

Summary Characteristics of Protective Cushioning Materials (7/12)

Organic Loose Material: Wood Chips, Bark Mulch, Etc.

INSTALLATION/MAINTENANCE:

Should not be installed over existing hard surfaces (e.g., asphalt, concrete). Requires a method of containment (e.g., retaining barrier, excavated pit). Requires good drainage underneath material. Requires periodic renewal or replacement and continuous maintenance (e.g., leveling, grading, sifting, raking) to maintain appropriate depth and remove foreign matter.

ADVANTAGES:

Low initial cost. Ease of installation. Good drainage. Less abrasive than sand. Less attractive to cats and dogs (compared to sand). Attractive appearance. Readily available.

DISADVANTAGES:

The following conditions may reduce cushioning potential:

1. Environmental conditions; rainy weather, high humidity, freezing temperatures.
2. With normal use over time, combines with dirt and other foreign materials.
3. Over time, decomposes, is pulverized, and compacts.
4. Depth may be reduced by displacement due to children's activities or by material being blown by wind.

Can be blown or thrown into children's eyes. Subject to microbial growth when wet. Conceals animal excrement and trash (e.g., broken glass, nails, pencils, and other sharp objects that can cause cut and puncture wounds.) Spreads easily outside of containment area. Can be flammable. Subject to theft by neighborhood residents for use as mulch.

Inorganic Loose Material: Sand and Gravel

INSTALLATION/MAINTENANCE:

Should not be installed over existing hard surfaces (e.g., asphalt, rock). Method of containment needed (e.g., retaining barrier, excavated pit). Good drainage required underneath material. Requires periodic renewal or replacement and continuous maintenance (e.g., leveling, grading, sifting, raking) to maintain appropriate depth and remove foreign matter. Compacted sand should periodically be turned over, loosened, and cleaned. Gravel may require periodic break up and removal of hard pan.

ADVANTAGES:

Low initial cost. Ease of installation. Does not pulverize. Not ideal for microbial growth. Nonflammable. Materials are readily available. Not susceptible to vandalism except by contamination. Gravel is less attractive to animals than sand.

DISADVANTAGES:

The following conditions reduce cushioning potential:

1. Environmental conditions: rainy weather, high humidity, freezing temperatures.
2. With normal use, combines with dirt and other foreign materials.
3. Depth may be reduced due to displacement by children's activities and sand may be blown by wind.

May be swallowed. Conceals animal excrement and trash (e.g., broken glass, nails, pencils, and other sharp objects that can cause cut and puncture wounds).

Sand: Spreads easily outside of containment area. Small particles bind together and become less cushioning when wet; when thoroughly wet, sand reacts as a rigid material. May be tracked out of play area on shoes; abrasive to floor surfaces when tracked indoors; abrasive to plastic materials. Adheres to clothing. Susceptible to fouling by animals.

Gravel: Difficult to walk on. If displaced onto nearby hard surface pathways, could present a fall hazard. Hard pan may form under heavily traveled areas.

DEFINITIONS:

Fine Sand – Particles of white sand purchased in bags marked "play sand. 100% of the material must pass through a #16 screen.

Coarse Sand – Usually obtained from a supplier to the landscaping and construction trades. 98% of the material must pass through a #4 screen.

Fine Gravel – Gravel particles are rounded and 3/8 inch or less in diameter.

Medium Gravel --Gravel particles are rounded and 1/2 inch or less in diameter.

**Unitary Synthetic Materials:
Rubber or Rubber over Foam Mats or Tiles,
Poured in Place Urethane and Rubber Compositions**

INSTALLATION/MAINTENANCE:

Some unitary materials can be laid directly on hard surfaces such as asphalt or concrete. Others may require expert under-surface preparation and installation by the manufacturer or a local contractor. Materials generally require no additional means of containment. Once installed, the materials require minimal maintenance.

ADVANTAGES:

Low maintenance. Easy to clean. Consistent shock absorbency. Material not displaced by children during play activities. Generally low life cycle costs. Good footing (depends on surface texture). Harbor few foreign objects. Generally no retaining edges needed. Is accessible to the handicapped.

DISADVANTAGES:

Initial cost relatively high. Under surfacing may be critical for thinner materials. Often must be used on almost level uniform surfaces. May be flammable. Subject to vandalism (e.g., ignited, defaced, cut). Full rubber tiles may curl up and cause tripping. Some designs susceptible to frost damage.