

## Lee Engineering Company

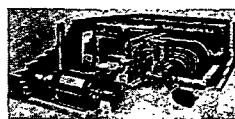
Union National Bank Bldg., Youngstown, Ohio

### LEE DIRECT WARM AIR HEATING

The Lee System of warm air heating generally costs less to install than steam or hot water; utilizes fuel with a high degree of efficiency; distributes the heat exactly where needed; responds promptly without lag; requires little or no maintenance; and needs no licensed attendant. Heaters for use with the Lee System are made in the four types illustrated and described briefly below.

#### BRICK-SET TUBULAR HEATER

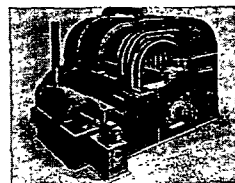
For use with central heating system in connection with duct distribution. Single heater capacities from 2,800,000 Btu per hour to 8,000,000 Btu per hour. Two heaters, installed as a battery serving as one unit, provide capacities over 10,000,000 Btu per hour.



Brick Set Tubular Heater

#### STEEL ENCASED TUBULAR HEATER

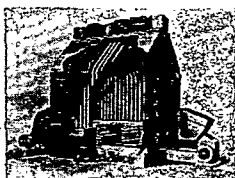
For use with central heating systems in connection with duct distribution over a capacity range of from 2,000,000 Btu per hour to 6,000,000 Btu per hour. Heater may be installed in heated area without enclosure, requires no foundation, and may be moved from one location to another by taking unit apart and reassembling.



Steel Encased Tubular Heater

#### TUBULAR UNIT HEATER

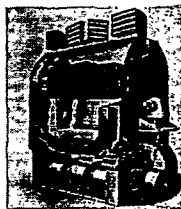
For use either as a central system in connection with duct distribution or with adjustable outlet nozzles as a unit heater. Capacity range from 2,000,000 Btu to 6,000,000 Btu per hour. In sizes up to 4,000,000 Btu heater is shipped as a completely assembled unit with all but mechanical equipment, refractory lining and controls in place. Heaters require no foundation and are equipped with crane hooks so that they may be moved from one location to another.



Tubular Unit Heater

#### SHELL UNIT HEATER

For use with or without distributing duct system. Heaters have capacity range of from 400,000 Btu to 2,000,000 Btu per hour. Available for either stoker or hand firing. All units are shipped completely assembled, wired and ready for operation. Stoker-fired units are shipped assembled with all parts in place except mechanical equipment, refractory lining and controls. Available in both hand and stoker fired models.



Shell Unit Heater

For further information write for Catalog HV-44.

## National Heater Co.

401 Essex Bldg., Minneapolis 2, Minn.

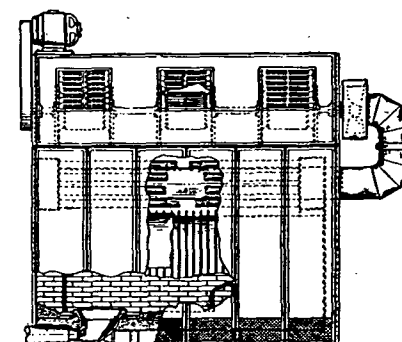
**NATIONAL  
CHAMPION**

### STEEL S-P-A-C-E HEATERS

#### OIL-GAS-STOKER HAND FIRED UNITS

As shown in diagram these heaters are built as a complete unit consisting of heater, casing, firing equipment, multiple blower assembly, motor, drive, induced draft blower and controls. NATIONAL HEATERS are constructed of welded copper bearing hot rolled one quarter inch boiler plate steel instead of the usual lighter ten gauge plate. This provides positive assurance of life-long gas and smoke tight operation with ample provision for absorbing all strains resulting from expansion and contraction.

The body of the heat generator is long and narrow in design, allowing complete fuel consumption with properly spaced radiating fins to facilitate maximum heat transmission from this primary heating surface.



640,000 to 4,000,000 Btu's

Casings are sturdy with insulated double metal walls to reduce wasteful radiation to a minimum. Panel type construction with rigid angle iron frames and structural iron reinforcement at both top and bottom assures a strong durable installation. Casings are designed for quick and convenient assembly.

#### ENGINEERING RATING CHART

| HEATER<br>NUMBER | B.T.U.<br>OUTPUT<br>CAPACITY | I.P.<br>C.F.M.<br>MAX. | GRATE<br>AREA<br>SQ. FT. | SQ. FT.<br>HEATING<br>SURFACE | VOLUME<br>CU. FT.<br>INSIDE<br>HEATER | BLOWER<br>MAXIMUM | BLOWER<br>MOTOR |      | TUBES |      | APPROXIMATE<br>WEIGHT<br>LESS<br>STOKER |
|------------------|------------------------------|------------------------|--------------------------|-------------------------------|---------------------------------------|-------------------|-----------------|------|-------|------|-----------------------------------------|
|                  |                              |                        |                          |                               |                                       |                   | H.P.<br>MAX.    | RPM. | NO.   | DIA. |                                         |
| 300              | 640,000                      | 8,200                  | 8.5                      | 320                           | 75                                    | 18" TWIN          | 3               | 1750 | 2     | 6"   | 8,850                                   |
| 350              | 860,000                      | 11,000                 | 8.0                      | 430                           | 100                                   | 18" TWIN          | 5               | 1750 | 2     | 6"   | 14,420                                  |
| 500              | 1,215,000                    | 18,550                 | 12.0                     | 600                           | 130                                   | 21" TWIN          | 7.5             | 1750 | 10    | 4"   | 15,860                                  |
| 550              | 2,000,000                    | 32,000                 | 14.7                     | 644                           | 175                                   | 21" TRIPLE        | 10              | 1750 | 12    | 4"   | 18,610                                  |
| 600              | 2,500,000                    | 45,000                 | 16.0                     | 1421                          | 315                                   | 27" TRIPLE        | 15              | 1750 | 16    | 4"   | 20,550                                  |
| 650              | 3,000,000                    | 52,000                 | 20.0                     | 1685                          | 375                                   | 30" TRIPLE        | 20              | 1750 | 16    | 4"   | 24,090                                  |
| 700              | 3,500,000                    | 56,000                 | 24.0                     | 1810                          | 450                                   | 30" TRIPLE        | 25              | 1750 | 18    | 4"   | 25,340                                  |
| 750              | 4,000,000                    | 60,000                 | 26.00                    | 1935                          | 450                                   | 30" TRIPLE        | 30              | 1750 | 20    | 4"   | 28,470                                  |