HPWH

FAQ

Product Overview

What is the HPWH Series?

The HPWH Series are **cold-climate heat pump water heaters** that generate domestic hot water using ambient air instead of fossil fuels. They deliver reliable, all-electric water heating with high efficiency and zero direct emissions.

How does the system work?

Each unit captures thermal energy from the outdoor air and transfers it into the building's water system using a refrigerant-based heat-pump cycle. This process requires far less electrical input than electric resistance heating and eliminates combustion.

What applications are best suited for HPWH systems?

HPWH units are designed for large buildings such as multifamily residences, hotels, hospitals, schools, and commercial properties that require centralized, energy-efficient domestic hot-water production year-round.

Design and Installation

What configurations are available?

Four primary models are offered:

- **ccHPWH275-D** (2 refrigerant circuits, double-wall BPX heat exchangers)
- **ccHPWH550-D** (4 refrigerant circuits, double-wall BPX)
- **ccHPWH275-S** (2 circuits, single-wall BPX for glycol applications)
- **ccHPWH550-S** (4 circuits, single-wall BPX)

What are the installation dimensions and connections?

- ccHPWH275:
  81"L × 39" W × 89" H, 2" (DN50) piping
- ccHPWH550:
  95" L × 51" W × 89" H, 3"(DN80) piping

All units have rear-facing connections for simple mechanical integration.

How is freeze protection handled?

Every unit includes built-in freeze protection and can optionally be equipped with a **heat-trace system** powered by emergency circuits for cold-weather resilience.

What maintenance features are provided?

Standard **clean-out ports** allow removal of sediment and lime deposits without disassembly, simplifying routine maintenance.

Performance and Efficiency

How efficient is the HPWH Series?

The system achieves up to **4.5 COP at 68 °F** ambient and maintains a **COP of ≈ 2.2 at 10 °F**, offering roughly four times the efficiency of electric resistance heaters and significant savings over gas boilers.

What is the heating capacity range?

The HPWH Series is available in two main capacities — the 275 and 550 models — each offered in single- or double-wall heat-exchanger versions.

At 68 °F ambient, the ccHPWH275 delivers approximately 336,000 BTU/h, while the larger ccHPWH550 produces about 673,000 BTU/h.

When outdoor conditions drop to 45 °F, those capacities are around 272,000 BTU/h and 543,000 BTU/h, respectively.

Even at a frigid 10 °F, the units still generate roughly 176,000 BTU/h (275 model) and 352,000 BTU/h (550 model).

This wide operating range allows each model to maintain reliable domestic-hot-water production throughout the year, even in very cold climates.

What is the maximum water temperature?

Each unit delivers domestic hot water up to 140 °F, suitable for most commercial and institutional applications.

How low can HPWH operate in cold weather?

Operation is certified down to –13 °F ambient, ensuring hot-water availability even during extreme cold conditions.

What refrigerant is used?

All models use **R454B**, a low-GWP refrigerant that balances efficiency and environmental responsibility.

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Controls and Operation

How is operation controlled?

Units feature on-board microprocessor controls with digital interface for temperature, alarm, and status monitoring. Multiple units can be staged for load management and redundancy.

How does the system maintain reliability?

Each HPWH uses **multiple independent refrigerant circuits** so that if one circuit is offline, others continue providing hot water. This built-in redundancy ensures continuous operation.

Can the system integrate with building management controls?

Yes. HPWH units support standard control interfaces for integration with central BMS and monitoring platforms.

Sustainability and Compliance

How does HPWH support decarbonization goals?

By eliminating fossil fuel combustion for domestic hot water, HPWH systems reduce on-site CO_2 emissions and support full-building electrification strategies.

Is the HPWH Series NEEP-listed?

Yes. It complies with **NEEP Cold Climate Air Source Heat Pump (ccASHP)** efficiency requirements and appears in the NEEP product directory for cold-climate heat pumps.

What building codes and standards does it help address?

The series supports compliance with energy codes and environmental mandates such as **NYC Local Law 97** and assists projects seeking **LEED®** or other green-building certifications.

Are rebates and incentives available?

State, federal, and utility programs offer rebates and tax credits for heat-pump water-heater projects. Eligibility varies by region. Details are available at ice-air.com/rebates.

Technical Details

What are the electrical requirements?

All models operate on **208–230 V, 3-phase, 60 Hz** power. Approximate ratings include:

- **Input Power:** 23–46 kW (depending on model and load conditions)
- **Full Load Amperage:** ≈ 105 A (single module) / ≈ 211 A (dual module)
- **MCA / MOCP:** 126 A / 150 A (single); 252 A / 300 A (dual)

What are the hydronic connections and flow rates?

- **Rated Flow:** 78 GPM (single) / 145 GPM (dual)
- **Pressure Loss:** ≈ 24 PSIG
- **Water Connections:** Rear, 2" or 3" as specified

How quiet are the units?

Sound levels are ≤ **73 – 75 dBA**, comparable to typical mechanical-room equipment.

What is the unit weight?

Approximate net weight is **1,550 lb for 275 models** and **2,950 lb for 550 models.**

Integration and Compatibility

Can HPWH be combined with other Ice Air equipment?

Yes. HPWH units are part of Ice Air's Electrified Product Family, which includes iCool XC, RSXC, SPXC, and VSHPGE systems to deliver fully electrified HVAC and hot-water solutions across building types.

Can HPWH be used in hybrid plant configurations?

They can be integrated with storage tanks or backup boilers to optimize peak load management and provide redundant hot-water supply for mission-critical applications.

Warranty and Support

What is the warranty coverage?

Each unit includes a limited manufacturer warranty covering components and compressors. Extended service plans are available for commercial projects.

Are training and education resources available?

Ice Air offers continuing-education webinars and CEU courses covering heat-pump water-heater design and building electrification topics at iceairceu.com.