RenewAire®
Energy Recovery Ventilation

BYPASS

ECONOMIZER OPTION

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 OPTION

RenewAire's bypass economizer option takes advantage of local weather conditions to optimize energy efficiency. When outdoor conditions are ideal, the bypass economizer option opens to pull the cooler outdoor air inside and exhaust out the stale, warm room air. This process allows users to capitalize on "free cooling" to **REDUCE ENERGY USE AND COSTS**. RenewAire's bypass economizer option can be specified for select indoor and rooftop HE energy recovery ventilators (ERVs).

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
Select HE Series ERVs can be specified and installed on projects that require an ERV bypass.

100% BYPASS OF AIR
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
HE units with bypass can meet economizer requirements per building codes and applicable standards.

REGULATIONS
AMCA Class I certified for low leakage.

APPLICATIONS

RenewAire ERV technologies offer a sustainable ventilation solution for any indoor environment. During changeover seasons, cool outdoor air can offer "free cooling" for indoor spaces, thus negating the need to recover energy. By using a bypass economizer option, facilities can take advantage of the cool outdoor air to address their indoor cooling needs. In addition to achieving energy savings with this feature, many states have local codes mandating a bypass economizer option that can provide "free cooling" during these months.

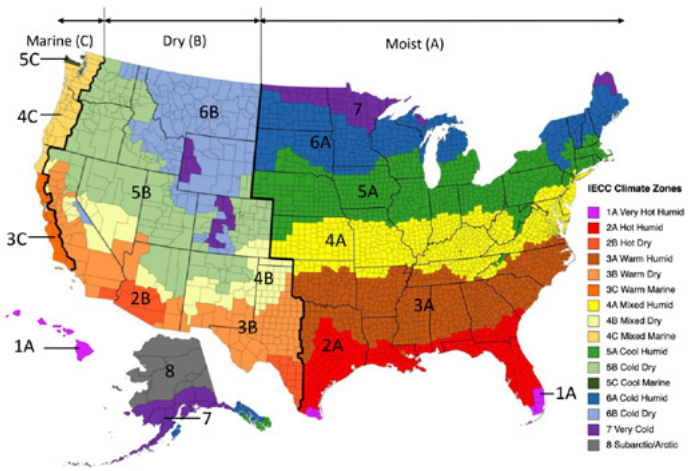
The RenewAire bypass economizer option will allow outdoor-air bypass for partial economizer allowance when coupled with a main air handling unit. In decoupled ventilation systems where the ERV is stand alone, as in the case of VRF, chilled beam or chilled/heated panel applications, the ERV offers the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

The bypass economizer option is offered as an external device airflow for indoor units and integral with rooftop units, 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 option meets all requirements and enables our HE units to be specified in any region where these codes exist.



Map courtesy of IECC

HOW BYPASS ECONOMIZER OPTION WORKS

The bypass system works by rerouting the return airstream to circumvent the core. The process works differently for indoor and rooftop units. Both systems use electrically-actuated dampers and a control system; however, indoor units have an additional bypass duct while the rooftop units have an extra exhaust hood.

Bypass is achieved by using two dampers: the face/exhaust damper (normally open) and the bypass damper (normally closed). When outdoor conditions are ideal, the face/exhaust damper closes while the bypass damper opens, thereby allowing 100% of the return air to circumvent the core. For indoor systems, the factory-installed bypass controls link the return air to the exhaust air with field-installed ductwork. For rooftop units, the return air exhausts out the back of the ERV.

The bypass economizer option comes with two factory-supplied dampers and a choice of either dry bulb or enthalpy controls. For the dry bulb option, the standard bypass control is temperature-based via a single outdoor-air controller and sensor. The enthalpy-controlled option uses a return-air enthalpy sensor in conjunction with an outdoor-air enthalpy and dry-bulb temperature sensors.

INDOOR ERV BYPASS

ERV UNIT	FACE DAMPER	BYPASS DAMPER	REC. BYPASS DUCT SIZE*
HE07IN(H,V)	Factory installed	Shipped loose	12" Round
HE10IN(H,V)	Factory installed	Shipped loose	12" Round
HE1.5XIN(H,V)	Factory installed	Shipped loose	12" Round
HE2XIN(H,V)	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, HE7XIN, HE8XIN	Factory installed	Factory installed	38" x 16"

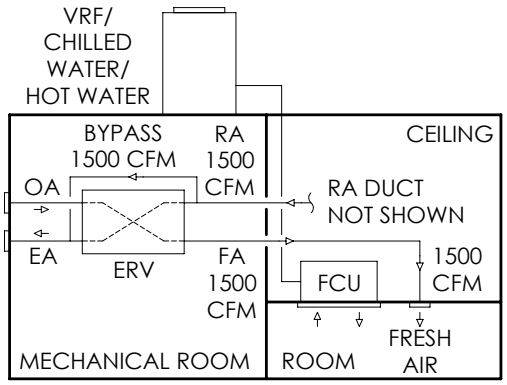
* Recommended duct sizes are based on ensuring that the pressure drop in the bypass duct is less than the pressure drop through the core. Equivalent duct sizes at same pressure drop are acceptable.

NOTE: Installation of bypass duct per SMACNA guidelines.

ROOFTOP ERV BYPASS

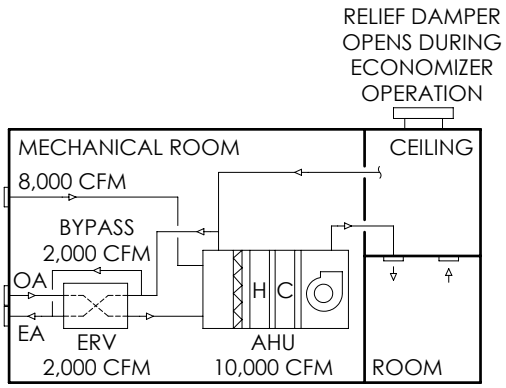
ERV UNIT	EXHAUST DAMPER	BYPASS DAMPER	BYPASS HOOD
HE07RT	Factory installed	Factory installed	Factory installed
HE10RT	Factory installed	Factory installed	Factory installed
HE1.5XRT	Factory installed	Factory installed	Factory installed

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.



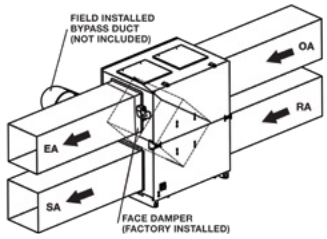
PARTIAL ECONOMIZER

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 FOR INDOOR UNITS

HE07IN, HE10IN, HE1.5XIN

Front



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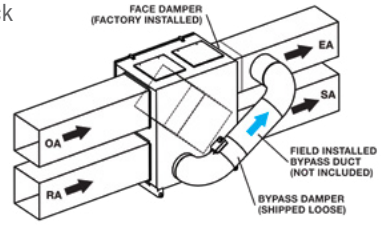
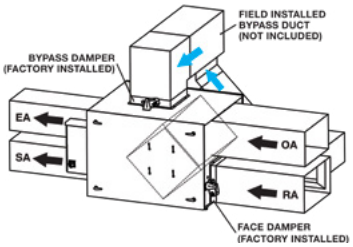


HE2XINH, HE3XINH, HE4XINH

Front



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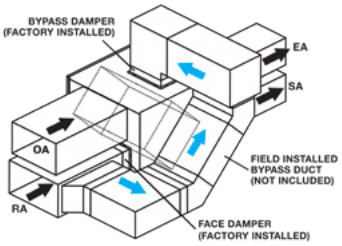
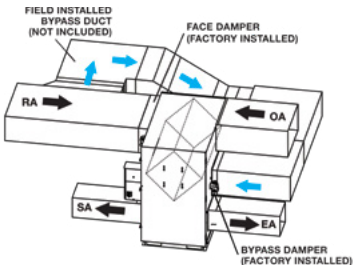


HE2XINV, HE3XINV, HE4XINV

Front



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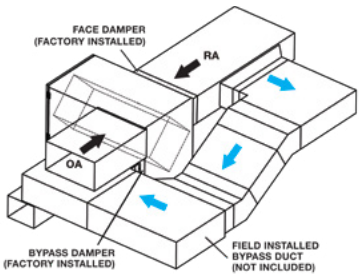
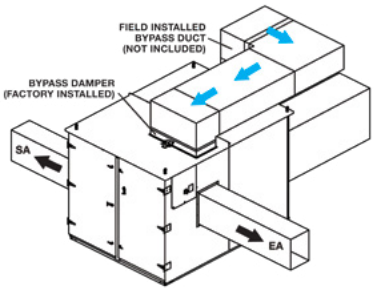


HE6XIN, HE7XIN, HE8XIN

Front



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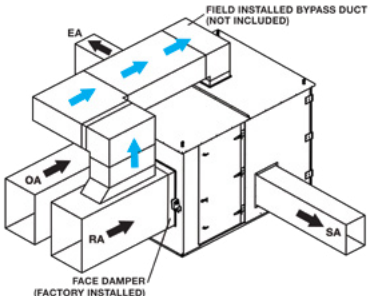

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