VIRACON

"The Leader in Glass Fabrication"™

800 Park Drive
P.O. Box 990
Owatonna, MN 55060
507-451-9555

RE: - LEED Certification

Dear :

Viracon's glass, airspacer and silicone used in insulating glass have 0% of recycled content per the LEED certification credit 4.1.

The 4.1 credits for Recycled Content require post-consumer (weighted average of 20%) or post- industrial (weighted average of 40%) recycled content material. I have attached a copy of the LEED Credit 4 Recycled Content page.

While the float glass manufacturers recycle approximately 25% of their own in process glass in making float glass, it is not post-consumer or post-industrial material.

Viracon recycles a number of our excess or cutoff materials such as glass, pvb and airspacer material, but except for pvb that is recycled into new pvb material, none of our other recycled materials go into making similar products. Glass for example is used in fiberglass or road materials.

I have also attached a copy of the sheet you sent us with the recycled percentage being 0. Please call with any additional questions.

Sincerely,

Cc:

VIRACON

"The Leader in Glass Fabrication"™

800 Park Drive
P.O. Box 990
Owatonna, MN 55060
507-451-9555

January 04, 2007

Environmental Product Documentation
LEED Green Building System

Re: LEED Materials Data Sheet

Below you will find information related to glass products that Viracon provides.

1. Recycle content: (Recycled Content Credit 4)
    a. Glass
        i. Viracon's float glass manufacture recycles approximately 25% of their raw materials back into their raw glass materials.
        ii. Viracon recycles roughly 35% of the unused glass products that are not shipped to the end customer as finished product. This would include materials used in road construction, fiberglass and as cullet the starter material in raw float glass.
    b. PVB
        i. Viracon's PVB suppliers on average recycle approximately 35% of their materials back into the formulation of raw materials.
        ii. Viracon recycles 85% of the trimmed PVB materials not shipped to the end customer.
            1. 50% of that material will be reused by the manufacture of the raw PVB materials.
            2. 50% of that material is reused in the manufacture of carpets
        iii. Viracon recycles 90% of the scrapped PVB & Glass materials not shipped to the customer is recycled. It is used in road construction materials.
    c. Air Spacers (Aluminum) – 85% of the aluminum air spacers material that is not used is recycled. This material is recycled into various aluminum products
    d. # Lumber – 90% of scrap lumber is either used for one of these two products:
        i. Reused as packing cases
        ii. Chopped and used for mulch or animal bedding

* If required, Viracon can provide detailed information on our recycling efforts.

Viracon purchases our lumber from suppliers that comply with (FPC) Forest Practice Code and (SFI) Sustainable Forestry Initiative.

2. Materials Credit 5 – Local/Regional Materials:
   Intent: Specify a minimum of 20% of building materials that are @ manufactured Regionally within a radius of 500 miles.

@ Manufacturing refers to the FINAL ASSEMBLY of components into the building product that is furnished and installed by the tradesmen. For example, if the hardware comes from Dallas, Texas, the lumber from Vancouver, British Columbia and the joist is assembled in Kent, Washington; then the location of the FINAL ASSEMBLY is Kent, Washington. (THIS IS TAKEN DIRECTLY FROM THE: LEED Rating System 2.0 Manual.)

Therefore if the if the fabricated glass materials are shipped to the job site and the glazing materials are assembled at the jobsite, this would constitute the final assembly point and be within the 500 mile radius limit.

Viracon does provide additional documentation on the environmental efforts that we have made in the area of sustainable design. Also available upon request MSDS for various materials used within our products. If you would like this additional information, please contact us at: www.viracon.com or 800-533-0428 and ask for the Architectural Design Group.

800 Park Drive
P.O. Box 990
Owatonna, MN 55060
507-451-9555

April 19, 2010

The U.S. Green Building Council (USGBC)
The U.S. Green building council is an organization of leaders from across the building industry working to produce a new generation of high performance building through promoting buildings that are environmentally responsible, profitable and healthy places to live and work.

Leadership in Energy and Environmental Design (LEED)
LEED is a rating system developed by the USGBC as a standard for high performance sustainable buildings created to define green building through a standard of measurement and raise consumer awareness of green building benefits. LEED 2009 has four levels of certification: Certified: 40-49 points, Silver: 50-59 points, Gold: 60-79 points and Platinum: 80 points and above. There are 100 base points, 6 possible Innovation in Design and 4 Regional Priority points. The points cover the entire building process including everything from site selection all the way through building occupancy and are broken into 5 base and 2 bonus categories.

Out of the seven categories, glass selection may be able to **help** in four; Energy and Atmosphere (EA), Materials and Resources (MR), Indoor Environmental Quality (IEQ) and Innovation in Design (ID). The following illustrates which credits glass may affect within each category and specifically concentrates on the New Construction points.

Energy and Atmosphere (EA)
There are three prerequisites in the Energy and Atmosphere category. A prerequisite is worth no points, however must be done in order to achieve any LEED certification. In addition to the prerequisites there are six credits. In the LEED rating system a credit is not the same as a point. A credit is essentially an area of emphasis within the category, each credit has a set number of points available within it. Glass selection may be able to help with one of the three prerequisites and one of the six credits in this area.

EA Prerequisite 2: Minimum Energy Performance
Option 1 requires software energy simulation; Options 2 and 3 do not require modeling.

> **Option 1- Whole Building Energy Simulation**
> Demonstrate at 10% improvement in the proposed building performance rating for new buildings. Calculate the baseline building performance rating according to the building performance rating method in Appendix G of ANSI/ASHRAE/IESNA Standard 90.1-2007 using a computer simulation model for the whole building project. See Section 5 of the Standard for the specific Building Envelope Requirements.
>
> **Option 2- Prescriptive Compliance Path: Advanced Energy Design Guide**
> This option only applies to office buildings or retail buildings under 20,000 square feet, small warehouses under 50,000 square feet or schools under 200,000 square feet.
>
> **Option 3- Prescriptive Compliance Path: Advanced Buildings Core Performance Guide**
> This option only applies to projects less than 100,000 square feet. Healthcare, warehouse and laboratory projects are ineligible for this path.

EA Credit 1: Optimize Energy Performance, 19 points possible
Select one of the following three compliance paths. Option 1 requires software energy simulation; Options 2 and 3 do not require modeling. Achieving points through any of the three options assumes compliance with EA Prerequisite 2: Minimum Energy Performance.

Option 1 - Whole Building Energy Simulation (1-19 points)
Demonstrate a percentage improvement in the proposed building performance rating compared with the baseline building performance rating according to ANSI/ASHRAE/IESNA Standard 90.1-2007 using a computer simulation model for the whole building project. The further the Standard is exceeded the more points are achieved. For example, exceeding the standard by 14% provides 2 points, 22% 6 points, etc. all the way to a maximum of 19 points available for exceeding the standard by 48%.

Option 2- Prescriptive Compliance Path: Advanced Energy Design Guide (1 point)
This option only applies to office buildings or retail buildings under 20,000 square feet, small warehouses under 50,000 square feet or schools under 200,000 square feet.

Option 3- Prescriptive Compliance Path: Advanced Buildings Core Performance Guide (1-3 points)
This option only applies to projects less than 100,000 square feet. Healthcare, warehouse and laboratory projects are ineligible for this path. One point is available of projects complying with Sections 1 and 2 of the Core Performance Guide and up to two additional points for implementing strategies in Section 3.

Materials and Resources (MR)
There is one prerequisite along with seven credits available in Materials and Resources. Glass selection may be able to help with two of the seven credits in this area.

MR Credit 4: Recycled Content, 2 points possible
Specify materials with recycled content

Glass for MR Credit 4
Float glass used in commercial applications contains recycled material, however, per the USGBC definition, waste generated within the float manufacturing process is specifically excluded from being counted toward recycled content. The only content meeting the definition of recycled content is glass returned to a float manufacturer from another source, such as a fabrication facility. Exact percentages vary by manufacturer and are deemed proprietary. As a result, Viracon's glass products contain recycled content, but do not contribute to this credit per LEED® guidelines.

MR Credit 5: Regional Materials, 2 points possible
Specify materials that have been extracted, harvested or recovered, as well as manufactured within 500 miles of the project site.

Glass Products for MR Credit 5
The material Viracon uses in the glass fabrication process comes from a variety of suppliers. Each supplier uses raw materials extracted from multiple locations. It is not possible, with the current fabrication systems, to track each fabricated glass unit back through these processes to a specific point of extraction.

Viracon glass will be manufactured at Viracon’s Owatonna, MN, St. George, UT or Statesboro, GA facility.

Indoor Environmental Quality (IEQ)
There are three prerequisites along with ten credits available in the Indoor Environmental Quality category. Glass selection can help with one of the credits in this area.

IEQ Credit 8.1: Daylight and Views - Daylight, 1 point possible
Daylight 75% of regularly occupied spaces – compliance determined through one of four methods:

Option 1 - Simulation
Demonstrate through computer simulations that 75% of all regularly occupied spaces achieve daylight illuminance levels of a minimum of 25 footcandles (fc) and a maximum of 500 fc.

Option 2 - Prescriptive
Comply with requirements outlined in LEED Reference Guide for Green Building Design and Construction.

Option 3 - Measurement
Demonstrate through records of indoor light measurements that a minimum daylight illumination level of 25 fc has been achieved in at least 75% of all regularly occupied spaces.

Option 4 - Combination
Any of the above calculation methods may be combined to document the minimum daylight illumination.

Product Performance for EQ Credit 8.1
The Visible Light Transmittance (aka VLT or Tvis) needed to determine compliance can be found above under Product Performance EA Prerequisite and Credit 1.

For additional information, please contact us at www.viracon.com or 800-533-2080.

Sincerely,

Don McCann, Architectural Design Manager