



## GENERAL ASPHALT AND CONCRETE TERMS AND DEFINITIONS

### ASPHALT RELATED

**AGGREGATE:** Any hard, inert mineral material, such as gravel, crushed rock, slag, or crushed stone, used in pavement applications either by itself or mixed with liquid asphalt binder. Different types and sizes of aggregate are mixed with liquid asphalt to make the hot mix asphalt used for paving. Other types of aggregate, such as 21A stone, are utilized for creating a sound sub-base underneath the various courses of asphalt in a pavement structure.

**ALLIGATOR CRACKS:** These are interconnected cracks forming a series of small blocks resembling an alligator's skin or chicken-wire. These areas usually signify some type of asphalt failure.

**ASPHALT:** A dark brown to black cementous material, solid, semisolid or liquid in consistency. The predominant constituents are bitumen, which are obtained as residue in refining petroleum. Asphalt is used in paving, roofing, industrial and other special purposes.

**Surface Course Asphalt:** The top layer of an asphalt structure, sometimes called the wearing course. It is designed to accommodate the traffic load and to resist skidding, traffic abrasions and weather. The aggregate and mineral filler is of a smaller size than the intermediate or base courses of asphalt.

**Intermediate Course Asphalt:** The middle layer of an asphalt structure. Aggregate sizes are larger than surface course.

**Base Course Asphalt:** The layer of the asphalt structure below the intermediate course. Aggregate sizes are larger than intermediate course asphalt.

**ASPHALT OVERLAY:** A new layer of asphalt that is placed on top of existing pavement, typically 1.5 to 2 inches in depth. Frequently called resurfacing.



**ASPHALT REPAIRS:** Frequently called patching, repair typically calls for cutting, excavating, disposing, and replacing a localized failure area.

Full Depth Repairs: A permanent patch that removes all asphalt material down to a good, solid base foundation and replaces the same thickness.

Partial Depth Repairs: Can be utilized via a milling machine, to remove partial depth of the asphalt structure and replace with the same thickness.

Surface Repair: Sometimes called a “skin patch” or surface patch, does not require excavation of the failed area. Asphalt material placed on top of the existing failure and compacted.

**COMPACTION:** The densification of either an asphalt course, stone base, or sub-grade material by means of rolling or vibration. Compressing a given volume of material into a smaller volume.

**CORING:** The process of pulling a cylindrical or square sample from existing asphalt to determine the depth of the asphalt structure.

**CRACK SEALING:** Consists of cleaning debris and grass from the cracked area and sealing with a hot applied rubberized material. Not performed on failed areas (i.e. alligator cracking), but on longitudinal and transverse cracks. Longitudinal cracks are parallel to the pavement’s centerline or lay down direction. Transverse cracks extend across the pavement at approximate right angles to the pavement centerline.

**FREEZE/THAW CYCLE:** If moisture penetrates into the lower courses of an asphalt structure, freezing temperatures turn the water to ice and the swelling effect begins the deterioration process.

The asphalt heaves and then settles during the thawing process, causing the asphalt structure to fail.

**FRENCH DRAIN:** A trench loosely backfilled with stone (commonly #57 size aggregate). A perforated pipe wrapped in support fabric is installed within the stone to catch water and move it to a designated spot.

**LEVELING COURSE:** Term primarily used in discussion with an asphalt overlay process. Sometimes called a “scratch course”. Means to place a varying depth of asphalt to eliminate depressions or other irregularities in the surface of an existing asphalt structure prior to performing an overlay.

**MILLING:** The process of grinding off layers of pavement to prepare the surface for a new layer of asphalt to be applied. The machine is self-propelled with a cutting head equipped with carbide-tipped tools for pulverizing and removing the asphalt.

Edge Milling: Milling and removing the asphalt along the edges of a flat concrete surface to insure a smooth transition between a new layer of asphalt and the concrete surface (gutter pan, dumpster pad, etc.) Also used to tie-in to adjacent asphalt areas not being overlaid.

Profile Milling: Milling and removing asphalt to improve drainage, or to remove partial depth asphalt.

**PAVEMENT STRUCTURE:** All courses of selected material placed on the subgrade soil. Could include various stone layers as well as asphalt courses.

**PAVING FABRIC:** A non-woven polypropylene geotextile fabric that is heat bonded (the fibers are fused). When placed between the existing pavement surface and a new asphalt overlay, the fabric forms a barrier to water seepage into the asphalt base, and reduces reflective cracking of the new overlay surface.

**RAVELING:** This is the progressive separation of aggregate (stone) particles in an asphalt pavement from the surface downward. Particles eventually break free, and the pavement appears to have a rough, jagged surface.

**SEALCOAT:** A thin asphalt surface treatment used to protect the asphalt surface from moisture and surface water penetration; oxidation from ultraviolet rays; oil and chemical spills; surface raveling.

**SUBBASE:** The layer or course in the pavement structure that is immediately below the base course of asphalt. Typically the sub-base is a type of aggregate, such as 21A stone. If the sub-grade soil (see below) has adequate support, it may serve as the sub-base.

**SUBGRADE:** The layer of soil that is either under the sub-base (see above) or directly under the asphalt structure. If the soil showed adequate support for a pavement structure, then no sub-base of stone would be required.

**SUPERPAVE:** Short for “Superior Performing Asphalt Pavement”, which has been designed to be a performance-based system for selecting and specifying asphalt binders and for designing asphalt mixes.

**TACK COAT:** A relatively thin application of liquid asphalt (asphalt binder) applied to an existing asphalt surface at a prescribed rate. It is used to form a bond and promote adhesion between an existing surface and a new overlay.

**UNDERCUTTING:** During a full depth asphalt repair process, the underlying sub-base (stone) or sub-grade (soil) may be found to be failing (soft/contaminated). If required, the area is excavated to a depth allowing stabilization and 21A stone placed and compacted.

## **CONCRETE RELATED TERMS**

**AIR ENTRAINMENT:** An additive (liquid chemical) is added at the time the concrete is mixed at the plant which produces microscopic bubbles in the concrete to help prevent cracking from expansion and contraction during freeze and thaw periods.

**BROOM FINISH:** The process of finishing the surface of the concrete to provide for traction and improved aesthetics.

**EXPOSED AGGREGATE:** A style of concrete where the aggregate (stone) is exposed on the top surface of the concrete, displaying more of a “cobblestone” appearance.

**JOINTS:** Pre-planned cracks in the concrete to help control cracking and expansion of the concrete.

Expansion Joints: Designed to separate or isolate concrete slabs from other structures,  
Such as walls, other concrete structures, etc.

Control Joints: Designed to create weakened planes in the concrete to regulate where cracks resulting from dimensional changes will occur.



**PSI:** Pounds-per-square inch. Indicates the strength of the concrete after fully curing.

**SCALING:** The peeling away or disintegrating of the surface of a concrete structure.

**SIX AND-A-QUARTER (6 ¼) BAG MIX:** The amount of Portland cement added to a cubic yard of concrete while at the manufacturing plant.

**SPALLING:** The breaking or chipping of concrete at the joints, cracks or edges resulting in fragmentation.