



LEED for Homes Points

This document is a guideline of the maximum potential points American ALDES ventilation products can contribute to obtaining certification under the US Green Building Council's (USGBC) LEED for Homes Rating System. Future documents will summarize points available from other LEED programs such as; LEED for Homes Mid-rise, LEED Homes Initiative for Affordable Housing, REGREEN Residential Remodeling Program, and LEED for New Construction. This information is based on the LEED for Homes Rating System, January 2008.

The information in this document is intended to help promote participation in the LEED for Homes program and show how American ALDES ventilation products contribute towards available Certification Levels. This document is strictly an interpretation of the program; final credit approval is subject to the interpretation of the USGBC and the approved LEED for Homes Provider.

American ALDES ventilation products provide solutions to meet Prerequisites under the Indoor Environmental Quality (EQ) category and up to 18 points in the LEED for Homes Rating System.. These points can be a simple way to obtain a significant portion of the LEED for Homes certification thresholds.

Exhibit 1: LEED for Homes Certification Levels

LEED for Homes Certification Levels	Number of LEED for Homes points Required
Certified	45-59
Silver	60-74
Gold	75-89
Platinum	90-136
Total available points	136

Under **Innovation and Design Process (ID), (1 point)** may be obtained for installing a zoned, balanced, and regulated exhaust system. This qualifies as an Innovative Energy Efficiency Design due to the following:

1. A zoned system only exhausts air from bathrooms that are in use (this has significant impact and lessens the load placed on heating and cooling systems by not wasting conditioned air).
2. A balanced system can maintain a desired static pressure in a home whether it be neutral, negative, or positive (this has positive safety benefits and preserve the condition of the building by preventing moisture from being forced or drawn into walls).
3. An automatically regulated system ensures that precise amounts of air are supplied or exhausted from homes. This helps ensure good IAQ by the most efficient means possible with minimum load placed on heating and cooling systems.

Under **Indoor Environmental Quality (EQ)**, up to 18 points are available that ventilation products substantiate for wholly or contribute to credit achievement:

Credit 1: ENERGY STAR with IAP (up to 13 points)

The ventilation portion of **ENERGY STAR with IAP** is very simple and has three components:

- a. Whole house ventilation (per ASHRAE 62.2)
- b. Spot ventilation (per ASHRAE 62.2)
- c. Clothes dryer vented outdoors

Credit 3: Moisture Control (1 point)

If the analysis of moisture load determines need for a Central System for moisture control, a dehumidifier or humidity removing exhaust ventilation system may be utilized.

Credit Group 4: Outdoor Air Ventilation

1. **Prerequisite 4.1: Meet ASHRAE 62.2:** install a central ventilation system with the continuous airflow rate from the ASHRAE 62.2 CONTINUOUS AIRFLOW RATES chart on the following page. Outdoor air can be introduced by three methods; exhaust, supply, or balanced.

Exhaust: fresh outdoor air is drawn in by negative pressure in the home through Airlets™ or natural infiltration. The most effective way to utilize a central exhaust ventilation system in a home is to utilize zoned and regulated/balanced terminals that draw air continuously from the bathrooms and have the ability to boost volume on demand by zone during occupancy. This has the added benefit of obtaining LEED points for Bathroom Exhaust and provides the homeowner with a sophisticated silent and powerful central bathroom ventilation system.

Exhaust packages ideally suited for this are:

VZ-IAQ-P – Multiport Continuous Exhaust System with Zoned Boost in Occupied Areas
IAQ-S – Multiport Continuous Exhaust System

Supply: fresh outdoor air is fed into the home mechanically. The air can be sent directly into the home, filtered, or filtered and blended with air from inside the home to acclimate to a more comfortable temperature. Utilizing supply ventilation has the added benefit of potentially keeping a home in a slight positive pressure to help prevent undesirable infiltration of contaminants from garages, attics, basements, and crawl spaces.

Supply packages ideally suited for this are:

IAQ-FSVS – Filtering Supply Ventilation System (connected to forced air system)
IAQ-DSVS – Distributing/Filtering Supply Ventilation System (when no forced air system is present)
IAQ-BVS – Blending/Filtering Supply Ventilation System (blends outdoor air with indoor air)

Balanced: see HRV/ERV section on next page.

Balanced packages ideally suited for this are:

VZ-IAQ-HRV – Balanced Heat Recovery Ventilation System with Zoned Boost
VZ-IAQ-ERV – Balanced Energy Recovery Ventilation System with Zoned Boost

ASHRAE 62.2 CONTINUOUS AIRFLOW RATES

Square Footage	Number of Bedrooms				
	0 - 1	2 - 3	4 - 5	6 - 7	>7
<1,500	30	45	60	75	90
1,501 - 3,000	45	60	75	90	105
3,001 - 4,500	60	75	90	105	120
4,501 - 6,000	75	90	105	120	135
6,001 - 7,500	90	105	120	135	150
>7,500	105	120	135	150	165

cfm

2. **Credit 4.2 Heat Recovery Ventilation System: (2 points)** the most effective way to utilize an HRV/ERV in a home is as a zoned and regulated/balanced ventilation system that draws air continuously from the bathrooms and has the ability to boost volume on demand by zone during occupancy. This has the added benefit of obtaining points for Bathroom Exhaust and provides the homeowner with a sophisticated silent and powerful central bathroom ventilation system.

HRV/ERV systems transfer heat from warm air to cold air. So during the winter up to over 90% of the heat energy is transferred from warm stale air being exhausted from a building to the cold fresh air being brought into a building. This takes place without the two air streams ever coming in contact by passing through a core full of many thin plates. During the warm summer months the exact opposite occurs whereas heat is removed from the hot fresh air and transferred to the cold stale air.

ERV systems work very similar to HRV systems except that the plates (or in some cases a wheel) are made of a special membrane that transfers heat energy and also allows moisture to transfer from moist air to dry air. Be cautious where ERV systems are utilized because there can be a slight cross contamination between the air streams and they may add unwanted moisture back into a space if the humidity is higher indoors (as in bathrooms) than it is outdoors.

3. **Credit 4.3 Airflow Rate Testing: (1 point)** the best and easiest way to ensure the ventilation system is maintaining precise airflow is to integrate Constant Airflow Regulators (CAR). CAR's are inexpensive and simple to install. They are non-powered devices that insert into ductwork and automatically adjust to maintain a constant airflow rate.

Credit Group 5: **Local Exhaust**

1. **Prerequisite 5.1: Meet ASHRAE 62.2:** local exhaust points can be obtained by connecting Zone Register Terminals to the central ventilation systems listed above (exhaust or balanced). The local exhaust rates required by ASHRAE 62.2 are as follows:

Kitchen – 100 cfm intermittent or 5 ach continuous (based on kitchen volume)

Bathrooms – 50 cfm intermittent or 20 cfm continuous

2. **Credit 5.2: Timer/Automatic Controls for Bathroom Exhaust Fans: (1 point)** timer/controls should always be utilized on central ventilation systems. The system is so quiet the occupant may not realize it's on and leave the system in demand/high volume mode and it is recommended to run the fan for 20-30 minutes after showering to remove moisture from the room and the ductwork.
3. **Credit 5.3: Airflow Rate Testing: (1 point)** the best and easiest way to ensure the ventilation system is maintaining precise airflow is to integrate Constant Airflow Regulators (CAR). CAR's are inexpensive and simple to install. They are non-powered devices that insert into ductwork and automatically adjust to maintain a constant airflow rate.

Credit Group 10: **Garage Pollutant Protection**

3. **Credit 10.3: Exhaust Fan in Garage: (1 point)** an exhaust fan should be installed to remove air from inside the garage ducted to the outside of the home. The rate for the Garage Ventilator should be 70 cfm if non-ducted (through the wall) or 100 cfm ducted. Our new TTW-100, Through The Wall Ventilator was designed specifically to meet this requirement cost effectively.

SUMMARY: There are a total of 18 points available concurrently utilizing ventilation products. The entire product line is specifically designed to meet program requirements (such as LEED for Homes, ENERGY STAR with IAP, various state codes, and Title 24) as effectively and efficiently as possible. Most residential single family and low-rise energy programs reference the ASHRAE 62.2 standard to define the airflow rates required.

American ALDES takes a strong position on the overwhelming benefits of continuous ventilation over intermittent operation. Good Indoor Air Quality is a full-time need. Providing good IAQ only 8 hours a day is a long outdated approach and not in the best interests of homeowners and their families.

In addition to providing consistently good IAQ, running a system at a low continuous rate vs. a high intermittent rate also: extends the life of the equipment, lowers the cost of operation, lowers the sound level of the equipment, allows for smaller more energy efficient equipment to be used, and increases comfort levels.

American ALDES VentZonetm systems make it possible to utilize the best of both approaches by enabling low volume regulated continuous ventilation and zone controlled high volume demand boost ventilation in a single cost effective system.

Maximum Points Available when using ENERGY STAR with IAP:

Prereq/Credit	Points
IDc3: Innovation and Design	1
EQc1: ENERGY STAR with IAP	13
EQc4.2: Heat Recovery	2
EQc5.2: Timers/Controls Bathrooms	1
EQc5.3: Airflow Rate (Local Exhaust)	1
Total	18

Maximum Points Available not using ENERGY STAR with IAP:

Prereq/Credit	Points
IDc3: Innovation and Design	1
EQc3: Moisture Control	1
EQp4.1: Meet ASHRAE 62.2 (Ventilation)	Yes
EQc4.2: Heat Recovery	2
EQc4.3: Airflow Rate (Outdoor Air)	1
EQp5.1: Meet ASHRAE 62.2 (Exhaust)	Yes
EQc5.2: Timers/Controls Bathrooms	1
EQc5.3: Airflow Rate (Local Exhaust)	1
EQc10.3: Exhaust Fan in Garage	1
Total	8

Please note that some points in the LEED EQ section cannot be counted when earning the ENERGY STAR with IAP credit because these items are inherent in IAP (prevents double counting).

Innovation and Design Process Comments (for the chart on the following page)

- *^a Innovation and Design Process point for installing automatically precisely regulated continuous exhaust with zone controlled demand boost during area occupancy.
- *^b Innovation and Design Process point for installing automatically self balancing precisely regulated energy recovery system with zone controlled demand boost during area occupancy.
- *^c Innovation and Design Process point for installing continuous exhaust system with automatic precisely regulated airflow.
- *^d Innovation and Design Process point for installing automatically precisely regulated and filtered continuous supply or exhaust system.
- *^e Innovation and Design Process point for installing a central ventilation system that blends precisely regulated amounts of air from inside the home with precisely regulated amounts of air from outside the home, filters the air then supplies the tempered/filtered air into the home.
- *^f Innovation and Design Process point for installing a central zone controlled local exhaust system that only exhausts air from occupied spaces on demand.



LEED for Homes Point Matrix

Utilize the matrix below to determine how many points are available for each of the product packages .

Points available if also implementing ENERGY STAR with IAP Program												
Points available for implementing LEED for Homes Program only												
Package	System Type	Innovation and Design Process (IDc3)	ENERGY STAR with IAP (EQc1)	Moisture Control EQ(3)	Outdoor Air Ventilation (EQ4)			Local Exhaust (EQ5)			Exhaust Fan in Garage (EQc10.3)	Total LEED-H Points
					ASHRAE 62.2 (EQp4.1)	HRV (EQc4.2)	Verified (EQc4.3)	ASHRAE 62.2 (EQp5.1)	Timer (EQc5.2)	Verified (EQc5.3)		
VZ-IAQ-P2	Exhaust	1* ^a	13	NA	NA	-	NA	NA	1	1	NA	16
		1* ^a	0	1	Prerequisite	-	1	Prerequisite	1	1	1	6
VZ-IAQ-P3	Exhaust	1* ^a	13	NA	NA	-	NA	NA	1	1	NA	16
		1* ^a	0	1	Prerequisite	-	1	Prerequisite	1	1	1	6
VZ-IAQ-P4	Exhaust	1* ^a	13	NA	NA	-	NA	NA	1	1	NA	16
		1* ^a	0	1	Prerequisite	-	1	Prerequisite	1	1	1	6
VZ-IAQ-HRV	HRV	1* ^b	13	NA	NA	2	NA	NA	1	1	NA	18
		1* ^b	0	1	Prerequisite	2	1	Prerequisite	1	1	1	8
VZ-IAQ-ERV	ERV	1* ^b	13	NA	NA	2	NA	NA	1	1	NA	18
		1* ^b	0	1	Prerequisite	2	1	Prerequisite	1	1	1	8
IAQ-S2	Exhaust	1* ^c	13	NA	NA	-	NA	NA	1	1	NA	16
		1* ^c	0	1	Prerequisite	-	1	Prerequisite	1	1	1	6
IAQ-S3	Exhaust	1* ^c	13	NA	NA	-	NA	NA	1	1	NA	16
		1* ^c	0	1	Prerequisite	-	1	Prerequisite	1	1	1	6
IAQ-S4	Exhaust	1* ^c	13	NA	NA	-	NA	NA	1	1	NA	16
		1* ^c	0	1	Prerequisite	-	1	Prerequisite	1	1	1	6
IAQ-FSVS	Supply	1* ^d	13	NA	NA	-	-	NA	-	-	-	14
		1* ^d	0	1	Prerequisite	-	1	-	-	-	-	3
IAQ-DSVS	Supply	1* ^d	13	NA	NA	-	NA	NA	-	-	-	14
		1* ^d	0	1	Prerequisite	-	1	-	-	-	-	3
IAQ-BVS-120	Supply	1* ^e	13	NA	NA	-	NA	NA	-	-	-	14
		1* ^e	0	1	Prerequisite	-	1	-	-	-	-	3
IAQ-BVS-200	Supply	1* ^e	13	NA	NA	-	NA	NA	-	-	-	14
		1* ^e	0	1	Prerequisite	-	1	-	-	-	-	3
VZ-2	Exhaust	1* ^f	13	NA	-	-	-	NA	1	1	NA	16
		1* ^f	0	1	-	-	-	-	1	1	1	5
VZ-3	Exhaust	1* ^f	13	NA	-	-	-	NA	1	1	NA	16
		1* ^f	0	1	-	-	-	-	1	1	1	5
VZ-4	Exhaust	1* ^f	13	NA	-	-	-	NA	1	1	NA	16
		1* ^f	0	1	-	-	-	-	1	1	1	5
VZ-5	Exhaust	1* ^f	13	NA	-	-	-	NA	1	1	NA	16
		1* ^f	0	1	-	-	-	-	1	1	1	5
TTW-100 Garage Fan	Exhaust	-	-	-	-	-	-	-	-	-	1	1

If you have any questions or comments regarding this document or how our products can help obtain points for various energy efficiency programs please call us at 1.800.255.7749 or email us at info@americanaldes.com or visit our website at www.americanaldes.com.