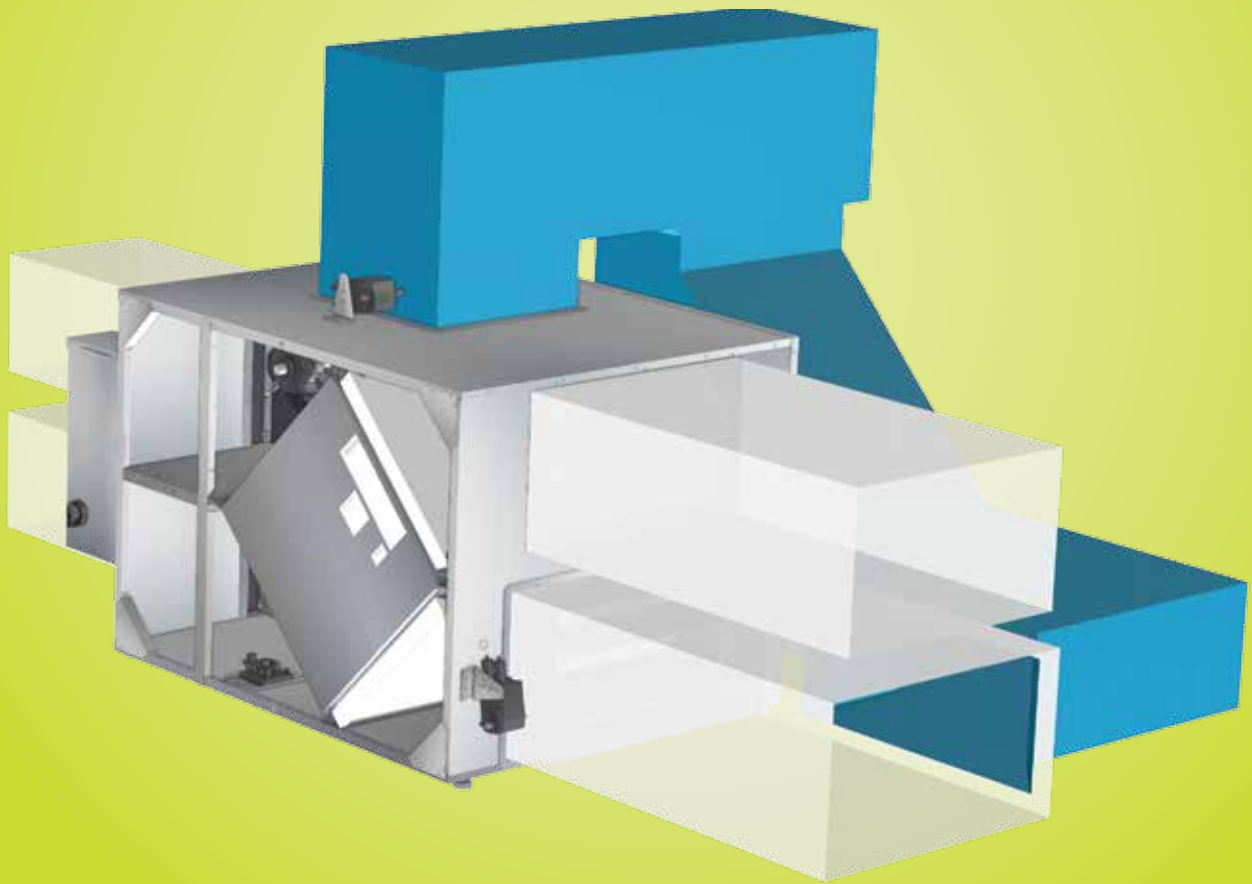


BYPASS

ECONOMIZER

100% BYPASS FOR INDOOR HE-SERIES ERVs



CAPITALIZE ON FREE COOLING

RENEWAIRE EVERYWHERE

EVERY GEOGRAPHY, EVERY CLIMATE, EVERY HOME,
EVERY BUILDING AND EVERY APPLICATION

BYPASS ECONOMIZER

By utilizing what nature offers, our bypass economizer can “free cool” indoor spaces by using tempered and filtered outdoor air when the temperature and/or humidity are within a favorable range. This process **MAXIMIZES OPERATING EFFICIENCIES** and **REDUCES ENERGY** use and costs, all while indoor air quality is enhanced—a win-win for occupant health, the environment and the bottom line. The bypass can now be specified for all RenewAire HE indoor units as a factory option.

KEY BENEFITS

- ♦ **Reduce energy use and costs:**
Energy efficiency is optimized since the bypass provides airside economizer capabilities to the building mechanical system.
- ♦ **Flexible design:**
Bypass allows for flexibility in the routing of the bypass duct. Additionally, the dampers are adjustable and AMCA Class I certified for low leakage.
- ♦ **Increase installation opportunities:**
HE indoor units can now be specified and installed on projects that require ERV bypass.
- ♦ **100% bypass of air:**
Unlike other options on the market, RenewAire offers 100% core bypass of air, resulting in free cooling and further energy reductions.
- ♦ **Ultimate reliability:**
Our commitment to innovative design practices, expert workmanship and Quick Response Manufacturing ensures unmatched reliability.
- ♦ **Fast and easy implementation:**
The economizer option doesn't affect the current lead time of the base units, and it doesn't require any additional certifications.
- ♦ **Meet code requirements:**
Bypass helps HE indoor units meet economizer requirements per building codes and other referenced standards.

APPLICATIONS

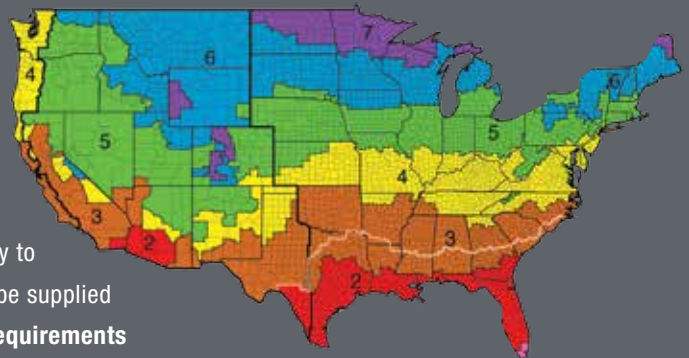
RenewAire ERV technologies are **applicable anywhere an exhaust and outdoor airstream exist**. During changeover seasons, outdoor air is cool and offers free cooling for indoor spaces, thus negating the need to recover energy. Commercial, institutional, retail and educational buildings have indoor cooling needs that can be managed with the cool changeover-season outdoor air. Besides capturing this additional energy savings feature, many states have local codes mandating regulatory requirements for a Bypass Economizer option offering free cooling during these months.

The RenewAire Bypass Economizer option will allow outdoor-air bypass for partial economizer allowance when coupled with a main air handling unit. In decoupled ventilation systems where the ERV is stand alone, as in the case of VRF, Chilled Beam or chilled/heated panel applications, the **ERV offers the full 100% air handling bypass capacity**.

RenewAire ERV Bypass Economizer is offered as an external device airflow allowing engineers and contractors to design to site-specific restrictions.

CODE REQUIREMENTS

IECC and **ASHRAE 90.1** codes and standards now require more climatic **zones to have HVAC equipment incorporate economizers**. Newer codes and standards are also requiring energy recovery ventilation systems in most North American ASHRAE climatic zones even when outside air at full design is as low as 10%. In cases where an air economizer is required per building code or standard, the energy recovery system must have the ability to incorporate a duct damper with automatic controls that allows fresh air to be supplied without energy recovery. The **RenewAire Bypass Economizer meets all requirements** and enables our HE indoor units to be specified in any region where these codes exist.



The bypass system consists of the addition of an **extra bypass duct**, two **electrically actuated dampers** and a **control system**. Bypass is achieved with the help of two dampers consisting of the face damper (normally open) and the bypass damper (normally closed), factory-installed bypass controls and field-installed ductwork that links the return air to the exhaust air. **When conditions are favorable for bypass, the face damper closes** while the bypass damper opens simultaneously, thereby allowing for 100% of the return air to bypass the core. The Bypass Economizer option comes with two factory-supplied dampers and a bypass control system of your choice:

DAMPERS



Square Damper



Circle Damper

The **face damper** is factory-installed on the return air (RA) duct inlet for all units except HE1X. The **bypass damper** is also factory-installed on all units except HE1X and HE1.5X.

CONTROLS



Dry-bulb control:

The standard bypass control is temperature-based via a single outdoor-air controller and sensor.



Enthalpy control:

This optional bypass control is based on differential enthalpy and uses a return-air enthalpy sensor in conjunction with an outdoor-air enthalpy controller and a dry-bulb temperature controller.

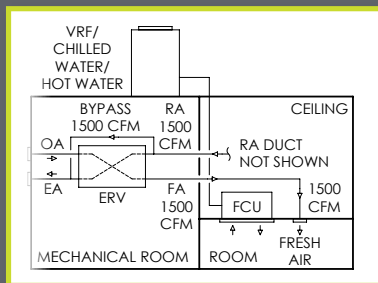
FIELD-INSTALLED BYPASS DUCT SIZE RECOMMENDATIONS

ERV UNIT	FACE DAMPER	BYPASS DAMPER	RECOMMENDED BYPASS DUCT SIZE*
HE1XINH, HE1XINV	Shipped loose	Shipped loose	12"
HE1.5XINH, HE1.5XINV	Factory installed	Shipped loose	12"
HE2XINH, HE2XINV	Factory installed	Factory installed	16" x 16"
HE3XINH	Factory installed	Factory installed	30" x 16"
HE3XINV			36" x 14"
HE4XINH	Factory installed	Factory installed	34" x 16"
HE4XINV			42" x 14"
HE6XIN, HE8XIN	Factory installed	Factory installed	38" x 16"

* Recommended duct sizes are based on ensuring that the pressure drop in the bypass duct is less than the pressure drop through the core. Equivalent duct sizes at same pressure drop are acceptable.

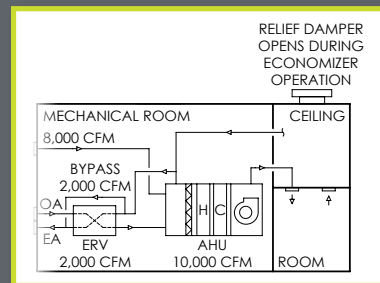
NOTE: Installation of bypass duct per SMACNA guidelines.

100% ECONOMIZER



The Bypass Economizer option will provide 100% economizer capabilities in mechanical systems where the ERV is connected to a fan coil unit or supplying fresh air directly into the space. Examples of such systems are VRF, Chilled Beam or Chilled/Heated Panels.

PARTIAL ECONOMIZER

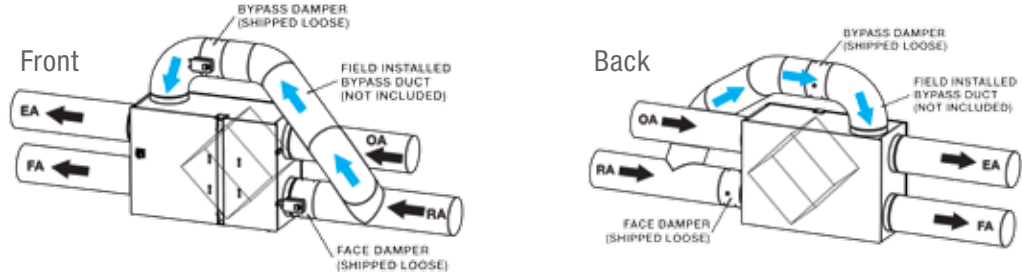


When connected to a main building air handler, the Bypass Economizer option shall offer partial bypass of only the ERV total airflow. For 100% economizer capability on the HVAC system, the air handler must be equipped with either powered relief or barometric relief economizer capacity (barometric relief shown).

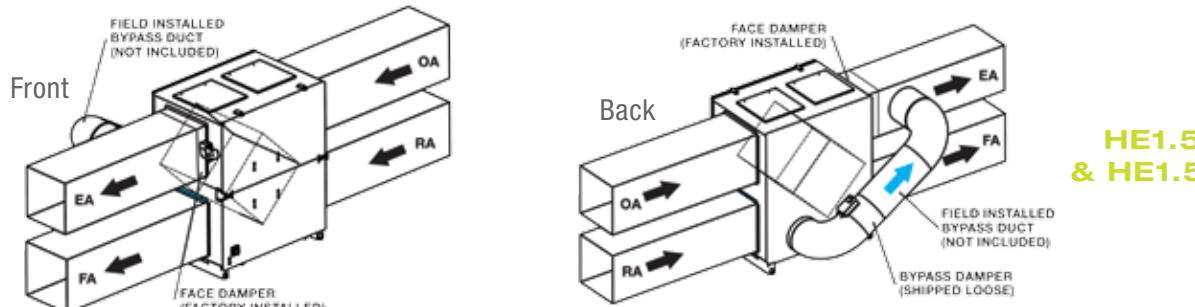
LAYOUT RECOMMENDATIONS

Learn more about bypass and layouts at renewaire.com/products/commercial-products/he-series-bypass. See page 3 for recommended bypass duct sizes.

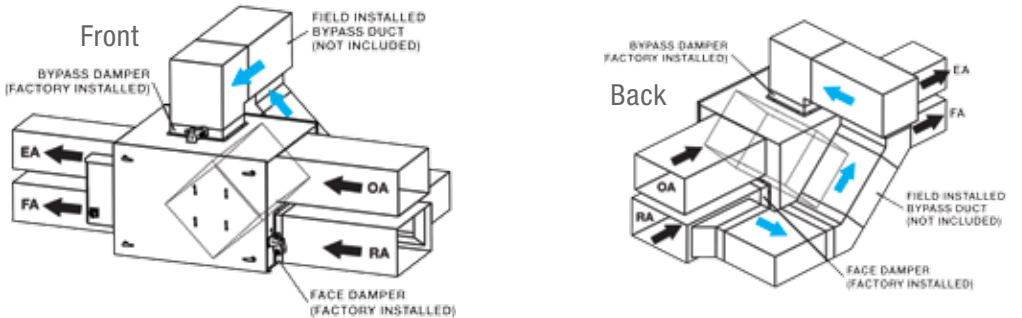
HE1XINH & HE1XINV



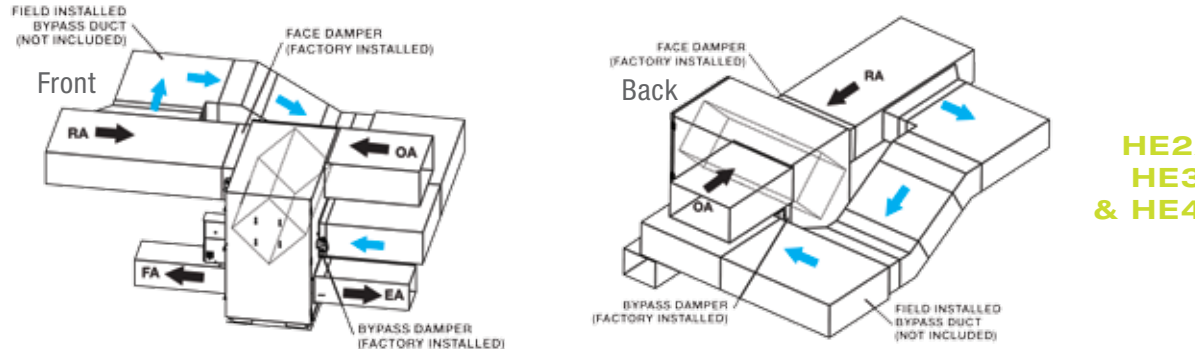
HE1.5XINH & HE1.5XINV



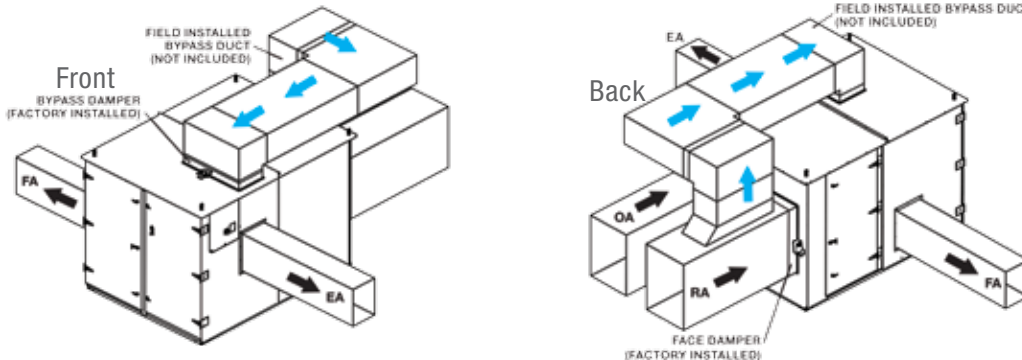
HE2XINH, HE3XINH & HE4XINH



HE2XINV, HE3XINV & HE4XINV



HE6X & HE8X



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