

LEED 2009

About the USGBC LEED Program*

Coalition members of the United States Green Building Council (USGBC) developed the Leadership in Energy and Environmental Design (LEED) Green Building Rating System to establish practices for designing, constructing, and certifying sustainable buildings. The LEED rating system has become a recognized benchmark for sustainable building practices. These practices fall into the following categories:

- **SS – Sustainable Sites**
- **WE – Water Efficiency**
- **EA – Energy and Atmosphere**
- **MR – Materials and Resources**
- **IEQ – Indoor Environmental Quality**
- **ID – Innovation in Design**
- **RP – Regional Priority**

*More extensive information on the LEED Green Building Rating System may be found at www.usgbc.org. This guide reflects requirements of LEED 2009 for Green Building Design, Construction and Major Renovations of Commercial and Institutional Buildings, Including Core & Shell and K-12 School Projects.

According to the LEED rating system, points are awarded when the requirements of various credits are met. The applicant for LEED building certification recognition is responsible for documenting compliance, with the exception of certified wood. The LEED rating system does not recognize or certify individual products, but information on product characteristics is often essential for an applicant to submit appropriate documentation for the overall construction project. Originally designed for New Construction (NC), the LEED program has been expanded to include other categories, such as renovations to Existing Buildings (EB), Core and Shell (CS), new and renovated Schools, Neighborhoods, Homes, etc.

Other green building rating systems have been developed, including the Green Globes Systems in the U.S.A. (being promoted by the Green Building Initiative). We at ATAS International, Inc. are actively monitoring these other sustainable building initiatives and systems; however we believe the LEED Green Building Rating System will continue to be the dominant force in the industry.

ATAS Products may Contribute to LEED Points

ATAS products provide many opportunities for LEED points to possibly be earned when incorporating these products into new construction or renovation projects. The particular credits in which certain ATAS products may help to earn points are:

- **SS Credit 7.2** – Sustainable Sites, Heat Island Effect-Roof – 1 Point
- **EA Credit 1** – Energy and Atmosphere, Optimize Energy Performance – 1-19 Points
- **EA Credit 2** – Energy and Atmosphere, On-site Renewable Energy – 1-7 Points
- **MR Credit 2** – Materials and Resources, Construction Waste Management: Divert 50% or 75% from disposal – 1-2 Points
- **MR Credit 4** – Materials and Resources, Recycled Content, 10% or 20% - 1-2 Points
- **MR Credit 5** – Materials and Resources, Regional Materials, 10% or 20% - 1-2 Points
- **IEQ Credit 1** – Indoor Environmental Quality, Outdoor Air Delivery Monitoring – 1 Point – To achieve this point, additional equipment by others must be implemented for the monitoring.
- **IEQ Credit 2** – Indoor Environmental Quality, Increased Ventilation – 1 Point
- **IEQ Credit 7.1** – Indoor Environmental Quality, Thermal Comfort – Design, 1 Point
- **IEQ Credit 7.2** – Indoor Environmental Quality, Thermal Comfort – Verification – 1 Point (in addition to IEQ Credit 7.1) – To achieve this point, additional equipment by others must be implemented for the verification.
- **ID Credit 1** – Innovation in Design – 1 to 5 Points
- **RP Credit 1** – Regional Priority – 1 to 4 Points

SS Credit 7.2 – Sustainable Sites, Heat Island Effect-Roof – 1 Point

The intent of this credit is to reduce heat islands to minimize impacts on microclimates and human and wildlife habitats.

By using a metal roof material with a solar reflectance index (SRI) equal to or greater than the values listed below for a minimum of 75% of the roof surface:

Low-sloped roof (less than or equal to a 2:12 slope), must have an SRI of 78 or greater to qualify

Steep-sloped roof (greater than a 2:12 slope), must have an SRI of 29 or greater to qualify

Most of the Kynar paint finishes available on ATAS metal roof products include “cool pigmentation” in the paint to allow for more of the sun’s rays to be reflected back to the sky, even in some of the darker colors. To check the SRI values for ATAS colors, please click here to view the chart, “[SRI, Total Solar Reflectance and Thermal Emittance Measured on ATAS Materials](#)” for the most updated version. The chart also indicates which of the colors meet ENERGY STAR requirements, for low slope and/or steep slope applications, as well as which colors are listed on the ENERGY STAR and CRRC (Cool Roof Rating Council) websites.

EA Credit 1 – Energy and Atmosphere, Optimize Energy Performance – 1 to 19 Points for New Construction and Schools (3 to 21 points for Core and Shell)

The intent of this credit is to achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.

This can be achieved in one of three compliance paths. Option 1 has the potential to offer the greatest number of points earned (from 1 up to 19):

Option 1: Whole Building Energy Simulation (1 to 19 points for New Construction and Schools, 3 to 21 points for Core and Shell). Demonstrate a percentage improvement in the proposed building performance rating compared with the baseline building performance rating. The point system is based upon a minimum energy cost savings percentage for each point threshold (for example, a 12% savings for a new building will earn 1 point, a 30% savings will earn 10 points, all the way up to 19 points earned for a 48% minimum energy cost savings).

ATAS metal roof and wall panels with “cool paint pigmentation” can reflect much of the sun’s rays, therefore, reducing the cooling load on the building. As well, our ATA-Solar building integrated photovoltaic (BIPV) metal roof system and InSpire transpired solar collector wall system that heats ventilation air using solar energy can both help to optimize a building’s energy performance.

EA Credit 2 – Energy and Atmosphere, On-Site Renewable Energy – 1 to 7 Points for New Construction and Schools (4 points for Core and Shell)

The intent of this credit is to encourage and recognize increasing levels of on-site renewable energy self-supply to reduce environmental and economic impacts associated with fossil fuel energy use.

To achieve the points, you need to use on-site renewable energy systems to offset building energy costs. Calculate project performance by expressing the energy produced by the renewable systems as a percentage of the building’s annual energy cost. The higher the percentage of renewable energy, the higher the number of points earned (for example, a 1% renewable energy value will earn 1 point, a 7% value will earn 4 points, up to 7 points earned for a 13% renewable energy value).

ATAS ATA-Solar BIPV and InSpire solar air heating systems can contribute renewable energy to help achieve points for this credit.

MR Credit 2 – Materials and Resources, Construction Waste Management: Divert from disposal – 1 to 2 Points

The intent of this credit is to divert construction and demolition debris from disposal in landfills and incineration facilities. Redirect recyclable recovered resources back to the manufacturing process and reusable materials to appropriate sites.

Divert 50% of construction waste by being recycled or salvaged = 1 point

Divert 75% of construction waste by being recycled or salvaged = 2 points

ATAS metal products, manufactured from steel, aluminum, copper or zinc are highly recyclable materials, and as well, can be reused in other applications.

MR Credit 4 – Materials and Resources, Recycled Content, 10% or 20% – 1 to 2 Points

The intent of this credit is to increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials. Use materials with recycled content such that the sum of postconsumer recycled contents plus ½ of the preconsumer recycled content constitutes at least 10% or 20%, based on cost, of the total value of the materials in the project. Meeting the minimum threshold of 10% earns one point, and meeting the 20% minimum level earns two points.

Steel – For steel products where no recycled content information is available, assume the recycled content to be 25% postconsumer. No other material has been recognized as having a similarly consistent minimum recycled content. ATAS steel products contain much higher than 25% recycled content because the steel is manufactured by the electric arc furnace (EAF) process. See the [ATAS Environmental Recycled Contents Position Paper on Steel](#) for more information. ATAS can provide recycled content information on specific steel products upon request. The recycled content shown on the position paper is an example of one supplier's steel material as sourced by ATAS. When a certain recycled content is required by the customer, the material can be sourced, however, extended lead times and increased costs may be incurred. ATAS is certified to ISO 9001:2008 with design and has complete traceability on all materials used in the production of all our primary products.

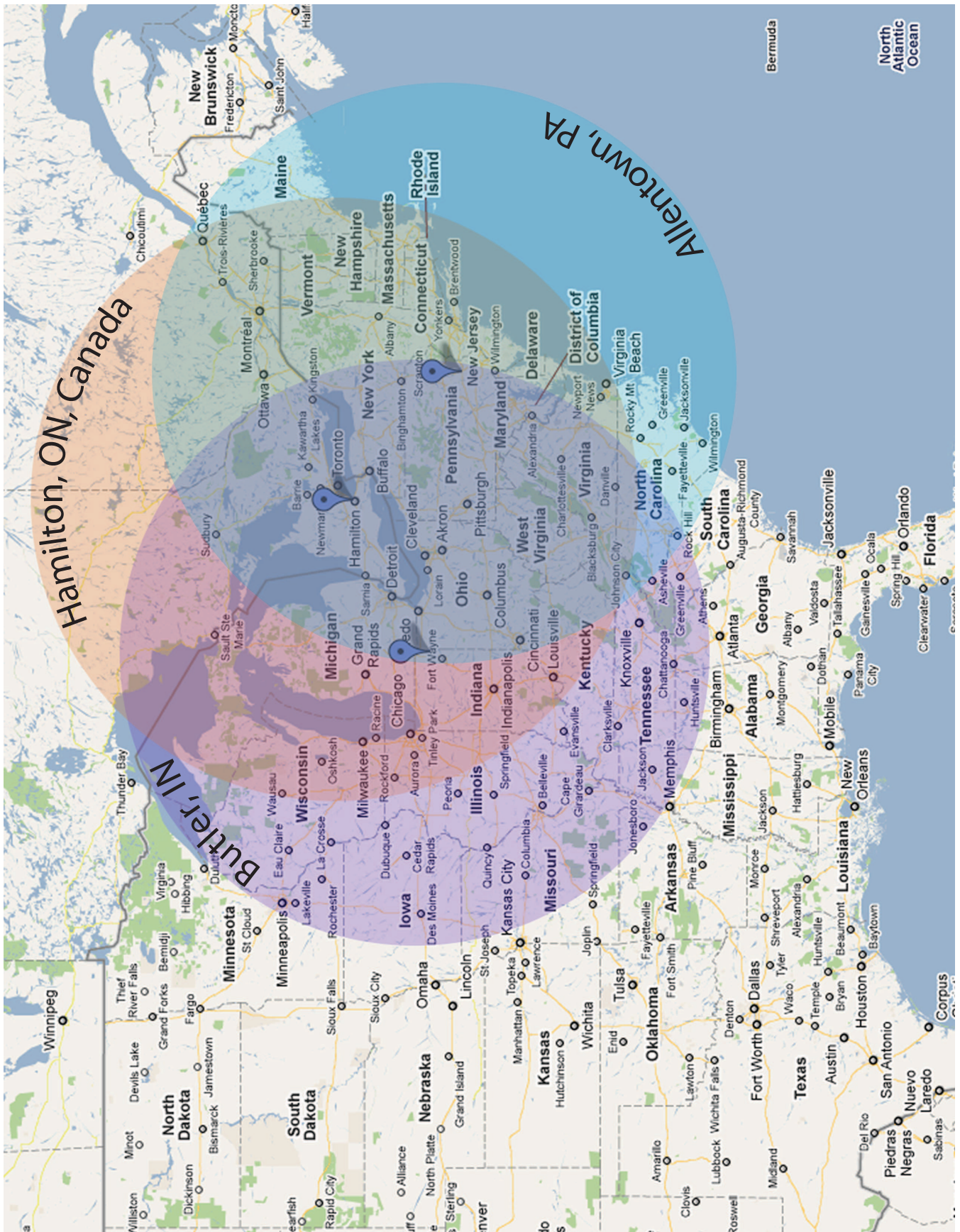
Aluminum – For aluminum products, ATAS sources materials based upon availability and price. The recycled content shown on the [ATAS Environmental Recycled Contents Position Paper on Aluminum](#) is an example of one supplier's aluminum material as sources by ATAS. Recycled content varies from supplier to supplier (and may range from 0% to 85%). When a certain recycled content is required by the customer, the material can be sourced, however, extended lead times and increased costs may be incurred. ATAS is certified to ISO 9001:2008 with design and has complete traceability on all materials used in the production of all our primary products.

Also refer to [ATAS Recycled Content of Roofing and Wall Panels](#) letter for more industry information on the recycled content for steel, aluminum and copper.

MR Credit 5 – Materials and Resources, Regional Materials, 10% to 20% – 1 to 2 Points

The intent of this credit is to increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation. Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% or 20%, based on cost, of the total materials value. If only a fraction of a product or material is extracted, harvested, or recovered and manufactured locally, then only that percentage (by weight) must contribute to the regional value. The minimum percentage regional materials for each point threshold is 10% to earn 1 point and 20% to earn 2 points.

ATAS has manufacturing facilities in Allentown, PA, Mesa, AZ and Maryville, TN. We source our materials based on availability and price. Qualification for the MR Credit 5 points depends upon where the material is coming from (extracted, harvested or recovered), which ATAS factory manufactured the product and the project location.



IEQ Credit 1 – Indoor Environmental Quality, Outdoor Air Delivery Monitoring – 1 Point

The intent of this credit is to provide for ventilation system monitoring to help promote occupant comfort and well-being. Install permanent monitoring systems to ensure that ventilation systems maintain design minimum requirements. Configure all monitoring equipment to generate an alarm when the airflow values or carbon dioxide (CO₂) levels vary by 10% or more from the design values via either a building automation system alarm to the building operator or a visual or audible alert to the building occupants. To achieve this point, additional equipment by others must be implemented for the monitoring.

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IEQ Credit 2 – Indoor Environmental Quality, Increased Ventilation – 1 Point

The intent of this credit is to provide additional outdoor air ventilation to improve indoor air quality (IAQ) and promote occupant comfort, well-being and productivity.

Mechanically ventilated spaces: increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by ASHRAE Standard 62.1-2007 (with errata but without addenda) as determined by IEQ Prerequisite 1: Minimum Indoor Air Quality Performance.

An alternate requirement was also developed for naturally ventilated spaces.

The ATAS InSpire wall may contribute to this credit because the costs to heat even the minimum amount of ventilation air are significant in regions with long heating seasons and high fuel prices. Providing additional outdoor ventilation air can be cost prohibitive. The InSpire wall, which utilizes solar energy to preheat ventilation air, can ease the financial burden of improving the overall comfort and well-being in the workplace.

IEQ Credit 7.1 – Indoor Environmental Quality, Thermal Comfort - Design – 1 Point

The intent of this credit is to provide a comfortable thermal environment that promotes occupant productivity and well-being. Design heating, ventilating and air conditioning (HVAC) systems and the building envelope to meet the requirements of ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy (with errata but without addenda). Demonstrate design compliance in accordance with the Section 6.1.1 documentation.

The standard includes additional requirements for school natatoriums and “core and shell” buildings.

The ATAS InSpire wall should be considered when thermal comfort, energy costs and indoor air quality are simultaneous considerations. This transpired solar collector generates solar-heated air, augmenting other systems in heating dominated climates.

IEQ Credit 7.2 – Indoor Environmental Quality, Thermal Comfort – Verification – 1 Point

The intent of this credit is to provide for the assessment of building occupants’ thermal comfort over time. Achieve IEQ Credit 7.1 – Thermal Comfort – Design and agree to conduct a thermal comfort survey of building occupants (adults and student of grades 6 and above) within 6 to 18 months after occupancy. This survey should collect anonymous responses about thermal comfort in the building, including an assessment of overall satisfaction with thermal performance and identification of thermal comfort problems. Agree to develop a plan for corrective action if the survey results indicate that more than 20% of occupants are dissatisfied with thermal comfort in the building. This plan should include measurement of relevant environmental variable in problem areas in accordance with ASHRAE Standard 55-2004 (with errata but without addenda).

An additional requirement for new construction is to provide a permanent monitoring system to ensure that

building performance meets the desired comfort criteria s determined by IEQ Credit 7.1 – Thermal Comfort – Design. To achieve this point, additional equipment by others must be implemented for the verification.

Residential projects are not eligible for this credit.

ID Credit 1 – Innovation in Design – 1 to 5 Points

The intent of this credit is to provide design teams and projects the opportunity to achieve exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED Green Building Rating System (for example, our InSpire product, a transpired solar collector, may qualify for an ID credit, however, that will ultimately be determined by the LEED project review board).

Innovation in Design credits can be achieved through any combination of the paths below:

Path 1 – Innovation in Design (1-5 Points for NC and CS, 1-4 Points for Schools)

In the LEED 2009 for New Construction and Major Renovations, LEED 2009 for Core and Shell Development, or LEED 2009 for Schools Rating Systems, one point is awarded for each innovation achieved. No more than 5 points (for NC and CS) and 4 points (for Schools) under IDc1 may be earned through Path 1 – Innovation in Design.

Identify the following in writing:

- The intent of the proposed innovation credit
- The proposed requirement for compliance
- The proposed Submittals to demonstrate compliance
- The design approach (strategies) used to meet the requirements.

Path 2 – Exemplary Performance (1-3 Points)

Achieve exemplary performance in an existing LEED 2009 for Schools prerequisite or credit that allows exemplary performance as specified in the LEED Reference Guide for Green Building Design and Construction, 2009 Edition. An exemplary performance point may be earned for achieving double the credit requirements and/or achieving the next incremental percentage threshold of an existing credit in LEED.

One point is awarded for each exemplary performance achieved. No more than 3 points under IDc1 may be earned through Path 2 – Exemplary Performance.

For credits with more than one compliance path, an ID (Innovation in Design) point can be earned by satisfying more than one compliance path if their benefits are additive.

The credits for which exemplary performance points are available through expanded performance include:

- SS Credit 7 – Heat Island Effect
- EA Credit 1 – Optimize Energy Performance
- EA Credit 2 – On-site Renewable Energy
- MR Credit 4 – Recycled Content

RP Credit 1 – Regional Priority – 1 to 4 Points (New for LEED 2009)

To provide incentive to address geographically specific environmental issues, USGBC regional councils and chapters have identified six (6) credits per rating system that are of particular importance to specific areas. Each RP (Regional Priority) credit is worth an additional one (1) point, and a total of four (4) additional points may be earned by achieving Regional Priority credits, with one (1) point earned per credit. Upon project registration, LEED-Online automatically determines a project's Regional Priority eligible credits based upon its zip code. If the project achieves more than four (4) Regional Priority credits, the team can choose the credits for which these points will apply. The USGBC website also contains a searchable database of Regional Priority credits.

Every LEED project manager should investigate these opportunities. Suggestions for documenting achievements in each of these categories listed above are shown on the following pages.