

Don't Leave Anything on the Table

*Maximize LEED Points with Masonry
Inherent qualities of masonry and a little
foresight contribute toward 32 points*

By Elizabeth Young

Brick, block, stone, mortar and grout are inherently environmentally friendly, sustainable and durable building materials. These can go a long way toward contributing to LEED points.

Several LEED programs in place today include those for existing buildings (EB), commercial interiors (CI), core and shell (CS), neighborhood development (ND) and homes, with more on the horizon. LEED-NC 2.2, the version of LEED for new commercial construction and major renovations, is divided into six categories totaling 69 points. Twenty-six points are required for basic certification. No product qualifies for LEED points, only projects overall. Using Masonry can contribute points in all categories except Water Efficiency. Shrewd planning upfront can lead to more opportunities for building green, with little or no additional upfront costs!

Whether you are an architect, engineer, construction manager, mason contractor or building owner, you need to know this list and keep it as a quick reference for your future projects.

Sustainable Sites

Credit 2 Development Density and Community Connectivity

Urban infill is a major goal of environmentalists. Buildings in close proximity to each other require less strain on many natural, municipal and other resources.

The flexibility of masonry facilitates building in tight spaces, spaces of uneven elevations and other environmentally/geographically challenging spaces. It does not require large equipment or exceptional staging/storage spaces. Additionally, its inherent ability to provide fire compartmentation makes it an appealing material in dense, urban areas. Masonry can contribute to one point for this credit.

Credit 7.1 Heat Island Effect, Non-Roof

This credit is intended to reduce local areas of high temperature which can negatively impact the human and wildlife habitat of the area.

Using light colored masonry clay or concrete units with a solar reflectance index of at least 29 on at least 50% of the project's hardscape may be eligible for one point.

Energy and Atmosphere

Credit 1 Optimize Energy Performance

Up to 10 points can be earned for increasing overall energy efficiency and performance of new buildings by as much as 42%, or 35% in

existing building renovations, over ASHRAE base requirements. These points may be earned through a combination of efficiency of the building envelope and systems within.

Insulated masonry cavity wall design takes advantage of superior R-Value greatly exceeding code requirements and thermal mass to reduce requirements of HVAC systems. Masonry promotes passive solar design. It is able to store heat produced by the sun, as well as humans and equipment operating within the building, and slowly release it back into the atmosphere, reducing peak energy loads and shifting loads to off-peak hours. Together with items such as efficient HVAC and Energy Star appliances, points in this category may be earned.

Materials and Resources

Credit 1 Building Reuse

Up to 3 points can be earned for reusing 75% to 100% of the existing walls, roof and floors of the existing structure, as well as 50% of interior non-structural elements.

Masonry is known for its longevity and durability. Retaining as much of an existing masonry structure as possible extends the life of the building. It also reduces the need for production of new materials, reduces waste and reduces the environmental impacts of new construction and production.

Credit 2 Construction Waste Management

This credit awards one point for the diversion of 50% of waste and an additional point for 75% of waste away from landfills.

Unused brick, block, and stone can be saved for future use, crushed for use in roadbeds, landscapes or other applications. Leftover grout can also be reused as crushed concrete product. 100% of these materials are usable and can be kept out of landfills. Wooden pallets on which brick and block are shipped can be returned to the manufacturer for reuse. Plastic straps to secure masonry on pallets are recyclable.

Credit 3 Resource Reuse

As many as two points can be earned for using up to 10% the building materials salvaged from other projects. Salvaged brick can contribute toward achieving this total. This eliminates the need for production of new materials and promotes construction recycling. Care must be taken to ensure that salvaged materials meet current ASTM standards. Salvaged materials are great candidates for non structural or decorative elements and landscaping.

Credit 4 Recycled Content

Up to two points can be earned for using building products that incorporate recycled product. One point can be earned if 10% of the sum of materials used incorporates post consumer + ½ pre consumer recycled content. A total of 20% recycled content is worth an additional point.

Examples of ASTM compliant content in brick and block are fly ash, slag, silica, fume, recycled concrete masonry, glass, sawdust and metallic oxides. Because of the inert properties of brick, even contaminated soil can be used. Mortar and grout may also contain fly ash or slag. Certain brick have been developed that also absorb carbon, helping reduce greenhouse gas issues.

Credit 5 Regional Materials

One point can be earned if 10% of total building materials are extracted, processed and manufactured regionally. A second point earned if the total reaches 20%. This credit is a slam dunk for masonry. Brick, block, stone, cement, mortar and grout are all quarried or manufactured in most states, and can easily be purchased and delivered within the 500 mile requirement. The benefit of regional materials is the reduced energy and resources necessary to transport them from the place of origin to the job site. Using regional materials also positively impacts the local and regional economy.

Indoor Environmental Quality

Credit 3.1 Construction IAQ Management Plan, During Construction

This credit is designed to protect the workers during construction from dust and particulates that may occur as part of the construction process and, afterwards, the occupants of the building from contaminants that may have entered mechanical systems during construction. Choosing masonry products as interior wall finishes eliminates the need for drywall cutting and installation, reducing a major source of dust. Masonry is modular and may be ordered in special shapes and sizes, also reducing jobsite cutting. Combined with other measures, one point may be earned.

Credit 4 Low-Emitting Materials

Credit 4.1 and 4.2 address low-emitting adhesive and sealants and paints and coatings, respectively. Clay, stone and glass masonry products do not need any sealants, paints or coatings. They are naturally a finished product. CMU often has a factory-applied or field coat sealant. Today, many are low in volatile organic compounds (VOC). VOCs are emitted as gases from certain solids or liquids. VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects. Concentrations of many VOCs are consistently higher indoors (up to 10 times higher) than outdoors. VOCs are emitted by a wide array of products numbering in the thousands. Examples include cleaning supplies, pesticides, building materials, and furnishings and office equipment. The EPA's Total Exposure Assessment Methodology studies have found that elevated concentrations of organic chemical pollutants can persist in the air long after the activity in which they were used is completed.

Credit 7.1 Thermal Comfort: Design

One point may be earned if the HVAC system and building envelope are designed to meet the requirements of ASHRAE Standard 55-2004. Masonry can be used in an insulated cavity wall envelope design to

be very thermally efficient, contributing to occupants' comfort year around, especially due to its thermal damping effect which assists with temperature swings.

Credit 8.1 Daylight & Views

One point can be earned if daylight reaches 75% of regularly occupied spaces within a building and achieves an illumination level of 25 footcandles. Glass block masonry units provide excellent light transmission into building spaces, in many configurations and from one space to another throughout the building. Glass block can be laid as individual units interspersed in a solid wall or entire walls that are not loadbearing, and everything in between. Glass block units allow natural light in while providing a durable, low maintenance product.

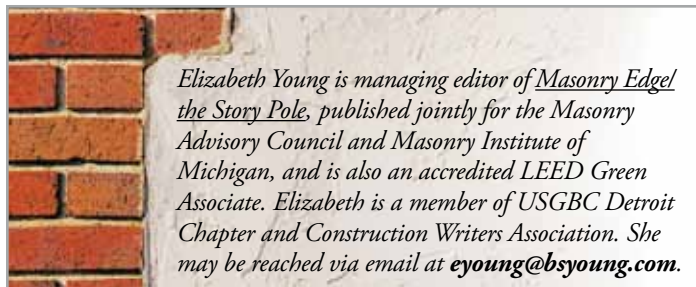
Innovation in Design

The intent of Innovation in Design points is for exceptional performance not outlined within other LEED categories. USGBC encourages a holistic approach building design. Credit 1 allows as many as four points to be awarded in this category.

- Use Masonry for ALL Its Worth A single finished wall system can inherently produce structural performance, acoustic performance, maximize energy efficiency, fire resistance and separation, interior and exterior aesthetic beauty, as well as providing durability and sustainability. There is no need for multiple materials to be transported, staged and installed or multiple trades to be managed. One product manufactured and delivered accomplishes much – at no additional cost. Masonry buildings remain viable in their original condition for many years, reducing the cost and maintenance materials.
- Going Above and Beyond With Masonry, it is easy to exceed the upper threshold of credit requirements such as materials manufacture, particularly CMU, within close proximity to the jobsite. Also, some masonry materials may be manufactured with high recycled content, exceeding requirements. Conscientious waste management can also exceed requirements.

From the use of masonry in the ways outlined above, there are more than enough means for masonry to contribute to LEED certification. Using brick pavers in managing storm water or for reducing heat island effect can contribute to even more points. Always remember to consult a LEED Accredited Professional to make the most of the resources available.

It's time to think about masonry anytime we are building green. It's time to always be thinking about building green!■



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The LEED program is an evolving program. Consult the most current version of the appropriate LEED program for updates and additional requirements/opportunities to building green with masonry.

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