

## **0802HAN\*\*\* (HP80) Residential Space Heating Sizing Guidelines**

It is the responsibility of the installing contractor to ensure the system is sized for the heat loss of the building.

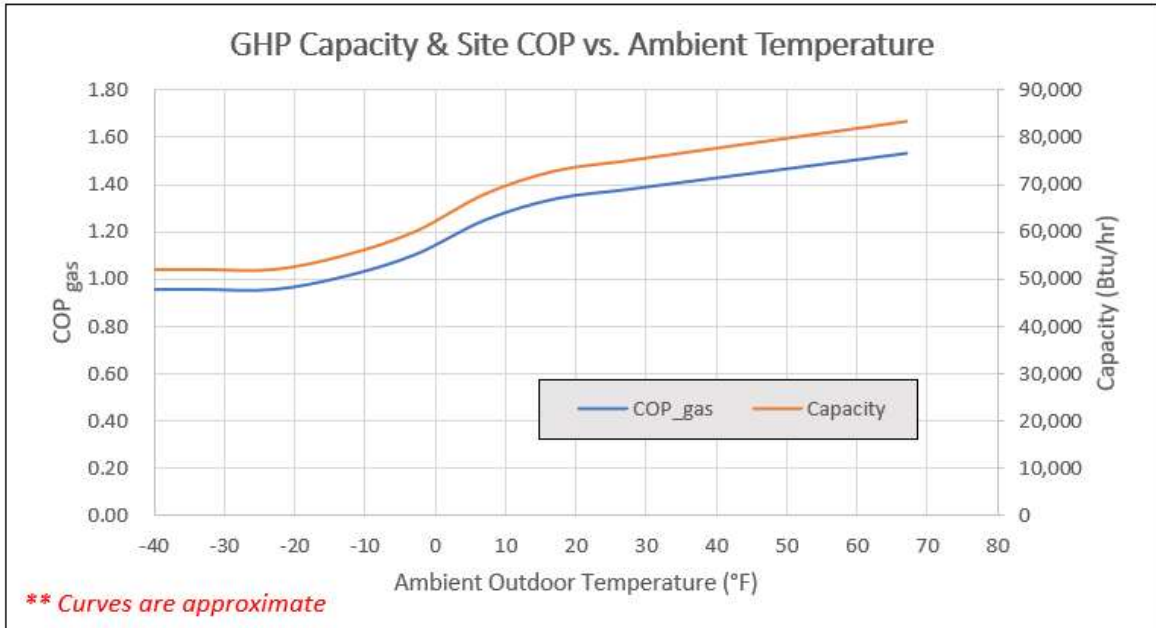
When sizing the Anesi Gas-Fired Absorption Heat Pump (GHP) the system shall be designed to meet the design heating degree-day requirements for the region where the unit(s) will be installed. Failure to do so may result in poor heating performance and inability to achieve the desired setpoint in cold weather.

Anesi recommends performing a building heat loss calculation as the determinant of the heating degree-day heat loss. The following steps should be followed:

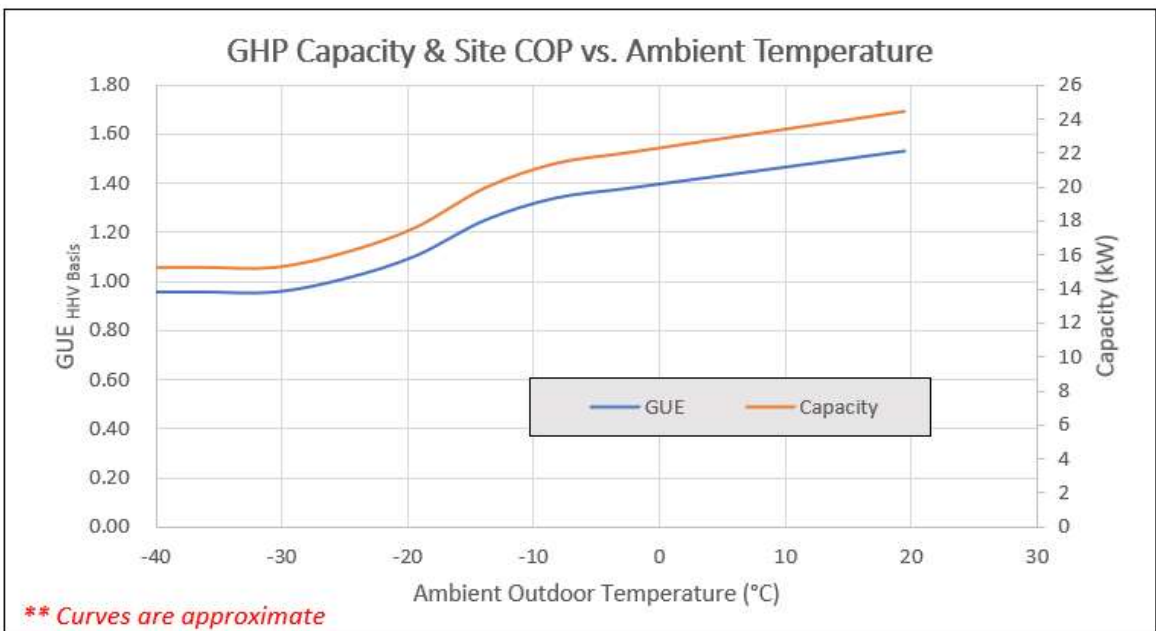
1. Perform a heat loss calculation using one of the following methods as required by your local Authority Having Jurisdiction (AHJ)
  - a. ASHRAE 2021 "Handbook – Fundamentals", Climatic Design Conditions data
  - b. ACCA Manual J, 8<sup>th</sup> edition, V 2.50
  - c. CSA F280-12, R2021 Update 3 – "Determining the Required Capacity of Residential Space Heating and Cooling Appliances"
  
2. Match equipment size to the calculated building heat loss.
  - a. The HP80 baseline output is 51,500 BTU/hr (15 kW) as outdoor ambient approaches [-20°F (-28°C)] **See figure 1 & 2**
    - i. The HP80 high-fire peak output is 78,000 BTU/hr (23 kW) at 47°F (8°C) standard rating conditions.
    - ii. The HP80 high-fire peak output is 73,000 BTU/hr (21 kW) at 17°F (-8°C) standard rating conditions.
  - b. As the outdoor ambient air temperature rises, the GHP reduces firing rate to match building heat loss.
    - i. The HP80 low-fire output is 19,500 BTU/hr (6 kW) at 47°F (8°C) standard rating conditions.
    - ii. The HP80 low-fire output is 18,250 BTU/hr (5 kW) at 17°F (-8°C) standard rating conditions.
  - c. The GHP modulates burner input at a 4:1 turndown and water temperature on an ambient outdoor reset curve. This ensures heat energy is produced at a rate that will match building heat loss at varying outdoor ambient temperatures.

**0802HAN\*\*\* (HP80) Residential Space Heating Sizing Guidelines**

Technical Bulletin TB240208BDE



**Figure 1: GHP Capacity vs. Ambient (Imperial Units)**



**Figure 2: GHP Capacity vs. Ambient (Metric Units)**



Technical Bulletin TB240208BDE

## **0802HAN\*\*\* (HP80) Residential Space Heating Sizing Guidelines**

### Forced Air Heating Applications:

The HP80 is intended to be used with a two-stage heating thermostat when combined with the Anesi AHU1400 hydronic air handler.

The AHU1400 has a heating capacity of 65,000 BTU/hr (19kW) at 130°F (54°C) supply water temperature and 68°F (20°C) indoor air. Higher output capacity is achieved up to 78,000 BTU/hr (23kW) as water temperature is increased via the outdoor reset curve at the GHP.

The AHU1400 can deliver up to 1400 CFM (40 m<sup>3</sup>/min) of airflow.

### Hydronic Applications:

Most hydronic heating applications are well suited to the Anesi Gas-Fired Absorption Heat Pump. If using the HP80 in a hydronic application that does not include use of the AHU1400, contact Anesi Technical Support [techsupport@anesicomfort.com](mailto:techsupport@anesicomfort.com) for design assistance. Further evaluation, including system emitter type and performance data, may be required.

**Heat loss calculations are required by code, regardless of the system type. Design support will be refused without a heat loss calculation.**