



concrete solutions

for comparing parking lot thicknesses



Any design for a new parking area should include consideration of expected load, desired longevity, and existing soil conditions specific to your building site. When comparing concrete and asphalt, both pavements should be designed with the same general inputs. For example, when comparing the costs between the two, the same timeframe for service life should be used for each pavement (20 years in the attached comparison).

For concrete parking lot design, the industry relies on the American Concrete Institute (ACI).

ACI PRC-330-21 is the commercial concrete parking lots and site paving design and construction guide. ACI 330.2R-17 is the guide for design and construction of concrete site paving for industrial and trucking facilities. These design guides provide time-tested and widely accepted advice on thickness for concrete parking areas. Another design tool commonly used is PavementDesigner.org. This is a free online software for determining concrete pavement thickness based on ACI 330 design inputs.

Comparing concrete and asphalt pavements?

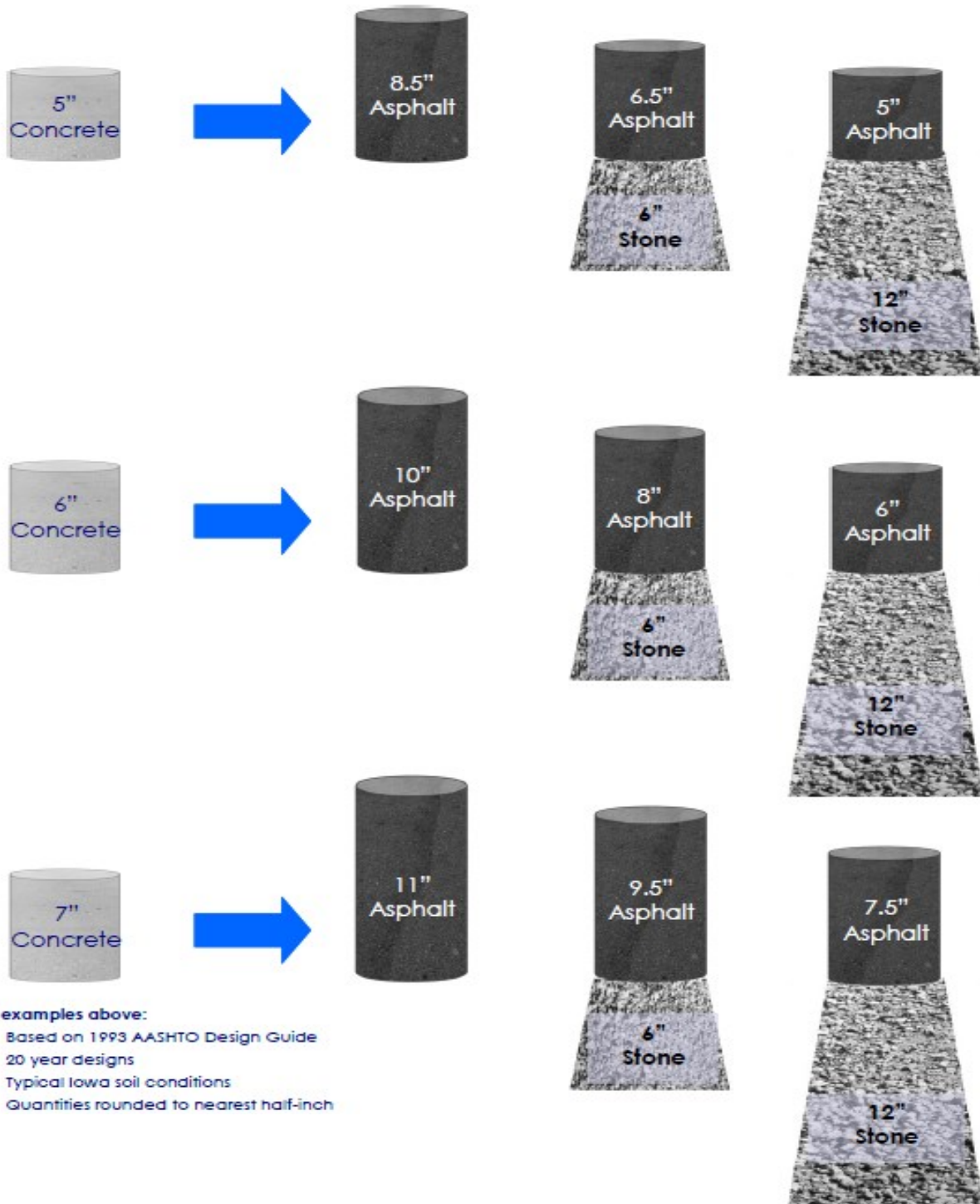
Have you considered what thicknesses are really equal?

Making comparisons between costs for asphalt and concrete pavements begins with a comparison of thicknesses. A quick comparison can be made using the table on the reverse side of this sheet. Because ACI 330 guides do not provide for comparisons between pavement types, the figures (reverse side) were developed using the 1993 AASHTO Design Guide.

The AASHTO Design Guide was used for the following comparisons because of its acceptance within the engineering community and because it provides guidance for

both concrete and asphalt pavement design. The same general inputs can be used to arrive at thicknesses for both pavement types. The figures in this report are meant only for purposes of comparison and are not meant to replace the need for pavement design. ACI 330 guides and PavementDesigner.org should be the basis of design development, preferably through the services of a licensed professional engineer.

Equivalent Pavement Sections



All examples above:

- Based on 1993 AASHTO Design Guide
- 20 year designs
- Typical Iowa soil conditions
- Quantities rounded to nearest half-inch

The Iowa Concrete Paving Association and Iowa Ready Mixed Concrete Association, also known as the ConcreteState, are non-profit organizations that provide information and expertise to discuss alternatives, review specific projects, and furnish budget estimates for constructing concrete parking lots.