Dear Industry Professional:

In reference to the LEED® category Materials and Resources - Credit 4.1 and 4.2 Recycled Content, TrusSteel® cold-formed metal truss components are manufactured from cold-rolled shapes containing 56.0% post-consumer recycled content and 16.8% post-industrial/pre- consumer recycled content.

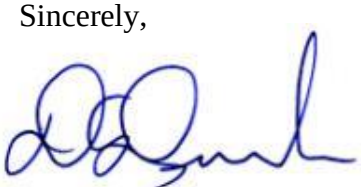
These calculations are based upon information provided by the Steel Recycling Institute. The methods for calculating the recycled content of steel produced by basic oxygen furnace and electric arc furnace were applied to the steel purchasing patterns of TrusSteel.

In reference to the LEED® category Materials and Resources - Credit 5.1 and 5.2 Regional Materials, TrusSteel component products are sourced in Pontotoc, MS, and Harvey, IL, and are then assembled into trusses at a local TrusSteel Authorized Fabricator prior to shipment to the job site. Regional extraction information is not available for this product.

All scrap from utilization or demolition of TrusSteel trusses can be 100% recycled and diverted from the waste stream (MR5 – Waste Management).

When submitting this letter per LEED® requirements, please verify that substitutions are not made and that TrusSteel products are supplied for this project.

Sincerely,



David C Dunbar, PE
National Sales Manager
Alpine TrusSteel

LEED® with COLD-FORMED STEEL

SUSTAINABLE STEEL

Steel is one of the world's most sustainable construction materials. Its strength and durability coupled with its ability to be endlessly recycled without ever losing quality make it truly compatible with long-term sustainable development. The steel industry is one of the few industries that can claim to have truly embraced the benefits of reducing energy to manufacture its products. Since 1990 the steel industry in North America has reduced the energy use per ton of steel produced by 31%.

An authentic solution for sustainable building construction

Each year, more steel by weight is recycled in North America than paper, plastic, aluminum and glass, combined. In 2012 alone, 88 million tons of steel were recycled in North America.

- Recycling steel saves the energy equivalent to power 20 million homes for one year.
- All North American steel products have a significant amount of recycled content, including some products with more than 90 percent.
- While other building materials can only be recycled into a lower quality product, steel can be recycled repeatedly and remade into new products without any loss of quality. It's the only true cradle-to-cradle building material.
- Steel is durable. It doesn't rot or serve as food for termites. Coated cold-formed steel used in construction has built-in corrosion resistance that will last hundreds of years beyond the life of a building. Cold-formed steel framing doesn't need maintenance or replacement like other materials.
- Steel used in buildings produces little to no construction waste, unlike other structural materials. Cold-formed steel is typically delivered to building sites in pre-manufactured or cut-to-length products to minimize costs and waste.

LEED® and GREEN BUILDING with CFS

Cold-formed steel (CFS) is well suited to meet the highest sustainability standards in all major green building standards and rating programs, including the National Green Building Standard (ICC-700) for residential buildings, the ASHRAE Standard 189.1 for commercial construction, the International Green Construction Code (IgCC), and the US Green Building Council's LEED® program, which covers all types of buildings.

LEED® is one of the most popular sets of criteria for scoring the sustainability of a building. Developed by the U.S. Green Building Council, LEED® is known as Leadership in Energy & Environmental Design. LEED® aims to improve occupant well-being, environmental performance, and economic returns of buildings using

established and innovative practices, standards, and technologies. Cold-formed steel can play a role in any high-performance building designed to meet LEED® requirements.

LEED® requirements have been evolving over time. As new versions are introduced, older versions are phased out. Determining which version of LEED® you can use depends on when your project was registered, which differs from the date you "start" the certification with an initial application for design or preliminary review. Projects that were registered with the USGBC before October 31, 2016 are eligible to use the LEED® 2009 rating system. Projects registered on or after October 31, 2016 must use LEED® v4. For projects registered under the 2009 system, June 30, 2021 is the last date any project can start the certification process with an initial application.

Cold-formed steel can help earn over a dozen points under both the LEED V4 and 2009 programs. However, the use of CFS or any other single framing material doesn't automatically qualify a project for points under any of the credits. Rather, framing materials can contribute to specific points in various categories. The LEED® process is complex and requires consideration of multiple variables including material characteristics, qualities, and other products in an assembly.

It is always recommended to work closely with your design team and not assume a credit or points are applicable. In addition, not all points can always be earned on the same project because LEED prohibits some credits with similar impacts from being applied simultaneously to avoid double counting.

The CFS industry should be aware that LEED requirements are gradually minimizing the impact of structural materials. For example, material credits now limit the amount that structure and enclosure materials can contribute to earning points for items such as recycled content. More importance is being placed on what goes into a product. Thus, the emphasis seems to be turning toward items such as product declarations (ingredients and their impacts) and similar base characteristics of materials. This is evident in LEED V4 when compared to prior LEED versions. This trend will similarly affect other structural products.

LEED® v4

LEED® v4 was introduced in 2013 and is the newest version of the world's premier benchmark for high-performance green buildings. The minimum number of points for the basic "Certified" level is 40. Points are not easy to come by so every point is important to a designer or owner seeking certification or a higher level of LEED® Silver (50 points), Gold (60 points), or Platinum (80 points).

The environmental benefits of steel framing, particularly high recycling rates, recycled content, and steel's inert, non-organic nature, make key contributions to achieving LEED® certification. Credits in LEED® v4 that cold-formed steel can help achieve are summarized in this section. Unless otherwise noted, requirements attributed to LEED® are based on the US Green Building Council document titled "LEED® v4 for BUILDING DESIGN AND CONSTRUCTION, Updated July 8, 2017," referred to as the LEED® documentation in this document.

Materials and Resources (MR) Credit Category

LEED® documentation states that the MR "credit category focuses on minimizing the embodied energy and other impacts." Thus, processes such as extraction, manufacturing, or disposal are addressed as well as disclosures related to ingredients or emissions. This credit category recognizes the benefits of reuse and optimized use of materials that are some of the strengths of CFS.

MR CREDIT: BUILDING LIFE CYCLE IMPACT REDUCTION (4 POINTS)

Option 3 of this credit is applicable to CFS. This option gives up to 4 points based on the percentage of structure reused (See Table 1).

Table 1. Points for reuse of building materials

Percentage of completed project surface area reused	Points for BD&C (e.g. New construction)
25	2
50	3
75	4*

Source: USGBC

***For core and shell buildings, the 75% level can earn an additional point.**

This option allows points for both reuse or use of salvaged building materials from off site or on site. CFS materials used in floors, walls, and roofs included in the enclosure and interior framing can be included in the calculations. Materials may not contribute toward this credit if also applying the MR Credit Material Disclosure and Optimization.

MR Credit: Building Product Disclosure and Optimization— Environmental Product Declarations - 2 points**

LEED® v4 approaches building materials content credits in a slightly different way than previous editions of LEED® by placing an emphasis on transparency and documentation. Cold formed steel can contribute toward achieving points with two options under this credit. These points are generally achieved through submission of Environmental Product Declarations (EPD).

- In the first option, points are earned when at least 20 installed products from at least five manufacturers provide an EPD. Members of the SFIA will be able to provide an industry-wide EPD for cold-formed steel to qualify as ½ of a product. This is currently available at the following link: https://www.scscertified.com/products/cert_pdfs/SCS-EPD-03838_SRI_CFS-Stud-Track_011916_web.pdf. This can be increased to one whole product if your manufacturer member is able to provide a Product-Specific (i.e., a Type III) EPD.

- A second option provides for an additional point when the value of products covered by a EPD represents 50% of the project cost. To achieve this point, a Product-Specific Type III EPD must show improvement in three of five specified impact categories versus the Industry-wide (generic) EPD. A CFS building will not be able to meet the requirements completely based on the CFS components because LEED® limits the contribution from the structure to 30% of the total project cost contribution. However, given the cost of the structure and enclosure of a building, it would be difficult to secure this point without the framing component.

When calculating points for either of these options, design teams should remember that CFS framing consists of many different "unique" products. For example, track, studs, strapping, and blocking, are unique products. Similarly, a floor system consists of products different from those in a roof truss system or a wall system. The total number of unique products used in a building should be considered.

Designers should take note that LEED® also has credits for **Innovation (IN) that may apply to the first option of this MR Credit. The IN Credit has an option that allows for an exemplary performance point to be earned by doubling the number of products covered by EPDs. CFS can help meet the next higher level of 40 products since any given building with CFS framing will contain many different CSF products. See the section on the Innovation (IN) Credit for additional information.

MR Credit: Building Product Disclosure and Optimization—Sourcing of Raw Materials – 1 point

Option 2 of this credit recognizes the value of recycled content in materials such as cold-formed steel. A point is available for projects where at least 25%, by cost, of the total value of permanently installed building products in the project meet the criteria for responsible extraction. The recycled content of cold-formed steel makes an important contribution to achieving this goal. Structural material, such as framing, can contribute a maximum of one-half of the cost to this point.

MR Credit: Building Product Disclosure and Optimization – Material Ingredients (1 Point)***

Points can be earned under this credit for products and materials that provide certain information related to life cycle performance or material ingredients. Option 1 is like the EPD points discussed previously, where information is required on at least 20 different products from at least 5 different manufacturers. CFS can contribute toward the 20 products, with the most direct method being to provide a Health Product Declaration (HPD). An HPD must disclose known hazards of material ingredients following the Health Product Declaration Open Standard (www.hpdcollaborative.org). Although there is no industry-wide HPD for CFS, some manufacturers have developed them for their products.

***As with the EPD points discussed previously, an additional exemplary performance point can be earned if the number of products with an HPD is doubled to 40. Different steel products (roof, floor, walls, stud, track, bracing, etc.) should be submitted as separate products for this purpose. See the Innovation (IN) credit category for additional information on exemplary performance points.

MR Credit: Design for Flexibility (1 point)

This credit, although limited to health care buildings, allows one point for efficient use of space including future expansion. Cold-formed steel can be used for at least two of the strategies that can be employed to earn this point (only one strategy is required). One strategy involves building extra shell space that can be used to expand into later. The other strategy recognizes roof-top expansion. There are many projects where CFS has been used successfully for roof top expansion on existing buildings, taking advantage of CFS's light weight.

MR Credit: Construction and Demolition Waste Management (1-2 points)

This credit has two options but only one can be applied to a given project. The first option can award 1 or 2 points depending on which of two "paths" are selected. The second option is limited to 1 point.

- Option 1 is based on achieving a reduction in construction waste going to a landfill. It has two paths. The first path awards a point for diverting 50% of waste with a minimum of three materials included in the calculations. The second path awards 2 points for diverting 75% of waste and using four materials in the calculations.

  Cold-formed steel framing is 100% recyclable, an attribute that can contribute toward the points in either path. However, steel can only be counted as one of the three materials in either path. Other products must be included in the calculations to award the points.

- Under option 2, the total project waste must be less than 2.5 pounds per square foot of floor area of the building to be awarded 1 point. Cold-formed steel from most manufacturers is cut to length and/or panelized off site. Thus, it can be a critical contributor to the points under this option compared to other structural materials that contribute extensive amounts of waste at the construction site.

Indoor Environmental Quality (EQ) Credit: IAQ Assessment (2 points)

The IAQ Assessment option under this credit awards two points to buildings that successfully pass air quality testing for VOCs. Steel is an Inherently Non-Emitting Source. Thus, it will not contribute to the contaminants that are required to be evaluated and should be a preferred building material for those seeking points under this credit.

IN Credit: Innovation (Exemplary Performance, 1–2 points)

The IN credit is designed to recognize exceptional performance or the use of innovative designs. The third option under this credit includes points for exemplary performance that apply to at least two areas related to CFS-- the use of EPDs and the use of HPDs (See prior MR credits on these two items).

The LEED® documentation indicates that an exemplary performance point can be earned by doubling the number of products covered by EPDs or HPDs. In each case, CFS can help meet the next higher level of 40 products since CFS framing consists of many different "separate" products. For example, track, studs, strapping, blocking, are unique products. Similarly, a floor system consists of products different from those in a roof truss system or a wall system. The total number of unique products used in a building should be considered for achieving the exemplary performance points.

LEED 2009® (LEED-New Construction and Major Renovation)

For those opting to use the LEED® 2009 version, CFS contributes to earning points in the following credits:

Credit MR 1.1: Building reuse (up to 3 points)

This credit is designed to encourage the use of existing buildings and their components. CFS is used routinely in rehabilitation/remodeling projects, for example, in reconfiguring a building for a new tenant, while allowing the main building structure and devising walls to remain intact. CFS has also been used as a method for expanding upward on older existing buildings as opposed to a teardown and rebuild. Its light weight often makes it feasible to add new stories to existing buildings, especially in older urban areas.

Credit MR 2 Construction Waste Management (up to 2 points)

Credits are awarded based on recycling and recovery rates for construction products. Steel is 100% recyclable. Because it plays a key role in diverting construction debris from the waste stream, steel is eligible for Credits MR 2.1 and 2.2. The specific contribution will vary by project and must be determined by the contractor and/or design team.

Credit MR 4 Recycled Content (up to 2 points)

Cold-formed steel framing contains a high percentage of recycled content, earning one point for recycled content that constitutes 10% of the total value of construction materials and a second point when recycled content is 20% of the total cost.

Additional points for the Innovation in Design (ID) credit are available if a project's overall recycled content exceeds 30% or higher. See the section on Credit ID: Innovation in Design.

Credit MR 5 Regional Materials (up to 2 points)

Credit MR 5 requires the jobsite to be within a 500-mile radius of the manufacturing facility and the location where raw materials are extracted. One hundred percent of the material does not have to be extracted and manufactured within the 500 miles. The requirements allow for a percentage of the product to qualify. The national network of SFIA Manufacturer members makes it likely that they will be able to qualify for this credit within the market areas that the individual companies service.

Credit IEQ 3.2: Construction Indoor Air Quality Management Plan – Before Occupancy (1 point)

Option 2 under this credit awards one point for air testing before occupancy. Because of its inert nature, steel will not contribute any emissions identified in the requirements. CFS framing is a key strategy used to obtain this point.

Credit ID 1: Innovation in Design (up to 3 points)

Path 2 under this credit awards up to three points for exemplary performance above and beyond the basic levels for other LEED® credits. By reaching the next incremental thresholds (30%, 40%, etc.) for a credit, a building will receive up to a maximum of three credits. CFS is a natural for helping to achieve these points given the minimum default rate for recycled content reported by the Steel Recycling Institute is 34.9%. Your SFIA member manufacturer is likely to produce or have available cold-formed steel framing with even higher recycled content.

More information about Recycled Content is available at this location: http://goo.gl/NIszN3
