Concrete Pavements and Parking Lots

Overview

There is a tremendous demand to design more sustainable solutions. Today, businesses are turning to sustainable concrete pavements and concrete parking lots, along with traditional applications such as driveways, playgrounds, runways, highways and streets, to achieve these goals.

Environmental Benefits

- Heat Island Reduction is enhanced with lighter color concrete compared to dark asphalt pavements. The resulting lower temperature for paved parking areas, reduces the heat-island effect and lowers cooling costs for adjacent buildings. Under "LEEDv4 Sustainable Sites: Heat-Island Reduction" you can take advantage of the optimal Solar Reflective (SR) & Solar Reflective Index (SRI) values for LEED credits.
- The lighter concrete surfaces reflect night illuminants which means that lighting cost can be reduced with less light fixtures – eliminate 3 out 10 light fixtures in parking lots and have the same levels of lighting (Source: NRMCA Concrete Infocus). Also enhances driver and pedestrian safety, while reducing fixture and energy costs.
- The use of recycled cement replacement materials, known as supplementary cementitious materials (such as fly ash or slag), reduce the energy and emission levels associated with the production and use of portland cement, while yielding higher performance. LEED credits are available for the use of pre-consumer material.
- The use of Recycled Concrete Aggregates (RCAs) and higher quality aggregates from Orca yields optimal carbon reductions and performance. LEED credits are available for post- or pre-construction material.

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SUSTAINABILITY: A CLOSER LOOK

"When evaluating environmental impacts, it is important to look at the entire life cycle of a product or projects. Looking at one phase of the life cycle, such as material extraction, manufacturing or construction, and ignoring the operation or use phase may not result in the most efficient design. … concrete pavements can improve our transportation infrastructure and minimize environmental impacts through all phases of a pavement's life cycle, including material extraction, manufacturing, construction, use (operations and maintenance) and recycling/reuse/disposal."

Concrete Sustainability Report

STORM WATER MANAGEMENT: A CLOSER LOOK

Pavements can be constructed using permeable (also called "pervious") materials to capture and store storm water runoff, allowing it to percolate into the ground and thereby recharge groundwater supplies and/or control discharge outflow.

SUSTAINABILITY SOLUTION: CONCRETE PAVEMENTS AND PARKING LOTS

Concrete Pavements and Parking Lots

Environmental Benefits (continued)

- Reduction in ambient noise
- Reduction in surface run-off
- Cars and trucks traveling on concrete pavements consume less fuel
- Concrete is recyclable

Use Benefits

- Long lasting service life due to durability of concrete compared to asphalt
- Concrete parking lots can be colored or textured to meet owner's aesthetic designs
- Concrete parking lots can carry heavy loads

Economic Benefits

- Reduced maintenance costs with concrete parking lots or concrete overlays. Asphalt typically requires liquid treatments every few years and complete resurfacing every 10 years or less. Asphalt maintenance also causes costly interruptions to business.
- Increased cost effectiveness due to extensive life cycle
- Less soil waste than with asphalt. This is due to the fact that a pavement with concrete is thinner and more rigid than asphalt.
- Existing asphalt pavement in need of repair or replacement can be overlaid with concrete.

PAVING PROJECT DESIGN TOOL

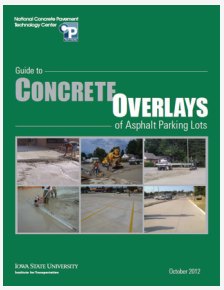
Are you planning a pavement or parking lot project? We offer a robust, paving design tool to assess your project. This free tool brings together concrete paving experts to assist you in designing the optimal solution. Contact us today to learn more.

LEARN MORE

View Concrete Paving Tool Kit

www.asconline.org/technical/paving-tool-kit

- Paving Brochure
- Illuminance PFB1
- Reflectivity Case Study
- Guide to Concrete Overlays



- FAQs
- ACI 330.2R-17 Guide
- ACI 330R-08 Guide
- ACI Parking Area Reference Sheet
- ASCC/NRMCA Presentation
- And more…

Contact Information:

Juan Gonzalez I Sustainability Manager
Central Concrete I Right Away Redy Mix
408.771.6261
jgonzalez@us-concrete.com
www.centralconcrete.com
www.rightawayredymix.com

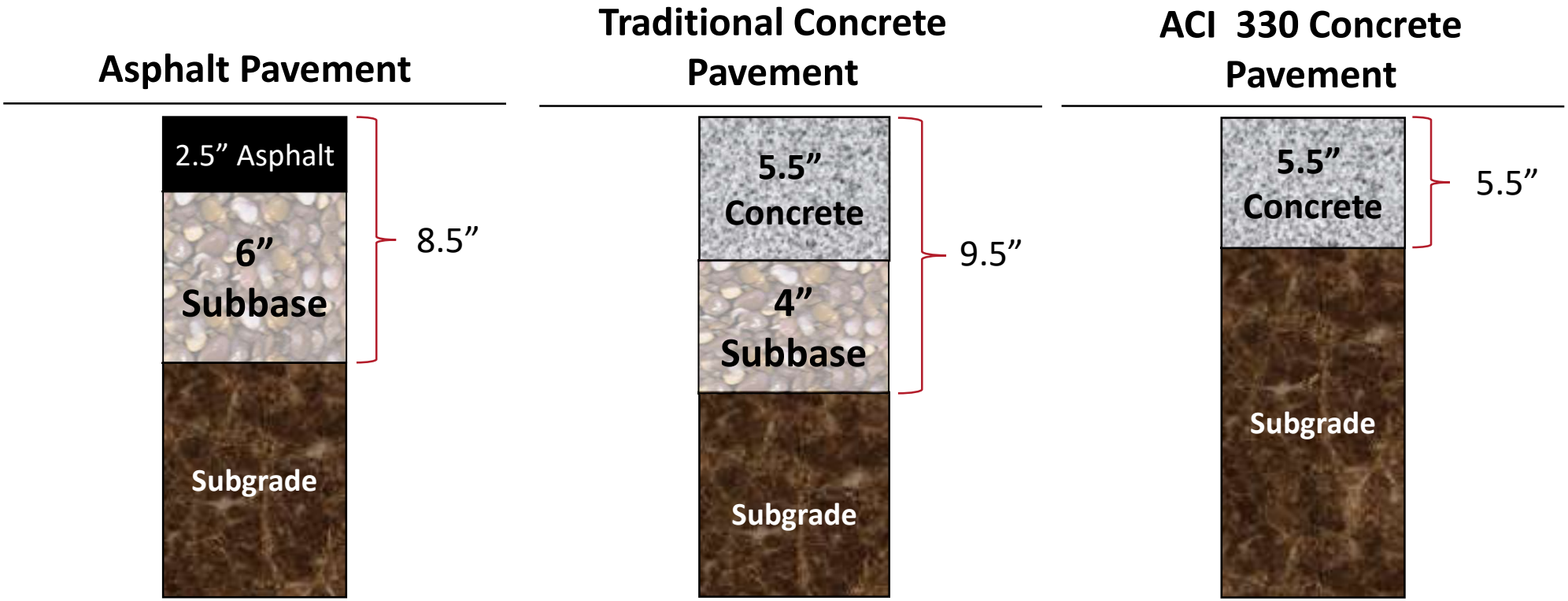
Ask us about these other solutions:

- Low Carbon Mixes with SCMs
- Carbon Sequestration with CarbonCure Technology
- Recycled Concrete Aggregate
- Returned Fresh Concrete

SUSTAINABILITY SOLUTION: CONCRETE PAVEMENTS AND PARKING LOTS

Concrete Parking Lot Pavement Design

Medium Duty Pavement Design Comparison



Opportunities to reduce excavation

- 42% thickness reduction compared to traditional concrete
- 35% thickness reduction compared to asphalt

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