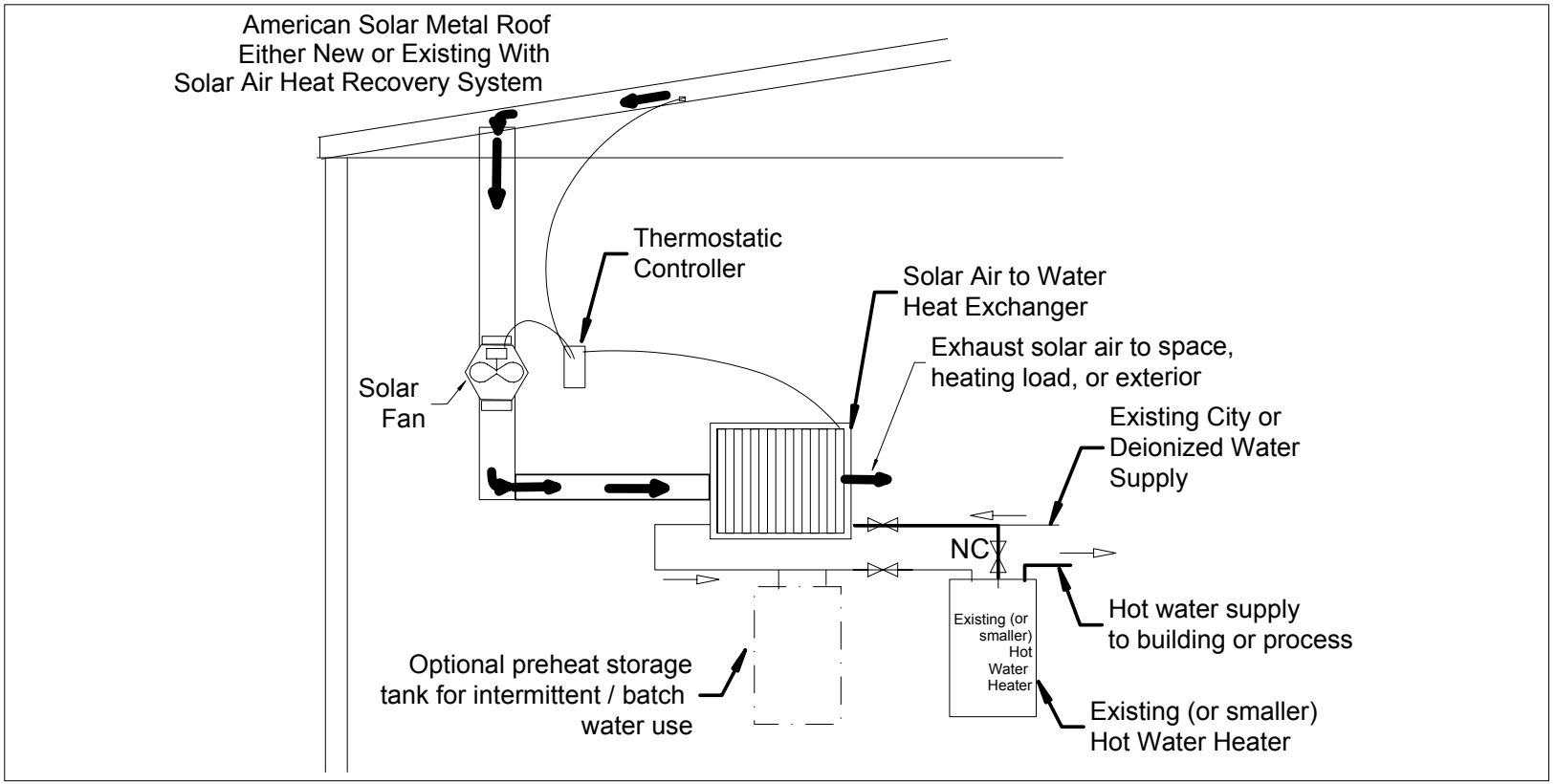

Operation:
For a process with a continuous hot water demand:
When hot water (~110-120 deg F) is drawn from the existing hot water heater, it is replaced by solar pre-heated water (~90-105 deg F) from the air to water heat exchanger coil.
Colder city water (~50-70 deg F) is drawn into the air to water heat exchanger.
When the pre-heat thermostat senses the solar roof air is hotter than the incoming city water, the solar fan is activated.
The solar fan draws solar heated air from the solar roof system.
Solar heated air is sent through the air to water heat exchanger,
heating the water to about 75% of the required delivery temperature.
The existing steam fed hot water heater, only operates to heat the water the final few degrees to the set point required for the process (~110-160 deg F), reducing steam use (and gas use at the boiler) for water heating.
The solar air to water heat exchanger can be bypassed and the existing steam hot water heater will heat city water from the delivery temperature to the final process temperature.
Exhaust air from the solar air to water heat exchanger can be used to help heat the building air in winter, and exhausted to the atmosphere in summer.
For applications with an intermittent draw of water, storage may be required, and a pre-heat storage tank is used after the air to water heat exchanger.

TITLE **Solar Water Heating Schematic**
Solar Metal Roof and Air to Water Coil
DWG NO
SCALE Not to scale
DATE June 2008
REV
SHEET

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