**Solar Heating Piping Schematic Diagram**

**Legend**
- **1** Solenoid Valve - Contractor Furnished & Installed
- **2** 3-way Solenoid Valve - Contractor Furnished & Installed
- **3** Check Valve - Contractor Furnished & Installed
- **4** Union - Contractor Furnished & Installed
- **5** Water Pump - Contractor Furnished & Installed
- **6** Hot Water Supply
- **7** Drain Line - Contractor Furnished & Installed
- **8** Heat Exchanger Collector, Or Radiator - See Schematic Diagram for Disposition of Equipment
- **9** Temperature Measurements - NASA furnished, Contractor Installed
- **10** Water Flow Measurements - NASA furnished, Contractor Installed
- **11** Air Return
- **12** Hot Water Return
- **13** Solar Collector Supply
- **14** Solar Collector Return
- **15** Heat Pump Supply
- **16** Heat Pump Return
- **17** Balancing Valve
- **18** Pressure Relief Valve

**Specifications**
- **Pipe & Fittings**
  - Hot Water Supply & Return, Solar Collector, and Heat Pump piping shall be copper tubing, unless noted otherwise. Piping running underground shall be Type K hard temper copper. Valves, fittings, and piping shall be of appropriate size and material to withstand the pressures and temperatures involved.
  - Backflow preventers shall be installed as required.
  - All valves shall be 3/4" or larger, depending on the flow rate.

**Equipment Insulation**
- Solar domestic hot water tank shall be insulated with 1-1/2" thick, 4-lb density fiberglass insulation. Insulation shall be out-of-place as necessary to fit the shape and contours of the equipment and shall be installed on leveled or glued floor. The insulation shall be faced with 0.025" canvas or glass cloth and pipe shall be capped.

**Typical Pump Piping Diagram**

**Notes**
- Supply to Pump
- Return
- Top of Tank
- Bottom of Tank

**Approvals**
- Forrest Cole & Associates, Architects/Engineers, Newport News, VA

**Details & Diagams**
- National Association of Home Builders
- Approved: 1/28/68
- Revised: 4/5/69

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**Sheet LD-1503 for Temperature Control Well (Cyclone)**

**Storage Tank**
- 3 temperatures in tank
  - 75°F
  - 85°F
  - 95°F

**Well RETURN**

**Well SUPPLY**