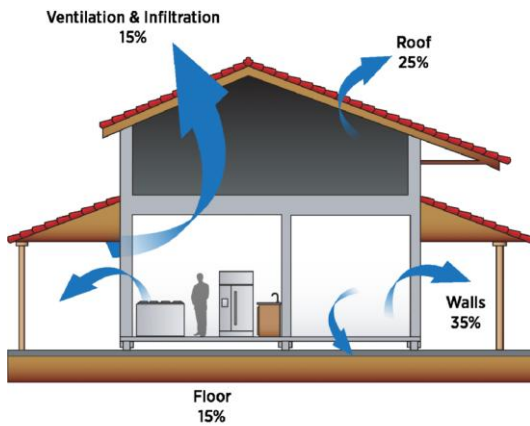


# Shield E<sup>3</sup> System - Extreme Energy Efficient Solution for Builders



**THERMAL ENVELOPE DESIGN:** When constructing a building one should always consider cost, environmental impact and energy efficiency. In order to determine the maximum value proposition, an analysis should be conducted regarding the intersection of these elements.



**HIGHEST AND BEST USE:** The analysis starts with the exterior shell which delineates the insulative values (R values) provided by the walls, roof and balance of the assembly. The goal is to be minimally impactful of the climate eco-system while creating effective control of the internal climate.



**Guardian Shield™ Panels** are precision engineered to provide unsurpassed structure and insulative qualities for the external building envelope. The panel system is:

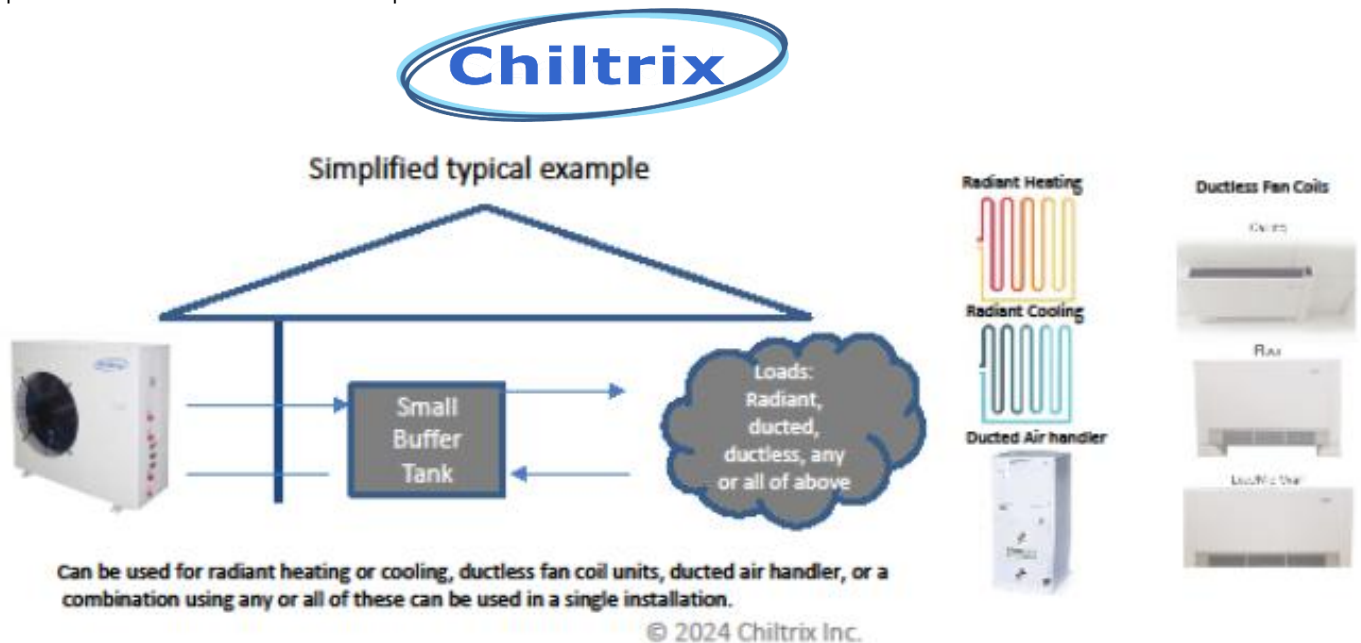
- Airtight, reducing utility costs
  - Up to 40% of a home's heat loss is due to air leakage
  - Heating and cooling costs reduced by 75 to 85% over conventional construction methods
- Durable, protects from external environment
  - Panels never break down, 100% recyclable
  - No leaks, mold, pests, rot or warp
- Thermal bridge free with R values up to R-75
- PHIUS certified
- Able to meet or exceed Net-Zero and LEED designs



# Shield™ and Chiltrix - Integration of Two Technologies Creates Unrivaled E<sup>3</sup>

This extreme energy efficient thermal building envelope provides the optimal environment to fully capitalize on high performance heating and cooling systems such as the Chiltrix award winning air-to-water heat pumps (a.k.a. reverse cycle chillers / hydronic heat pumps).

When compared to traditional HVAC systems, Chiltrix eliminates the need for a natural gas connection and has the capability of being powered by solar energy. These ultra-efficient systems provide a lifetime of energy cost savings and promote environmental stewardship.



Chiltrix “Plumb and Play” system is the World’s Most Efficient Air-To-Water Heat Pump:

- AHRI certified
- EPA Energy Star Emerging Technology awarded (2019/2020)
- A preferred solution for “all-electric” requirements
  - Ideal for Passive House, high efficiency & green building or remodeling
  - Why all-electric? No solar panels can be installed on the roof that make gas or oil
- Reliable “Monoblock” design
  - All refrigerant and related components are self-contained and sealed in outdoor unit
  - No refrigerant ever enters the building envelope
  - Connects to indoors via insulated water lines
- Adaptable use with the same high efficiency system
  - Heating, cooling, hot water, ductless, ducted, radiant
- Patent-protected exclusive features include Dynamic Capacity Controls, Dynamic Humidity Control and Dynamic Variable Backup Heating Control
  - System designed for the lowest possible heating supply temperature
  - Prevents wasted energy

AHRI CERTIFIED

TÜV Rheinland A++

ENERGY STAR 2019  
Emerging Technology Award

Two exceptional, advanced solutions work in tandem to deliver the ultimate in energy efficiency. Builders can utilize these two systems in combination to achieve an ultra-efficient structure and continue to offer the building owner unsurpassed savings well into the future. The synthesis created uniting these best-in-class systems provides a safe, healthy and comfortable environment with superior sound resistance and air quality.



### Improved Air Quality:

- Shield™ Panels are completely inert & sealed to offer maximum indoor air quality (IAQ)
- Chiltrix patented Psychroligix w/ DHC (Dynamic Humidity Control) can proactively and dynamically control the operating coil temperature to prevent over-dehumidification and wasted energy



### Superior Sound Resistance:

- Shield™ Panels effectively reduce the transmission of airborne sound
- Chiltrix is exceptionally quiet! Only 49 dB(a)



### Safety:

- No refrigerant is ever inside the building envelope
  - Future-proof infrastructure as new and less-safe refrigerants emerge
- No HVAC license or refrigerant handling needed
  - Can be installed by a plumber, etc.
  - Unbalanced heating & cooling loads don't cause an efficiency loss
  - No predefined line-set length limits

### Lifetime Cost savings:



**Extreme Energy Efficient Shield™** buildings use less energy, thus reduced utility costs

- Superior building envelope with high thermal resistance and minimal air infiltration
- Heavy-duty components provide building durability from environmental elements

### HVAC Chiltrix equipment is designed to operate more efficiently

- Lowest possible heating supply temperature
  - Onboard dynamic outdoor reset with user-customizable curve adjusts the target temperature dynamically according to outdoor temp
- Heat Pump operates with much higher efficiency
  - Conventional split system cannot match the performance of a hydronic system.
  - Chiltrix holds an officially certified world's record efficiency rating among all air-to-water heat pumps.
- Highest reliability possible.
  - Sealed monobloc eliminates the most common causes of HVAC failure – i.e. field charging errors or soldered connections that eventually leak.
  - Best of breed components, anti-corrosive technology