMATIC CHARGE CONTROL (ACC)*:**
   The amount of heat stored in the brick core is automatically regulated based on outdoor temperature and/or the heating requirements of the application from previous hours. ACC helps minimize over/under charging, especially during milder temperature conditions. The charging parameters can be individually set for each heater to the user's specific comfort needs. (This option is low cost or may be no cost depending on the method of installation.)

9. ***CHARGE CONTROL OVERRIDE:***
   Allows the user to manually initiate a full core charge level during an off-peak time regardless of any other charge control settings. An override only lasts for the duration of the current off-peak (charge) period or until the unit achieves its full (maximum) charge at which time it will then automatically reset, or it can be cancelled manually.

10. ***SOFT START CHARGE DELAY*:**
    Allows the elements to be staged on at the end of a peak control period or power interruption to minimize voltage fluctuations.

11. POWER LINE CARRIER COMMUNICATION (15-CHANNEL CAPABILITY):

A built-in Power Line Carrier Receiver allows for quick, wireless reception of information such as the on-peak and/or off-peak control signal, outdoor temperature information and room temperature set back, from the optional Steffes Power Line Carrier Transmitting device (transceiver) on one of 15 selectable frequency channels. (This can reduce the overall installation and equipment costs.)

12. VARIABLE SPEED DISCHARGE BLOWER:

Blower automatically adjusts to the speed needed to ensure constant comfort and optimum performance.

13. SELECTABLE DISCHARGE AIR TEMPERATURE:

Allows for minimum and maximum discharge air temperatures to be selected.

14. DEMAND BASED INPUT (kW) LOADING:

Minimum number of elements are energized during off-peak hours to achieve core charging requirements based on outdoor temperature and heating requirements of the home. This minimizes transformer overloading and reduces shoulder peaking situations at the start of off-peak periods.

15. COMFORT OVERRIDE (POWER COMPANY PERMITTING):

This feature is used to achieve room comfort in the area where the heater is located if the stored heat in the brick core has been depleted. It allows the heating elements to come on during a peak control period to deliver heat to the area but only if the room temperature falls a predetermined number of degrees below the set point and if the stored heat in the brick core has been depleted. (This feature works well in Time-of Use applications and can be enabled or disabled at the power company's discretion.)

16. FREEZE PROTECTION (POWER COMPANY PERMITTING):

This feature is used to maintain a minimum temperature in the area where the heater is located. It allows the heating elements to come on during a peak control period and deliver heat if the room temperature falls below a predetermined set point. (This feature works well in Time-of-Use applications and can be enabled or disabled at the power company's discretion.)

17. EASY TROUBLESHOOTING:

- On-board self-diagnostics with many codes for detecting operational errors.
- Computer (Windows 95 and 98 software) and Palm Pilot interfacing ability for monitoring unit operation, troubleshooting the system, and programming heaters to specific user/application settings.

18. OPTIONAL TIME CLOCK MODULE:

Enables the time of day function in the heater for providing peak and anticipated peak control and/or room temperature set back signals.

19. OPTIONAL CONTROLS AND ACCESSORIES:

Power line carrier transmitter and receiver devices (transceivers), relay panels, time clock module for peak control signaling purposes, low voltage wall thermostats, freeze protection thermostats, and remote communication devices.

20. VARIOUS INPUTS:

Five sizes of heaters are available with many element wattage choices in voltages of 120V, 208V, 240V, or 277V to meet various heating requirements and to allow optimum performance for each individual power company control strategy. All elements are incoloy sheathed, low watt density for long life.

21. WIRING:

- Each heater is equipped with a factory installed **3' flex conduit wiring harness/pigtail** to make field wiring easier. All internal line voltage wiring is done at the factory making field installations faster as well as ensuring all heater wiring meets safety code requirements. The heater can be installed with a single or multiple feed voltage circuit.
- Peak control of the heating elements can be done via **wireless** with a power line carrier signal, via **low voltage** wiring, or via **line voltage** wiring.

22. BUILT-IN SAFETY DEVICES:

- **Discharge air safety limit switch** monitors discharge air temperature and disconnects the discharge air system if maximum temperature is exceeded. This safety limit switch helps protect against the heating of objects which may obstruct the air discharge area.
- **Core charging limit switch** senses heat along the backside (wall side) of heater and disconnects the heating elements if limit temperature is exceeded.
- **Clearance violation high limit switch** (if installed) is located at the front of the painted top panel and extends across the length of the heater. This limit switch monitors the temperature at the top of the heater.
- **Heavy-duty wall mounting bracket** is used to securely mount the heater to the wall for stability and for the proper unit-to-wall clearance requirement.

23. PERFORMANCE FEATURES:

- Air is circulated through the brick core and over the heating elements allowing **immediate heat response** without having to heat the brick first.
- Heaters have a **low static discharge and skin temperature** in comparison to most other ETS brand systems due to using 1" thick microporous insulation panels and high quality blanket insulation. Super insulating of the heater ensures low surface temperature and minimizes static heating of the area.

24. CONSTRUCTION FEATURES:

- Outside cabinet is made of **heavy-duty steel** for great resistance to denting and high quality construction.
- By using insulation that contains no organic binders, start up odors are minimized. The insulation retains its integrity for years to come.
- **Durable discharge air grill** directs the warm discharge air upward and outward throughout the room.
- Hinged front panels to hold them in place and allow for easier installation.
- **Dual front panels** allow access to electrical and mechanical components for testing and servicing without disturbing the brick core.
- All **bricks** are manufactured at the Steffes factory. All bricks within the same heater series are of the **same size and configuration** and are packaged in four bricks per box.

25. CONTEMPORARY DESIGN:

- **Neutral colors on a MARTEX steel finish** ("leather" appearance) complement the clean cabinet design to fit any decor and to hide fingerprints, nicks, or marks.
- Specially formulated **high-grade urethane paint finish** is baked on to provide a highly scratch and stain resistant, easy to clean finish.

26. RECESSABLE:

Heater can be recessed into a wall or enclosed in a cabinet. Special cabinet clearances are required.

27. QUALITY CONTROL AND DIELECTRIC TESTING:

To ensure each room heater meets our high quality and performance standards, all units are tested prior to packaging and shipping. All full production room units are UL and cUL safety listed.

28. QUALITY PACKAGING:

Each heater is packaged in a box, protected with styrofoam, and secured to its own custom designed wooden pallet to help ensure the product arrives damage free.

29. FACTORY SUPPORT:

A toll free telephone number **1-888-STEFFES (783-3337)**, training, promotional literature, technical assistance, and sizing support is offered. Replacement parts are readily available for quick and prompt shipment. A newsletter is published 3-4 times per year with ETS news, technology updates, and service issues.

30. RESEARCH:

Steffes has their own ETS Research & Development experts who lead the industry in developing innovative, reliable, and quality products.

31. WARRANTY:

Five-year limited parts warranty, from date of installation, on all heater components. A product registration card and owner's manual is supplied with each heater.