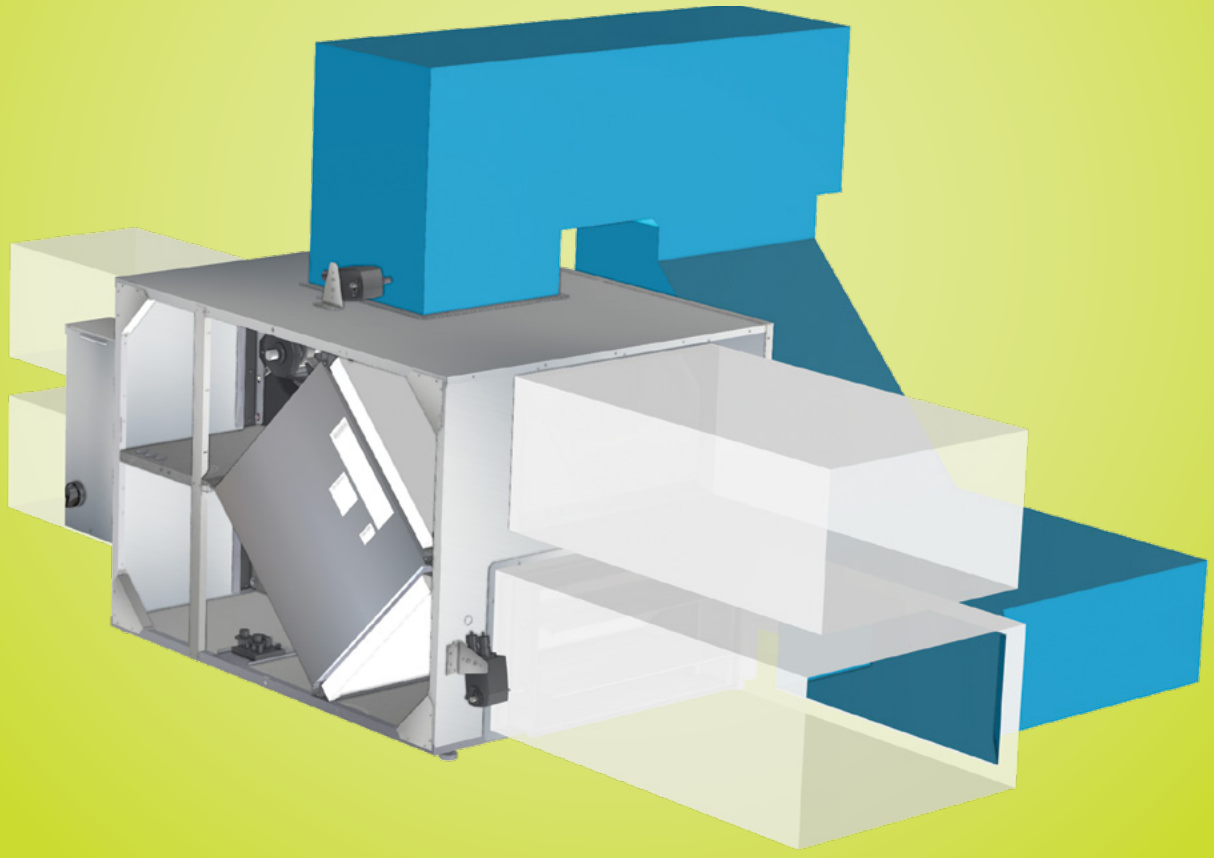
RenewAire®
Energy Recovery Ventilation

BYPASS

ECONOMIZER

100% BYPASS FOR HE SERIES ENERGY RECOVERY VENTILATORS (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, RenewAire's 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 increasing ventilation to enhance indoor air quality (IAQ)—a win-win for occupant health, the environment and the bottom line. The bypass can now be specified for all RenewAire HE indoor energy recovery ventilators (ERVs) 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.

INCREASE INSTALLATION OPPORTUNITIES
Indoor HE Series ERVs 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.

FAST AND EASY IMPLEMENTATION
The economizer option doesn’t require any additional certifications.

MEET CODE REQUIREMENTS
Bypass helps HE indoor units meet economizer requirements per building codes and other referenced standards.

REGULATIONS
AMCA Class I certified for low leakage.

APPLICATIONS

RenewAire ERV technologies provide airflow for any indoor environment. 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.

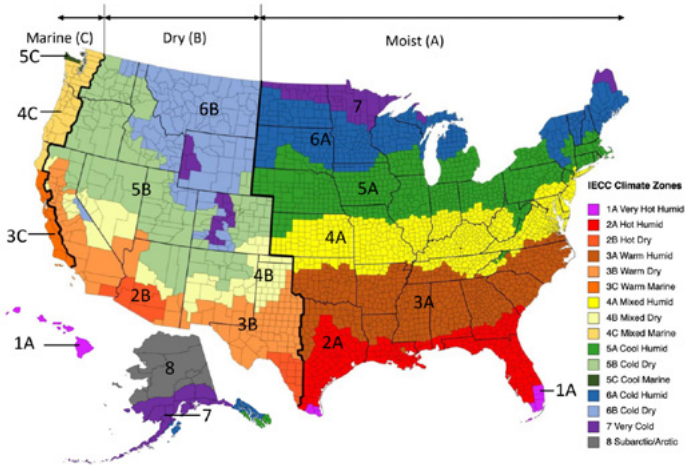
RenewAire ERV Bypass Economizer is offered as an external device airflow allowing engineers and contractors to design to site-specific restrictions.

CODE REQUIREMENTS

International Energy Conservation Code (IECC) and American Society of Heating, Refrigerating, and Air-Conditioning Engineers (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.

Map courtesy of IECC



HOW BYPASS ECONOMIZER WORKS

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 (square or circle) and a bypass control system of your choice of dry bulb or enthalpy. In the dry bulb option, the standard bypass control is temperature-based via a single outdoor-air controller and sensor. In contrast, the enthalpy-controlled option 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.

NOTE: The face damper is factory-installed on the return air (RA) duct inlet for all units. The bypass damper is also factory-installed on all units except HE07, HE10 and HE1.5X.

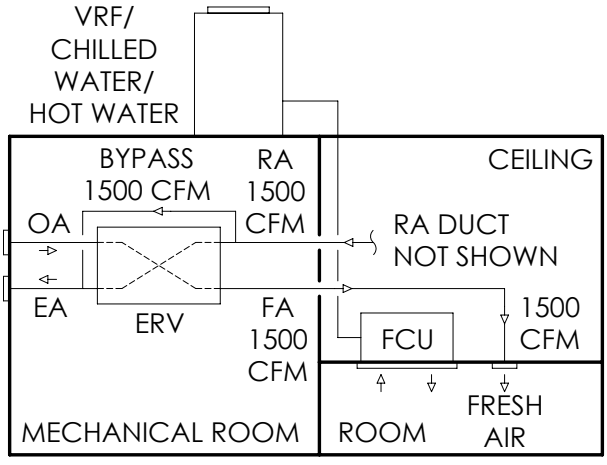
FIELD-INSTALLED BYPASS DUCT SIZE RECOMMENDATIONS

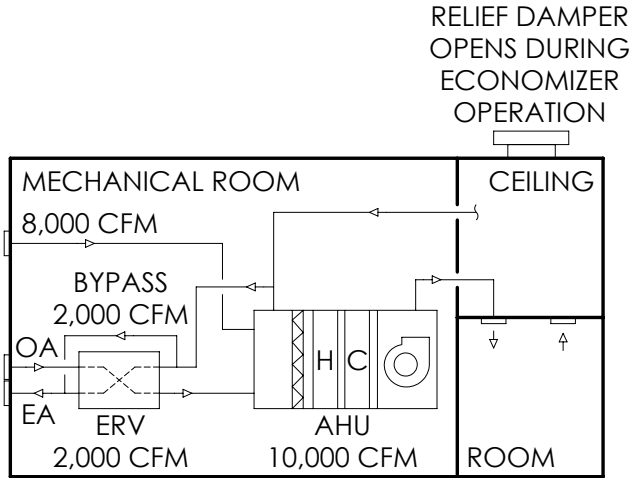
ERV UNIT	FACE DAMPER	BYPASS DAMPER	REC. BYPASS DUCT SIZE*
HE07INH, HE07INV	Factory installed	Shipped loose	12"
HE10INH, HE10INV	Factory installed	Shipped loose	12"
HE1.5XINH, HE1.5XINV	Factory installed	Shipped loose	12"
HE2XINH, HE2XINV	Factory installed	Factory installed	16" x 16"
HE3XINH	Factory installed	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.

APPLICATION STRATEGIES





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.

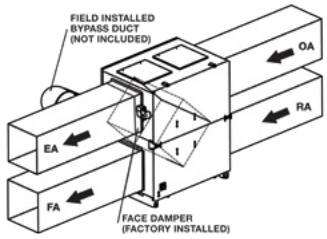
PARTIAL ECONOMIZER

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

HE07INH, HE07INV, HE10INH, HE10INV, HE1.5XINH, HE1.5XINV

Front



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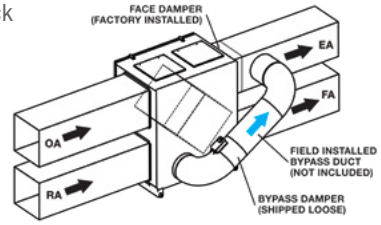
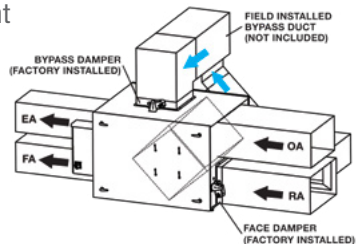


HE2XINH, HE3XINH, HE4XINH

Front



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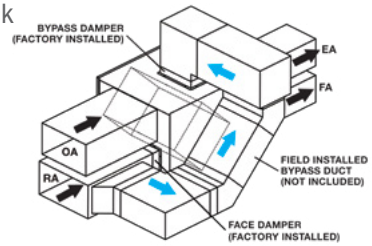
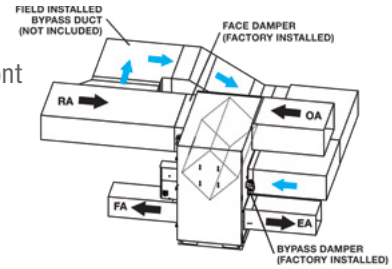


HE2XINV, HE3XINV, HE4XINV

Front



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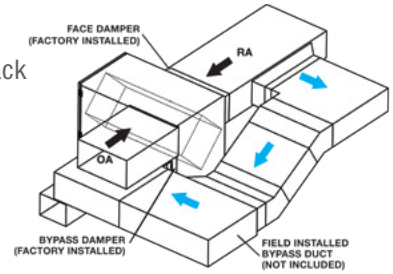

HE6X, HE8X

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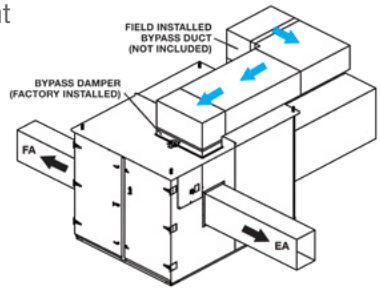

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