incandescently indicating temperatures of 650-1010 degrees C. (1200-1850 degrees F.) within the tunnel. All unburned gases, tars and solids must pass through this tunnel. The geometry and location of the refractory tunnel provide the proper residence time to assure complete combustion of all the volatile components associated with the pyrolysis reaction.

1.4.5 Heat Storage

Conventional solid fuel heating devices tie the combustion process directly to the heat load of the house. This is done by regulating the air supply to the fire much like using the choke to regulate the speed of an automobile.

Heat storage eliminates the problem of controlling combustion to match the varying heating load of a home. The Jetstream concept of capturing the heat energy of combustion in insulated heat storage offers three important advantages:

1. Thermal efficiencies of 75% - 84% are realized throughout the entire length of the firing period.

2. Precise amounts of heat are delivered to the house only when required. Overheating is eliminated.

3. By carefully sizing heat storage to the anticipated heat load , convenient intervals between firings can be expected.

$$\text{Minimum interval between firing} = \frac{\text{Useful capacity of Storage (BTU)}}{\text{House Heat Load (BTU/Hr.)}}$$

The useful capacity of storage is the amount of heat that can be stored in the heat storage tank. For example, if the Jetstream heats a tank to 195 F. and if useful heat can be supplied to the house down to a temperature of 120 F. in the tank, then 75 BTU can be stored for each pound of water in the storage tank. A 10,000 pound tank (1250 U.S. gallons or 1000 Imperial gallons) could then store 750,000 BTU. In a home that is using 20,000 BTU per hour, this stored heat would last for approximately: $\frac{750{,}000 \text{ BTU}}{20{,}000 \text{ BTU/Hr}}$ or 37.5 hours.

Note: Calculations will vary depending upon the use of a domestic coil, thermal efficiencies of the tank and pipes, as well as the accuracy of the heat loss of the house on which calculations are based.,