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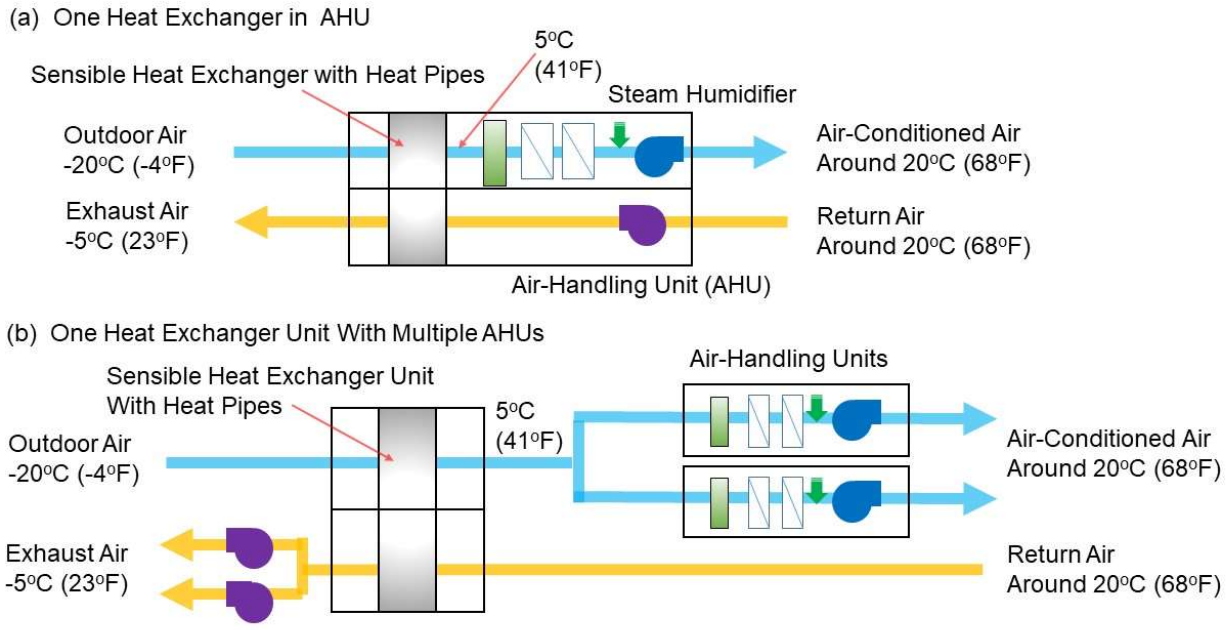
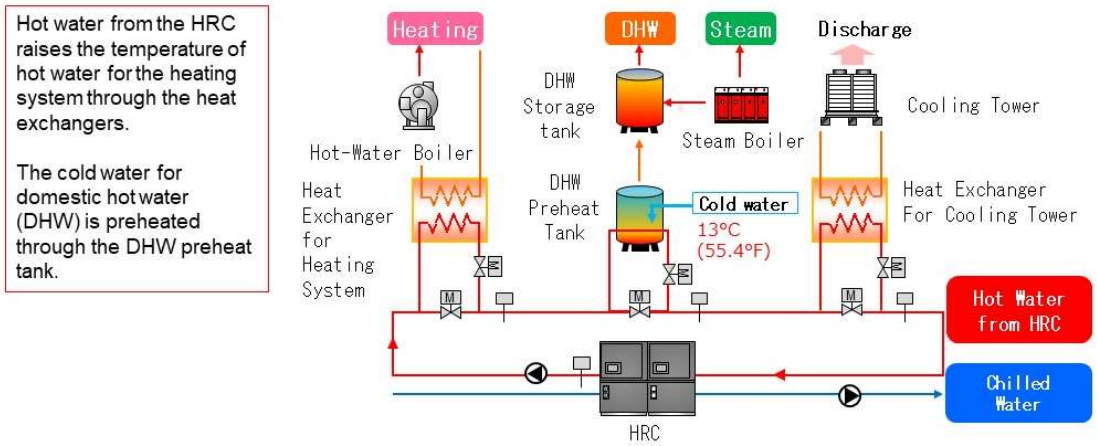
Award of Engineering Excellence: Advanced Energy Design for Obihiro Hospital

By Hiroki Yokoyama, C.Eng., Member ASHRAE

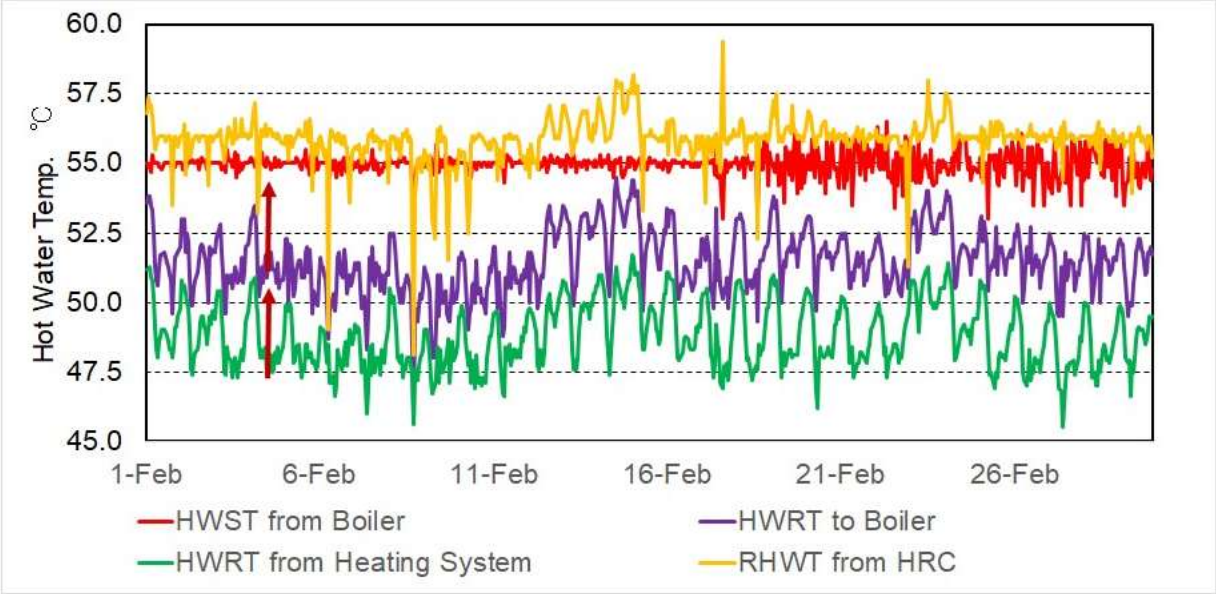
Online Figure 1. Two methods to use a sensible heat exchanger.



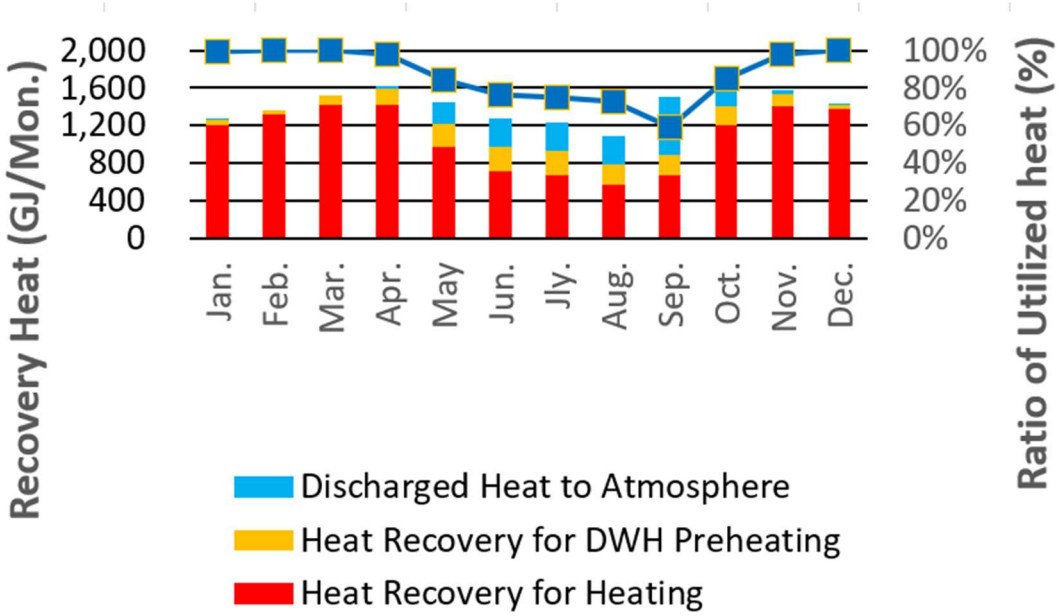
Online Figure 2. Innovated heat source diagram around the heat recovery chiller (HRC).



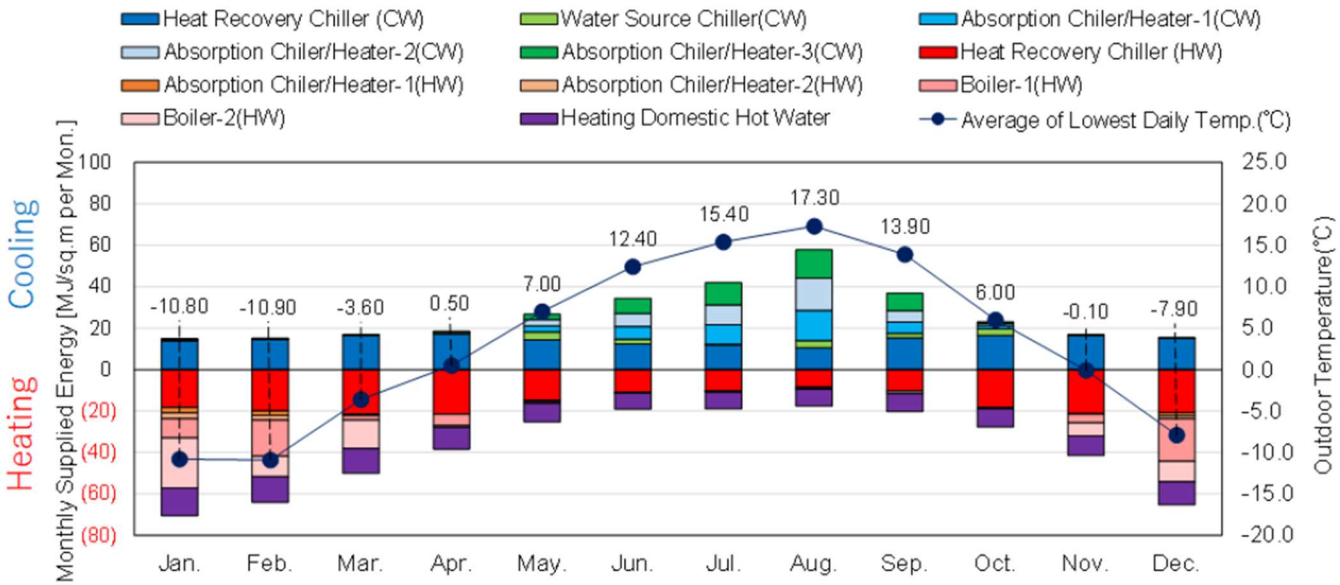
Online Figure 3. Hot water temperature behavior in February 2020.



Online Figure 4. Utilization of recovered heat in 2020.



Online Figure 5. Monthly cooling and heating energy supply.



Online Table 1. Specification of air-handling units.

Name of air-conditioning zone	(a) One Heat Exchanger in AHU	(b) One Heat Excahnger with mulitiple AHUs	Demand Control Ventilation (DCV)	The number of CAVs for DCV
Entrance Hall		✓		
Radiological inspection	✓		✓	8 zones
Outpatient Support Center			✓	6 zones
Emergency Outpatient			✓	2 zones
Outpatient Department		✓	✓	7 zones
Outpatient Department		✓	✓	7 zones
Laboratory and genetic testing			✓	4 zones
Pharmacy			✓	7 zones
Dialysis and chemotherapy			✓	3 zones
Pathological Laboratories			✓	5 zones
Central Sterile Processing			✓	3 zones
ICU	✓			
Meeting Rooms and Liblary			✓	8 zones
Administration			✓	3 zones
4-5F Inpatient Rooms		✓		
NICU		✓		
Inpatient Bedrooms North Tower	✓			
Inpatient Bedrooms North Tower	✓			
Others	None	None	None	
Air flow Rate of heat exchanger and DCV	36.7%		38.9%	