CASE STUDY

INDUSTRY: **HEALTHCARE**

CUSTOMER: NHC HealthCare, Bristol

LOCATION: Bristol, VA

BACKGROUND:

National HealthCare Corporation (NHC) has been providing the best in senior care for 51 years. NHC currently operates 75 skilled nursing centers, 24 assisted living communities, a behavioral health hospital, five retirement communities, 34 homecare agencies, and 28 hospice agencies.

NHC is recognized nationwide as an innovative provider of quality senior care. Dr. Carl Adams founded NHC in 1971 with a vision of providing quality healthcare services to seniors. He envisioned a campus concept that would offer in-house services for senior residents based on their unique needs, much like the continuing care retirement community of today.

As with all senior living communities, proper hot water temperature control is extremely critical to the safety of residents and patients at NHC.

SAFETY STANDARDS:

The **American Society of Sanitary Engineering (ASSE)** states that most adults will suffer third-degree burns if exposed to 150°F water for just two seconds. Third-degree burns are also possible after six seconds of exposure to 140°F water, or after thirty seconds of exposure to 130°F water. Even if water temperature is lowered to 120°F, a five-minute exposure can still result in third-degree burns.

The thermostatic mixing valve installed at NHC Bristol was not controlling the hot water temperature within the required building standards per the **Virginia Department of Social Services Standards for Licensed Assisted Living Facilities**. Regulation **22VAC40-73-860** states:

> *"Hot water at taps available to residents shall be maintained within a range of 105 deg F to 120 deg F."*

WHY ARMSTRONG?

Only Armstrong's Digital Recirculation Valve (DRV) - The Brain® - can offer the reliable and accurate temperature control that NHC requires.

NHC turned to Armstrong based on Armstrong's global expertise in domestic hot water system solutions. Armstrong provides leading-edge technology that is capable of meeting the NHC's demands for performance, efficiency, safety, and compliance with state regulations for their hot water system.

THE BRAIN©:

DRV25

DRV40

DRV80

SCOPE:

Armstrong offers a range of digital recirculation valves (DRV) designed specifically to be the primary water temperature controller in continuously pumped, recirculating hot water systems that are found in assisted living facilities.

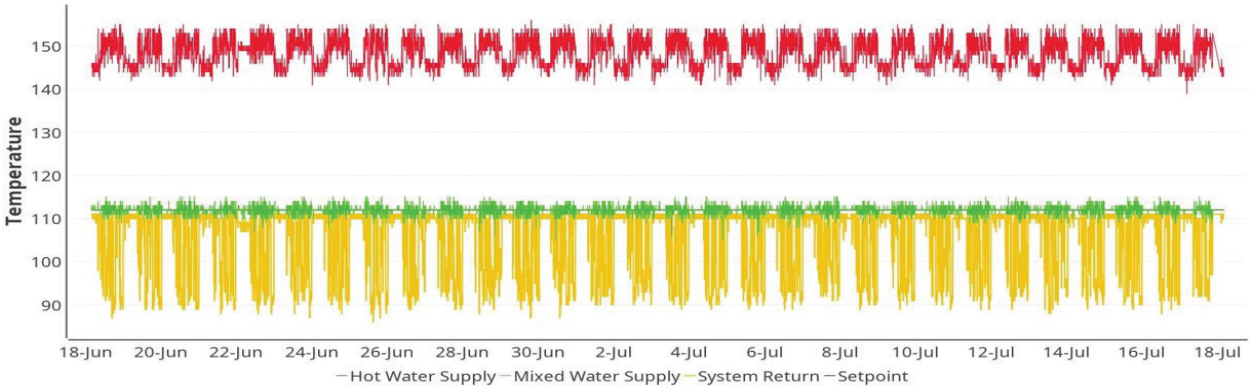
The Brain® features digital technology that provides enhanced water temperature control accuracy and resists “temperature creep” during periods of zero-system demand - without the use of a manual throttling valve or a temperature-activated pump shut-off device (aquastat).

The Brain® DRV features:

- **Accuracy**: The DRV has the ability to accurately control hot water temperatures within +/- 2°F of the programmed set point temperature, under peak, moderate, and zero-fixture demand.
- **Safety**: Four integral thermistors within the DRV continuously measure the cold and hot water inlets, mixed water outlet, and over-temp safety temperatures.
- **Communication**: The DRV features an LCD display that shows the programmed set point temperature, delivered water temperature, error codes and alarm conditions. The DRV can be connected to a building automation system (BAS) for continuous monitoring.
- **Certification**: The Brain® is certified by the American Society of Sanitary Engineering (ASSE-1017) *Performance Requirements for Temperature Actuated Mixing Valves for Hot Water Distribution Systems*.
- **Hot Water System Reports**: In conjunction with The Brain®, Armstrong offers SAGE® - performance software that can keep building directors fully informed, 24 hours a day. SAGE® provides real-time alerts to instantly notify the facility of any problems that arise. SAGE® also generates regular updates, precise documentation, and custom-filtered reports of the hot water system’s performance.

SIGNIFICANT RESULTS: The Brain® ensures that Resident rooms at NHC are receiving hot water at a safe, consistent, and comfortable temperature of 112°F. The Brain® also ensures that NHC stays in compliance with rules set forth by the Virginia Department of Social Services, which mandates that in nursing homes, domestic hot water temperatures must range between 105-120°F.

NHC HealthCare, Bristol Hot Water System Performance Record Utilizing the Armstrong Digital Recirculation Valve (DRV)



Green Line shows **mixed water supply to Resident rooms** - Set Point: 112°F; Temperature Range: 110°F to 114°F
Red Line shows **hot water supply from the water heater** - Temperature Range: 139°F to 156°F
Yellow Line shows **recirculation return from Resident rooms** - Temperature Range: 86°F to 113°F