

When Reward Wall Systems’ ICF products are incorporated into the exterior envelope of a building, the energy efficiency and material properties of Reward can help contribute in 6 of the 7 topics for LEED v3—NC, Schools or Core and Shell categories. Summarized below are the topics and how Reward Wall Systems’ ICFs can contribute towards a LEED certified building.

LEED is an acronym for Leadership in Energy and Environmental Design. It is a green building rating system created by the US Green Building Council (USGBC). This system is designed to incorporate energy efficient, sustainable and environmental friendly buildings from the design to the construction and occupancy stages. LEED-NC is used for new construction of offices, institutional buildings (libraries, museums, churches, etc.), hotels, multi-family (4 or more stories). LEED-Schools is used for all types of educational facilities. LEED-Core and Shells is used for commercial office buildings, medical office buildings, retail, warehouse, lab facility.

The LEED system is divided into the following topics and each has a maximum point number available. Reward’s (RWS) maximum potential contribution is listed as well.

Topics	LEED-NC		LEED-Schools		LEED-Core & Shell	
	Max	RWS	Max	RWS	Max	RWS
Sustainable Sites	26	2	24	2	28	2
Water Efficiency	10	0	11	0	10	0
Energy & Atmosphere	35	19	34	19	37	21
Materials & Resource	14	6	13	6	13	6
Indoor Environmental Quality	15	2	23	4	12	1
Innovation & Design	6	5	6	4	6	5
Regional Priority	4	2	4	2	4	2
Total Points	110	36	115	37	110	37

There are four different levels of LEED certification as shown in the table.

Level	LEED
Certified	40-49
Silver	50-59
Gold	60-79
Platinum	80+

*All potential contributed points from Reward ICFs are highlighted.

Sustainable Sites (SS): This LEED topic covers Site Development issues.

Credit	Title	NC	Schools	CS
SS Prerequisite 1	Construction Activity Pollution Prevention	R	R	R
SS Prerequisite 2	Environmental Site Assessment	NA	R	NA
SS Credit 1	Site Selection	1	1	1
SS Credit 2	Development Density and Community Connectivity	5	4	5
SS Credit 3	Brownfield Redevelopment	1	1	1
SS Credit 4.1	Alternative Transportation – Public Transportation Access	6	4	6
SS Credit 4.2	Alternative Transportation – Bicycle Storage and Changing Rooms	1	1	2
SS Credit 4.3	Alternative Transportation – Low – Emitting and Fuel-Efficient Vehicles	3	2	3
SS Credit 4.4	Alternative Transportation – Parking Capacity	2	2	2
SS Credit 5.1	Site Development – Protect or Restore Habitat	1	1	1
SS Credit 5.2	Site Development – Maximize Open Space	1	1	1
SS Credit 6.1	Stormwater Design – Quantity Control	1	1	1
SS Credit 6.2	Stormwater Design – Quality Control	1	1	1
SS Credit 7.1	Heat Island Effect – Nonroof	1	1	1
SS Credit 7.2	Heat Island Effect – Roof	1	1	1
SS Credit 8	Light Pollution Reduction	1	1	1
SS Credit 9	Tenant Design and Construction Guidelines	NA	NA	1
SS Credit 9	Site Master Plan	NA	1	NA
SS Credit 10	Joint Use of Facilities	NA	1	NA

By utilizing the Reward ICF walls below grade it provides a basement that can be occupied to maximize open space. Also many projects are braced on the interior and therefore can minimize size excavation and reduce site disturbance. These will allow contribution to the credit Site Development.

Reward Wall System can contribute towards 2 credits and 2 points toward LEED certification within this topic.

Water Efficiency (WE): This LEED topic covers water conservation and pollution issues on site.

Credit	Title	NC	Schools	CS
WE Prerequisite 1	Water Use Reduction	R	R	R
WE Credit 1	Water Efficient Landscaping	2 – 4	2 – 4	2 – 4
WE Credit 2	Innovative Wastewater Technologies	2	2	2
WE Credit 3	Water Use Reduction	2 – 4	2 – 4	2 – 4
WE Credit 4	Process Water Use Reduction	NA	1	NA

Reward Wall System makes no contribution toward LEED certification within this topic.

Energy and Atmosphere (EA): This LEED topic covers measures to improve the energy efficiency and reductions in use of ozone depleting refrigerants and green house gases.

Credit	Title	NC	Schools	CS
EA Prerequisite 1	Fundamental Commissioning of Building Energy Systems	R	R	R
EA Prerequisite 2	Minimum Energy Performance	R	R	R
EA Prerequisite 3	Fundamental Refrigerant Management	R	R	R
EA Credit 1	Optimize Energy Performance	1 – 19	1 – 19	3 - 21
EA Credit 2	On-site Renewable Energy	1 – 7	1 – 7	4
EA Credit 3	Enhanced Commissioning	2	2	2
EA Credit 4	Enhanced Refrigerant Management	2	2	2
EA Credit 5	Measurement and Verification	3	2	NA
EA Credit 5.1	Measurement and Verification-Base Building	NA	NA	3
EA Credit 5.2	Measurement and Verification-Tenant Submetering	NA	NA	3
EA Credit 6	Green Power	2	2	2

Optimized Energy Performance

New Buildings	Existing Renovation	Points (NC & Schools)	Points (CS)
12%	8%	1	3
14%	10%	2	4
16%	12%	3	5
18%	14%	4	6
20%	16%	5	7
22%	18%	6	8
24%	20%	7	9
46%	42%	18	20
48%	44%	19	21

EA Prerequisite 2: Reward can contribute to the required prerequisite compliance with meeting the minimum performance standards of ASHRAE 90.1-2007 energy code



Credit is obtained for performance improvements beyond the minimum ASHRAE 90.1 energy code requirements (up to 19 points).

Building the exterior walls with Reward ICFs contributes to this requirement and credit by providing superior air tightness, insulating value and thermal massing. Use of Reward Wall Systems will result in a better insulated, energy efficient exterior wall system. The continuous solid insulated concrete wall created by Reward will reduce air infiltration and provide thermal mass benefits.

Combined with other components like energy efficient glazing and window units, well insulated roof assemblies, and design strategies like effective solar orientation, Reward can contribute to a project qualifying for minimum energy performance under EA Prerequisite 2, and for additional credits for energy performance beyond the minimum ASHRAE energy code requirements, under the Optimized Energy Performance credit.

Materials and Resources (MR): This LEED topic covers recycling building materials, and reducing construction waste.

Credit	Title	NC	Schools	CS
MR Prerequisite 1	Storage and Collection of Recyclables	R	R	R
MR Credit 1.1	Building Reuse – Maintain Existing Walls, Floors, and Roof	1 – 3	1 – 2	NA
MR Credit 1	Building Reuse – Maintain Existing Walls, Floors, and Roof	NA	NA	1 – 5
MR Credit 1.2	Building Reuse – maintain Interior Nonstructural Elements	1	1	NA
MR Credit 2	Construction Waste Management	1 – 2	1 – 2	1 – 2
MR Credit 3	Materials Reuse	1 – 2	1 – 2	1
MR Credit 4	Recycled Content	1 – 2	1 – 2	1 – 2
MR Credit 5	Regional Materials	1 – 2	1 – 2	1 – 2
MR Credit 6	Rapidly Renewable Materials	1	1	NA
MR Credit 7	Certified Wood	1	1	NA
MR Credit 6	Certified Wood	NA	NA	1

Under the credit Construction Waste Management, Reward’s ICF product is designed so that the form reduces waste during construction. The amount of waste that is produced is often possible to recycle as the expanded polystyrene foam and the plastic ties along with the concrete, supplementary cementitious materials (such as fly ash, silica fume, and slag) and rebar are recyclable materials. Any waste that is generated is 100% recyclable.

www.epspackaging.org/info.html

Reward’s insulating concrete form products contain recycled content and can contribute to the Recycled Content credit. The Reward plastic tie inserts are manufactured from 100% pre-consumer recycled first generation polypropylene plastic. One half (50%) of the calculated pre-consumer amount is included in the total value of recycled content for a project. The calculations and amount of recycled content that the iForm contributes is shown below.

For example, the 11” iForm tie weight is 188 grams

- 100%, (188 grams) is pre-consumer recycled content
- 1.5 ties per square foot
 - 282 grams per square foot recycled content
- Foam Weight: 288 grams/square foot
- Total System: 570 grams/square foot

- Cost of System: \$3.18/square foot
- Value of Recycled Content per Square Foot (282/570)(\$3.18)(50%) = 0.79
- % of product value recycled content \$0.79/\$3.18

Recycled Content of Reward Forms

Form	Tie weight per square foot in grams	Foam weight per sq ft in grams	Total Form weight in grams per sq ft	Cost per square foot	Value of recycled content per square foot	% of product value recycled content
9" iForm	272	287.6	560	\$3.12	\$0.76	24%
11" iForm	282	287.6	570	\$3.18	\$0.79	25%
13" iForm	292	287.6	580	\$3.25	\$0.82	25%
15" iForm	303	287.6	591	\$3.44	\$0.88	26%
17" iForm	348	287.6	636	\$3.60	\$0.98	27%

The Reward ICF walls can also contribute under the Regional Materials credit. The wall consists of formwork made from expanded polystyrene foam and plastic ties filled with concrete. Reward’s formwork products are manufactured in several plants around the country. Most areas will be within a 500 mile radius. Concrete consists of cement, water, fine and course aggregates and air. The water, air and aggregates are derived locally. The total value of materials that have been extracted and manufactured within a 500 mile radius has to equal 10% for one point and 20% for 2 points.

Reward will qualify as a regional material for projects located within a 500 mile radius of each of Rewards six manufacturing locations - Post Falls, ID; Colorado Springs, CO; Nixa, MO; Becker, MN; New Brighton, PA; Orlando, FL. Depending upon the location of the project relative to the manufacturing plant, projects located in the following states should qualify:

- | | | | |
|----------------------|---------------|----------------|---------------|
| Alabama | Kansas | New Jersey | Tennessee |
| Arizona | Kentucky | New Mexico | Texas |
| Arkansas | Louisiana | New York | Utah |
| Colorado | Maryland | North Carolina | Vermont |
| Connecticut | Massachusetts | North Dakota | Virginia |
| Delaware | Michigan | Ohio | Washington |
| District of Columbia | Minnesota | Oklahoma | West Virginia |
| Florida | Mississippi | Oregon | Wisconsin |
| Georgia | Missouri | Pennsylvania | Wyoming |
| Idaho | Montana | Rhode Island | |
| Illinois | Nebraska | South Carolina | |
| Indiana | New Hampshire | South Dakota | |
| Iowa | | | |



Indoor Environmental Quality (EQ): This LEED topic covers indoor air quality requirements for projects

Credit	Title	NC	Schools	CS
IEQ Prerequisite 1	Minimum Indoor Air Quality Performance	R	R	R
IEQ Prerequisite 2	Environmental Tobacco Smoke (ETS) Control	R	R	R
IEQ Prerequisite 3	Minimum Acoustical Performance	NA	R	NA
IEQ Credit 1	Outdoor Air Delivery Monitoring	1	1	1
IEQ Credit 2	Increased Ventilation	1	1	1
IEQ Credit 3.1	Construction Indoor Air Quality Management Plan During Construction	1	1	NA
IEQ Credit 3	Construction Indoor Air Quality Management Plan During Construction	NA	NA	1
IEQ Credit 3.2	Construction Indoor Air Quality Management Plan Before Occupancy	1	1	NA
IEQ Credit 4.1	Low-Emitting Materials – Adhesives and Sealants	1	1	1
IEQ Credit 4.2	Low-Emitting Materials – Paints and Coatings	1	1	1
IEQ Credit 4.3	Low-Emitting Materials – Flooring Systems	1	1	1
IEQ Credit 4.4	Low-Emitting Materials – Composite Wood and Agrifiber Products	1	1	1
IEQ Credit 4.5	Low-Emitting Materials – Furniture and Furnishings	NA	1	NA
IEQ Credit 4.6	Low-Emitting Materials – Ceiling and Wall Systems	NA	1	NA
IEQ Credit 5	Indoor Chemical and Pollutant Source Control	1	1	1
IEQ Credit 6.1	Controllability of Systems – Lighting	1	1	NA
IEQ Credit 6.2	Controllability of Systems – Thermal Comfort	1	1	NA
IEQ Credit 6	Controllability of Systems – Thermal Comfort	NA	NA	1
IEQ Credit 7.1	Thermal Comfort – Design	1	1	NA
IEQ Credit 7	Thermal Comfort – Design	NA	NA	1
IEQ Credit 7.2	Thermal Comfort – Verification	1	1	NA
IEQ Credit 8.1	Daylight and Views – Daylight	1	1 – 3	1
IEQ Credit 8.2	Daylight and Views – Views	1	1 – 3	1

IEQ Credit 9	Enhanced Acoustical Performance	NA	1	NA
IEQ Credit 10	Mold Prevention	NA	1	NA

Under the credit of Low Emitting Materials, the Reward product does not provide any VOCs, HCFCs or formaldehyde off gassing. All insulation installed in the building interior must meet the testing and product requirements of the California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda.

Building with Reward ICFs walls helps to enhance the quality of indoor air during construction.

Reward ICF walls can contribute to the Thermal Comfort - Design credit as the virtually air tight and thermal mass wall moderates the transfer of temperature to keep a uniform temperature without temperature swings in the interior conditioned space.

Contribution to the Enhanced Acoustical Performance credit is possible with the superior STC values that can be achieved with the Reward ICF wall. The wall’s acoustical benefits can be realized in various commercial building applications, including hotels, multi family condominiums, schools, theaters or structures near airports or interstates.

Innovation & Design Process (ID): This LEED topic covers credits available for innovation and exceptional performance above and beyond the requirements of the program.

Credit	Title	NC	Schools	CS
ID Credit 1	Innovation in Design	1 – 5	1 – 4	1 – 5
ID Credit 2	LEED® Accredited Professional	1	1	1
ID Credit 3	The School as a Teaching Tool	NA	1	NA

Areas where the Reward walls can contribute to Innovation in Design credit include.

- Extreme long life cycle of concrete structures
- Diverting construction Waste beyond requirement of 75%
- Use of fly ash, silica fume or slag cement as a substitute for cement in the concrete mix

Regional Priority: This LEED topic addresses construction waste and utilization of regional materials. The additional impact that the Reward ICF product may make regarding regional credits will vary depending on where the project is being built. The location of the project with respect to the location of where the Reward product is manufactured must be determined.

Credit	Title	NC	Schools	CS
SSc6.1	Sustainable Sites: Stormwater Design – Quantity Control	1	1	1
SSc6.1	Sustainable Sites: Stormwater Design – Quality Control	1	1	1
WEc1, Opt2	Water Efficient Landscaping: No Potable Water Use or Irrigation	1	1	1
MRC2(75%)	Material and Resources: Recycle and/or Salvage 75% Construction Debris	1	1	1
MRC5(20%)	Material and Resources: Use 20% Regional Materials	1	1	1
IEQc8.1	Indoor Environmental Quality: Daylight and Views (At least 75% occupied spaces)	1	1	1

Complete Summary of the maximum points per credit that Reward ICFs can contribute to:

Credit	Title	NC	Schools	CS
Sustainable Sites				
SS Credit 5.1	Site Development – Protect or restore Habitat	1	1	1
SS Credit 5.2	Site Development – Maximize Open Space	1	1	1
Energy Efficiency				
EA Prerequisite 2	Minimum Energy Performance	R	R	R
EA Credit 1	Optimize Energy Performance	19	19	21
Material and Resources				
MR Credit 2	Construction Waste Management	1 – 2	1 – 2	1 – 2
MR Credit 4	Recycled Content	1 – 2	1 – 2	1 – 2
MR Credit 5	Regional Materials	1 – 2	1 – 2	1 – 2
Indoor Environmental Quality				
IEQ Credit 3.2	Construction Indoor Quality – Management plan before occupancy	1	1	NA
IEQ Credit 4.6	Low-Emitting Materials – Ceiling and Wall Systems	NA	1	NA
IEQ Credit 7.1	Thermal Comfort – Design	1	1	NA
IEQ Credit 7	Thermal Comfort – Design	NA	NA	1
IEQ Credit 9	Enhanced Acoustical Performance	NA	1	NA
Innovative Design				
ID Credit 1	Innovation in Design	5	4	5
Regional Priority				
MR Credit 2	Material and Resources: Recycle and/or Salvage 75% Construction Debris	1	1	1
MR Credit 5	Material and Resources: Use 20% Regional Materials	1	1	1
Total	Contribution of ICF Toward LEED v3 Credits	36	37	37