To whom it may concern,

As the owner of QHTinc, distributor of Biasi and Ste. Roch boilers I wish to answer your questions as follows:

- 1. Air to Water Heat Pumps
- 2. International definition is Air to Water Heat Pumps ATW
- 3. No
- 4. Heat exchangers for space heating Heat pumps need to be Certified and supplied with high limit and PRV
 - a. Two stage heating systems are referred to as "Hybrid" when burner, etc. is activated for backup heat.
- 5. Refer to the European Hybrid systems which incorporate Condensing boilers to backup ATW heat pumps.
- 6. Need info on COP's at -10F, 25F, 55F
- ATW is connected to boiler via a buffer tank as glycol needs To be used in New England. Stage II would be engaged if Room temp falls 3 degrees from setpoint.
- 8. ATWHP, heating only, would supply heat indirectly to DHW Tank. I am not familiar with test.
- 9. ATWHP can supply heating and cooling and can be shifted Using controls and T-stats
- 10. I don't know.
- 11. Inverter driven compressors which can be turned down
- 12. I don't know.
- 13. Building need to be equipped with panel radiators or heat convectors which can heat to provide for design conditions
- 14. The building needs to be weatherized and equipped with Low temp heat emitters.
- 15. It would be useful to separate the heating emitters from cooling emitters.
- 16. Trade costs range from \$10,000 to \$15,000. ATWHP are Much more expensive than furnaces and boilers.
- 17. The energy star guide should keep listing and labeling furnaces/boilers along with ATWHP should include a column listing the annual carbon emissions for both from the source to the tank or panel

Please don't hesitate to call if you have any questions. Sincerely

QHTinc Owner James Quincy 603-498-0009