Chapter 226: Streets and Sidewalks Code

Surface Material, Design, and Repair Attachments

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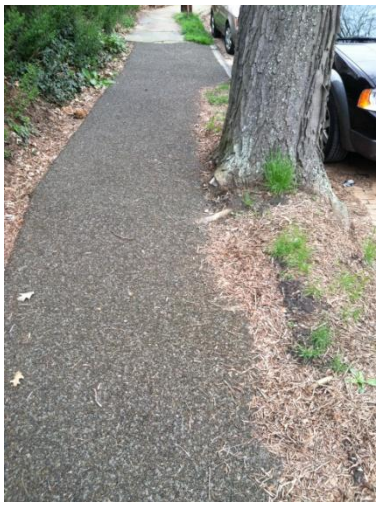
Surface Material: Recycled Rubber



Rubber sidewalk surfaces, either pre-formed or seamless installations, are a flexible, non-slip surface produced from recycled tires. Specific products vary in their level of rubber to aggregate ratios. Pervious and non-pervious options exist as well as color options. Overall, rubber sidewalk surfaces are appropriate for most traditional sidewalk installations.

Best used if:

- Improving on-site stormwater capture is a priority
- Adjacent to large or small trees; the ability to allow water and oxygen to move into the soil promotes deeper rooting
- Moving sidewalk into adjacent property is difficult due to presence of large tree
- Trees are present with significant surface roots, and increasing the grade is required to avoid cutting major roots

Don't use if:

- Adjacent properties are below surface grade of sidewalk or highly sloped toward sidewalk
- Within 10ft. of building foundation

Maintenance Note

- Increased maintenance to maintain porosity

Surface Material: Stone Pavers

Sidewalks constructed of pavers are a flexible surface that won't crack when properly installed. Pavers have a very long life, and are more easily repaired.

Best used if:

- Improving on-site stormwater capture is a priority

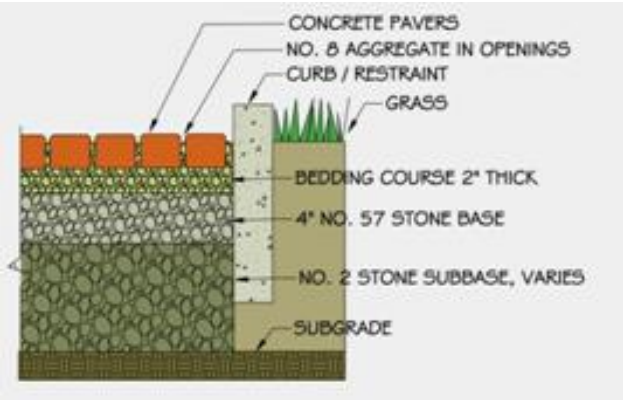
Don't use if:

- Adjacent to young, small trees due to compaction requirements to prevent heaving of pavers, unless sub-surface improvements are being utilized (See Structural Soil)
- Sidewalks with existing tree root issues

Maintenance Note

- Joint sand needs topped-off every couple of years

On the right is one example of a paver installation. Sub-base could be replaced with structural soil if adjacent to trees. Final design is subject to Borough Engineer approval.



Surface Material: Concrete

Concrete sidewalk surfaces are the most popular sidewalk surface. Concrete is a non-slip surface that is affordable and can be expected to last 20 to 40 years.

Best used if:

- Not within five to ten feet of tree
- Applied in business or commercial areas

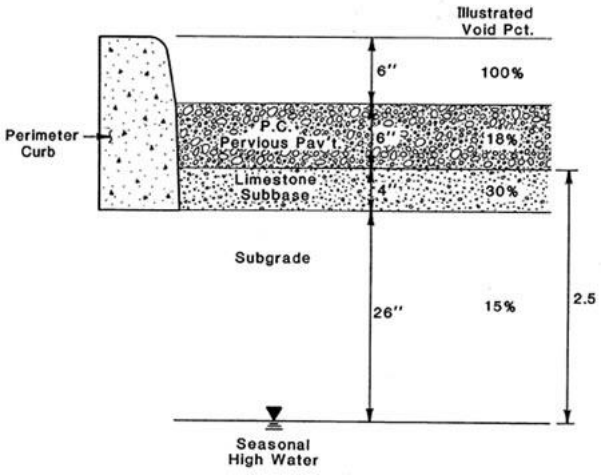
Don't Use if:

- Within 3-5ft of young, small trees due to compaction requirements to prevent lifting of sidewalk pads, unless sub-surface improvements are being utilized (See Structural Soil)
- Existing sidewalk has tree root issues, unless the layout of the new sidewalk is adjusted (See Sidewalk Design)

Maintenance Note

- Little maintenance is required over its lifespan

Surface Material: Porous Concrete



Porous concrete sidewalk surfaces allow air and water to pass through the bedding and soil layers below. If designed and installed properly, it may deter shallow root growth (reduce sidewalk root damage).

Best used if:

- Improving on-site stormwater capture is a priority
- Adjacent to small trees; the ability to allow water and oxygen to move into the soil promotes deeper rooting under the pavement surface
- Adequate space for installation of the pervious concrete and necessary sub-base layers is possible without excessive impact to existing roots

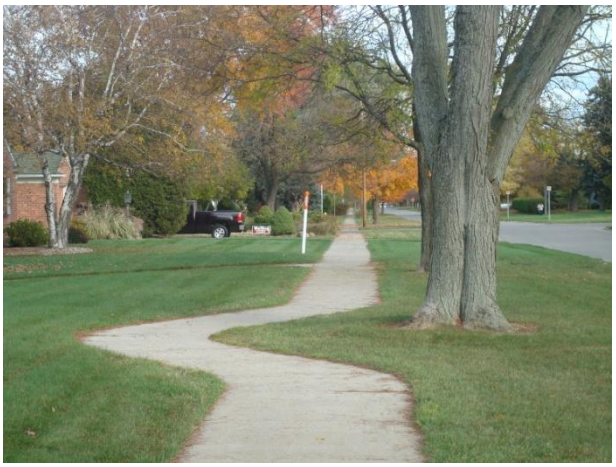
Don't use if:

- Adjacent properties are below surface grade of sidewalk or highly sloped toward sidewalk
- Sidewalk is to be laid within 5ft of an existing tree's trunk flare; especially large, older trees
- Within 10ft. of building foundation

Maintenance Note

- Increased maintenance to maintain porosity

Design: Sidewalk Meander



An easement may allow construction of a sidewalk on private property in order to provide more space between the sidewalk and curb. This type of design is specific to sidewalks adjacent to street trees. The width of the easement varies from site to site.

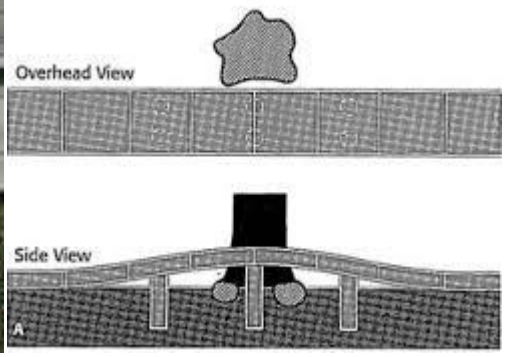
Best used if:

- Adequate planting space is not available in the right-of-way
- Existing tree has outgrown its original sidewalk space, and it is necessary to expand area to retain street tree

Don't use if:

- Adjacent property to sidewalk requires or has a structure, such as a retaining wall, in the right-of-way

Design: Bridging



Bridging is simply a sidewalk that is higher than the adjacent sidewalk grade. Bridging with concrete can provide a separation between the sidewalk and the root zone of a tree.

Best used if:

- Design easement into adjacent property is not possible
- Preservation of a large street tree is the priority in constructing an ADA compliant sidewalk

Don't use if:

- Design cannot work within ADA grading requirements due to site-specific conditions

Design: Structural Soil

Structural Soils are designed to provide nutrients, space, and porosity to encourage proper rooting under impervious surfaces. They allow for compaction to support pavement without the loss of soil macro-pore space which benefits tree growth. Utilizing this soil as a subsurface has been proven to mitigate sidewalk lift due to tree roots.

Best used if:

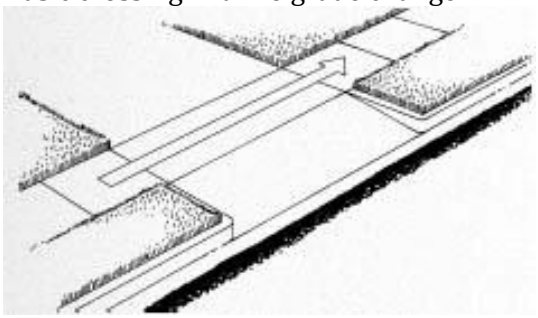
- Installation of sidewalk is near an existing tree or a proposed tree

Don't use if:

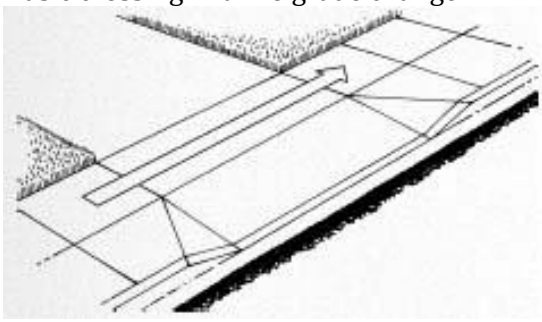
- Depth of at least twelve inches of structural soil cannot be achieved

Design: Sidewalk and Driveway Crossing

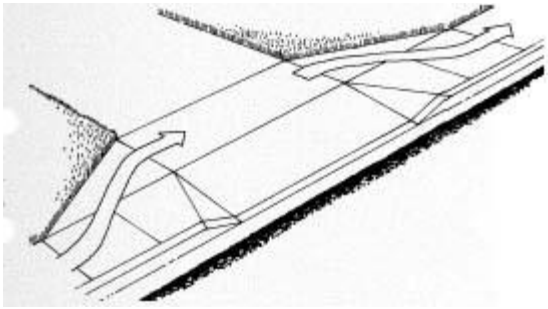
Basic crossing with no grade change 1



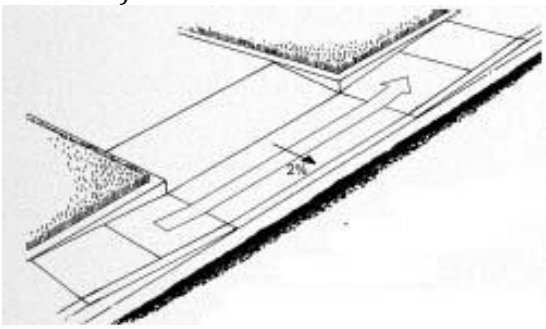
Basic crossing with no grade change 2



Sidewalk meander to avoid grade change



Crossing with uniform grade change and less than or equal to 2% cross slope (least desirable)



Special consideration should be taken for the design of the sidewalk in regards to a driveway crossing. Above are design examples of ADA sidewalk driveway crossings (Federal Highway Administration). This is primarily in regards to ADA requirements for pedestrians with disabilities.

Repair: Beveling

Beveling shaves down the raised edge of a concrete pad to a make smoother transition, and reduces the tripping hazard.

Best used if:

- A short-term repair is desired

Don't use if:

- Concrete pad is lifted more than two inches or is in poor condition

Repair: Mudjacking (Concrete leveling)

Mudjacking, or concrete leveling, is used to lift concrete pads when they have sunken or collapsed. A cement and soil mixture is pumped under pressure below the existing concrete panel via a hole drilled through the slab. The mixture fills the void beneath the surface and adds additional support under the concrete panel.

Best used if:

- Sidewalk has no trees adjacent or tree is being removed
- Small section of the sidewalk is sunken and in need of repair
- Sunken concrete pad is in good condition

Don't use if:

- If concrete pad is cracking and breaking apart.
- A tree exists adjacent to mudjacking site