Asphalt Stripping

Stripping in hot mix asphalt has become a more serious problem for recreational pavements over the past decade. Both the asphalt industry and th American Sports Builders Association (ASBA) are taking positive steps to control this problem. It is helpful to the builder as well as the owner to know how to recognize this condition and what steps to take to resolve it.

Stripping is the breakdown of the adhesive bond between the aggregate and the asphalt cement. This process occurs when water gets in between the aggregate surface and replaces the asphalt coating. For the most part, stripping initiates at the bottom asphalt layer and works its way upward, weakening the entire structure through its progression. Cracks then begin to form and may cause the pavement structure to completely disintegrat Common symptoms of asphalt stripping are short hairline cracks, web cracking and puckering.

If stripping is suspected, a thorough investigation must be conducted. Contact a qualified asphalt testing laboratory and, under its direction, provide samples of the pavement to complete the following ASTM tests (samples usually consist of 6" cores of the pavement):

CONDITION	TYPE OF TEST
Asphalt Extraction	ASTM D2172
Asphalt Stripping	ASTM D3625
Indirect Tension (Swelling)	ASTM D4123
Percent Air Voids	ASTM D3203
Field Permeability Test	ASTM D3637

After the condition is accurately diagnosed from the test results, take immediate action through the following remedies:

1. Insure that surface and sub-surface drainage is effective and otherwise correct.
2. Depending on the results of the testing, if necessary, remove the entire affected area and rebuild the court/recreational surface.
3. Depending on the degree of pavement damage caused by stripping, a fiberglass membrane applied over the surface may be sufficient to repair the pavement. Install flexible acrylic coatings over the membrane to complete the surface.

To minimize asphalt stripping in the future, perform the following preliminary tasks:

1. Provide positive surface and subsurface drainage for pavement structures.
2. Add anti-stripping agents to the hot mix asphalt mixture.
3. Use hot, dry and clean aggregate.
4. Use well-compacted, densely graded, asphalt concrete and place it directly on a properly prepared stone base.
5. Thoroughly compact all courses in the pavement.

Asphalt stripping can be a serious concern, but proper planning and immediate diagnosis will help to minimize its effects.

BIBLIOGRAPHY:

The Asphalt Institute: "Cause and Prevention of Stripping in Asphalt Pavements." Educational Series No. 10, Second Edition.

NAPA Education Foundation: "Hot Mix Asphalt Materials, Mixture Design and Construction."