

TEXAS ASPHALT

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USING ASPHALT AS A GREEN PAVEMENT FOR LEED CREDITS *By Kyle Swaner*

E

nvironmentally friendly. We hear this phrase more often today than ever before. Never in history have we seen the heightened awareness of conservation, recycling and looking for new ways to fuel our nation with things such as renewable energy.

The word "Green" is synonymous for this. Everyone wants to be green and there are some instances in the construction industry where being green is a requirement. Companies, corporations and municipalities are using a new standard in their construction practices to measure the extent of just how green they are. LEED (Leadership in Energy and Environmental Design) credits are one such way to accomplish this.

The U.S. Green Building Council introduced the LEED rating system to encourage all developers to consider the sustainability of their construction products.

What is sustainability? Sustainability is "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." In other words, what we do now should not hinder our children and future generations in meeting their own needs.

Designers, architects and engineers are searching for ways to achieve this goal, but asphalt pavements are an often-overlooked source for LEED credits. Asphalt is an excellent source for LEED credits and as an industry, we should promote using asphalt pavements for this purpose.

To earn certification, a building project must meet certain prerequisites and performance benchmarks ("credits") within each category. Projects are awarded "Certified, Silver, Gold, or Platinum" certifications depending on the number of credits they achieve.

The following categories show the point system within each category.

- Construction Activities (13)
- Materials, Resources (12)
- Pavement Technologies (11)
- Project Requirements (11)
- Environment, Water (10)
- Access, Equity (9)
- Exemplary Performance (7)

So, how does asphalt affect LEED credits? Let us take a closer look at the Pavement Technologies category. The life of the pavement, performance monitoring, and other criteria contribute to the total points awarded toward LEED credits. The following shows the point system with Pavement Technologies:

- Long-Life Pavement (3)
- Pavement Performance Monitoring (1)
- Warm Mix Asphalt (2)
- Cool Pavement (1)
- Permeable Pavement (1)
- Quiet Pavement (3)

Asphalt pavements contribute to LEED credits in a variety of other ways. Asphalt pavements are 100% recyclable. As such,

credits associated with recycling and waste management are attainable. By using recycled shingles (tear-offs), this will help reach the waste management credits.

LEED credits can be attained for porous pavements use under categories for storm water management (both quantity and quality). Porous asphalt pavements reduce the quantity and improve the quality of storm water runoff. They also have been proven to aide in heat island reduction. In recent times, coating materials have been introduced to the industry. These allow designers to express their creativity and ingenuity while at the same time improving pavement reflectance and capturing credit for heat island reduction. From conventional, to porous, to pattern-stamped, asphalt pavements provide flexibility and options to architects and engineers designing sustainable pavements.

Warm Mix Asphalt (WMA) also contributes to LEED credits. WMA is the technology that is being used to produce Hot Mix Asphalt (HMA) paving mixtures at significantly lower mixture and placement temperatures. Advantages of this technology includes lower energy consumption, lower fumes, lower odors and emissions, easier placement and less aging of the binder from exposure to extreme high temperatures.

In conclusion, what impact does the production and use of HMA have on the environment? In many respects, HMA is

the most environmentally friendly paving material that there is. First, HMA materials are 100% recyclable. Furthermore, it is the most recycled product in the United States. More asphalt is recycled every year than any other material. Virtually all of the reclaimed Asphalt Pavement (RAP) that is removed from existing streets and highways is recycled into new HMA. Because of this, recycling of HMA is economical and it occurs without the need for government mandates or subsidies.

HMA also has been shown to consume less energy than other materials and systems. A study done by the Asphalt

Institute indicated that a comparably designed HMA pavement required only about half the total energy to construct as a comparable portland cement concrete pavement.

Improvements in technology have been steadily reducing the airborne emissions from the production and placement of HMA. Dust from the drying of aggregates is the major emission and is now almost totally captured and recycled through the baghouse. Other emissions are primarily combustion products from the burning of fuel to heat the aggregates and fumes from hot asphalt

itself. Fuel burners are now much more efficient, resulting in very complete combustion and with the introduction of WMA, those emissions are reduced to a much greater extent.

Therefore, by using asphalt pavements in construction, there are many possibilities to help government entities, municipalities, companies and corporations reach their goal of being environmentally friendly. Black is now Green. ♣

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