WATER HEATERS SINCE 1920

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NX SERIES COMMERCIAL CONDENSING GAS WATER HEATING SYSTEM
MULTIPLE WATER HEATER
SEQUENCE OF OPERATION

The Hubbell NX is a heavy-duty, fully condensing commercial gas water heater coupled with a long lasting cement lined Hubbell storage tank. Up to eight (8) water heaters can be piped in common with the NX controller having the internal capability to stage or Lead-Lag the heaters configured in a cascade. This Lead-Lag capability allows a designated "Master" water heater to communicate with and effectively control each water heater in a multiple water heater system. This function is accomplished by "Daisy Chaining" a 3-wire cable between each of the water heaters and enabling the Master parameter in the water heater of your choice. The water heater with the Master parameter enabled becomes the single point of contact for settings and control wiring. The following is a brief explanation of the sequence for this mode of operation. For a detailed explanation of controller set-up please refer to the operation manual provided with each heater.

1. Power at each water heater is on and they have been installed and configured for a multiple water heater application per the Installation and Operation Instructions.

2. Domestic Hot Water, (DHW) demand is detected by the Master controller (field selectable but only one heater in the series can be set as master) via a storage tank mounted temperature instrument.

3. The master controller selects the heater to run based on pre-programed and field selectable parameters such as run time, last run etc. When DHW demand is detected the hot water heater control system shall:

    a. Start the circulator pump for the selected heater. Flow through the water heater shall be confirmed via flow switch.

    b. A water heater system Safe Start Check shall be performed and the blower fan started.

    c. The water heater shall perform a pre-purge sequence.

    d. The ignition and gas valve are commanded on and a sequenced combustion shall begin.

    e. Controllers shall provide verification of flame. (The control system has a built in ignition retry, allowing the system to try three times before locking out.)

f. Once system is in run (A slow start can be present prior to Run depending on the setting for the DHW Low Start Enable parameter.) The firing rate will modulate based on heat load requirement.

4. The control system shall monitor for continued DHW request, and if additional heaters are required on line. If the need exists, an additional water heater is brought on per step 3 above, repeating the process until the current heat load requirements are met. (Controllers can be configured such that an inter-stage delay of cascading water heaters can be set to a minimum of 5 seconds.)

5. If the DWH load can be satisfied with fewer than the number of heaters online then one heater will be cycled off per step 7 below, until required DHW demand requirements are satisfied.

6. If the DWH demand from the storage tank temperature is satisfied, then all water heaters shall cycle off per step 7.

7. Upon the completion of an individual water heaters request for heat;

   a. The burner is switched off.
   b. The blower remains on until completing a post purge sequence.
   c. Any new heat request for the individual water heater is blocked for the time set by the anti-short cycle time.
   d. The circulator remains on during the pump overrun time.
   e. At the end of the pump overrun time the pump is switched off.