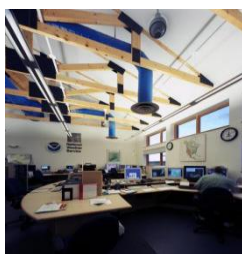




## Attaining LEED Credits with Biobased Products in Federal Buildings

There are numerous examples of the successful integration of biobased materials within the built environment throughout the residential, commercial, industrial and governmental sectors. The case studies outlined below focus only on government projects, although many similar studies within other sectors can be found online and in print. Two good resources are the [Green Building Project Search](#) and the section on rapidly renewable materials in the [BuildingGreen](#) web site. For federal buildings, there are a few noteworthy examples of the successful integration of biobased products, both in the achievement of the Materials and Resources Credit 6 (MR 6) as well as additional credits. In many cases, low VOC paints and adhesives were also utilized, but it was not clear whether or not those were biobased materials. If not, this represents a simple way for biobased products to be further integrated into the built environment.



### [Weather Forecast Office](#)

The Weather Forecast Office in Caribou, ME is one example of a project that met the MR 6 requirements. This was achieved through the use of pressed strawboard for all the built-in cabinetry, rapidly renewable acoustical ceiling tiles, and composite wood. In addition to MR 6, the use of the low-emitting composite wood helped with the achievement of Indoor Environmental Quality Credit 4 (IEQ 4).

### [Potomac Yards 1 and 2](#)

Potomac Yards 1 and 2 in Arlington, VA is another example of a project that successfully incorporated biobased products toward credit achievements other than MR 6. The project used a wide range of biobased products and materials including composite wood, corn-based fabric, rice hulls and bamboo. In fact, almost 83% of the wood used was certified, allowing the project to meet MR 7 requirements. As with the previous projects, low-emitting composite wood helped with the achievement of the IEQ 4 credits.



### [U.S. Environmental Protection Agency](#)

Although it was not able to meet the required percentage value to meet MR 6, the U.S. Environmental Protection Agency's Region 8 Headquarters was nevertheless able to integrate numerous biobased products. Some of these products and materials include composite wood, rice hulls, cork and bamboo flooring as well as fabric and bamboo wall coverings. The project was able to achieve MR 7, which rewards the use of certified wood and bamboo. As with the other examples outlined here, the use of low emitting composite wood also helped to achieve IEQ 4.

### Center for Immigration Services

Another project that achieved MR 6 is the Center for Immigration Services, Nebraska Service Center in Lincoln, NE. The total value of building materials with rapidly renewable content was 8.47%. Materials used included low-emitting composite wood, which also helped with IEQ 4 credit achievement.



### Department of Interior

Another example of government buildings successfully incorporating biobased products is found in the Department of Interior's Herbert H. Bateman Educational and Administrative Center, which was designed to LEED Gold standards. Products used in this project include bamboo and cork flooring and gluelam ceiling beams.

Despite these examples of utilizing biobased products to help attain LEED credits, there is still a significant difference between the percentage of new construction projects that successfully meet the requirements for MR 6 versus those credits that focus on recycled or reused materials. While research on specific credit achievement is limited, two such studies have looked briefly at the use of rapidly renewable products within LEED. One recent study found that rapidly renewable materials such as cork and bamboo flooring are used in only 28% of Platinum projects and in less than 5% of all other projects.<sup>1</sup> A second study reported a greater percentage of use of rapidly renewable material among Gold and Platinum rated projects than with projects achieving lower levels of certification.<sup>2</sup> A more comprehensive breakdown of the results of that study is shown in Table 1. The authors suggest that in some cases there is a perceived tradeoff between the credits focusing on rapidly renewable materials and certified wood, and those credits dealing with recycled content and regional materials.

**Table 1. Percentage of U.S. Projects Attaining Various LEED Credits.**

Credit	% of Projects in Different Certification Levels Attaining the Specified Credits		
	Certified	Silver	Gold/Platinum
<b>EQ 4.1</b> (Low Emitting Materials– Adhesives and Sealants)	100	100	100
<b>EQ 4.2</b> (Low Emitting Materials - Paints and Coatings)	95	94	100
<b>EQ 4.3</b> (Low Emitting Materials – Flooring Systems)	92	100	100
<b>EQ 4.4</b> (Low Emitting Materials – Composite Wood & Agrifiber Products)	42	75	100
<b>MR 6</b> (Rapidly Renewable)	9	6	50
<b>MR 7</b> (Certified Wood)	32	44	50

## References

- 1) Yudelson, Jerry. Green Building through Integrated Design. McGraw Hill, 2009.
- 2) Da Silva, Lucas and Janaka Ruwanpura. "Review of the LEED Points Obtained by Canadian Building Projects." Journal of Architectural Engineering (2009): 38-54.

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