



Borough of Doylestown Building and Zoning Department

57 West Court Street, Doylestown, PA 18901

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FACT SHEET #6 – SIDEWALK PROBLEMS AND REPAIR

BACKGROUND

Doylestown Borough Code of Ordinance Chapter 21, Part 2, Section 201 et al, requires property owners to keep sidewalks, curbs, and gutters in good repair.

COMMON SIDEWALK PROBLEMS

The most common dangerous defects in sidewalks are trip hazards: defined as any irregularity in the sidewalk that results in a change of elevation of more than a ½ inch. This includes all edges and joints seams and expansion joints. Cracks and faults are considered trip hazards when the change in elevation of the edges is greater than 1/2 inch vertically or there is a gap of more than 3/4 inch horizontally.

Other common problems include:

- Holes greater than 1 inch square.
- Heaved blocks of concrete or bricks that create trip hazards.
- Surfaces must be level and nonskid high-traction such as broom finish concrete or paver grade brick.
- Grading must prevent accumulation of water.

This guide is provided to help property owners understand sidewalk maintenance, sidewalk violation notices and options for sidewalk repair and replacement.

1. Abrupt vertical change in elevation of ½ inch or more.



These pictures depict one panel being more than 1/2" higher than the adjacent panel.

Repair suggestions for this problem include:

- mud jacking
- raising the panel
- replacing the panel
- stub-toe grinding

2. Horizontal gap of $\frac{3}{4}$ inch or more.



These pictures show a gap of $\frac{3}{4}$ " or more between the two panels.

Repair suggestions for this problem include:

- filling the gap
- replacing the panel

3. Holes or depressions/ Cracked blocks/ Spalling



Repair suggestions for this problem include:

- Filling the hole
- Replacing the panel

Spalling is a condition where the top portion of the concrete starts to pop off in pieces.

4. Tree root problems.

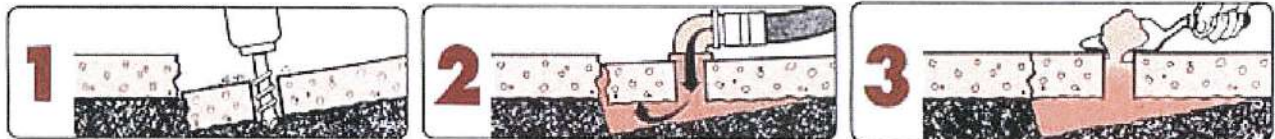


Repair suggestions for this problem include:

Replacing the panel with a more tree forgiving material.
Relocating the sidewalk a bit further from the tree.

Details on Repair Suggestions

Mud jacking: There are individuals/companies that may be able to core drill a hole in the lower sidewalk panel and inject a concrete/mud slurry mix. When this happens the slurry will raise the panel to a point where the two panels are level. The core-drilled hole will be filled in with the slurry mix. This repair suggestion may not always be the most appropriate way to correct this issue. A “mud jacked” panel over time may settle back down.



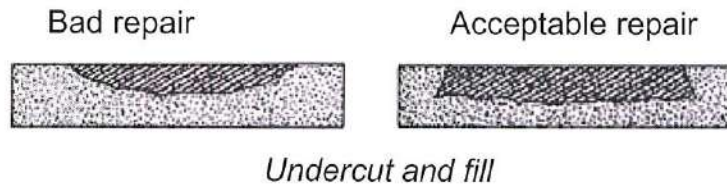
Mud or Slab Jacking

Raising the panel: This is similar to “mud jacking”. This method would require you to dig adjacent to the edges of the panel to a point where you can actually access underneath the panel. When this is accomplished you can then use a pry bar or some other tool and carefully lift the lower panel up at which time you would be able to fill in the cavity underneath the panel with dirt, sand, rock or concrete mix. Lower the raised panel back into place to verify that the elevation of the panel has risen to a point where it's equal to the adjacent panel. If not even with the adjacent panel, keep repeating the process until you are able to make the two panels equal in height. As mentioned above, this suggestion may not always be the best solution and the raised panel may over time drop again.

Replacing the panel: This method of repair is exactly how it sounds. You would break up the concrete panel and remove it from its current location. After this is done you will need to frame up the sides of the panel that are adjacent to the grass. This will help form the edges of the panel. The actual remaining sidewalk panels would form the other two edges. The depth of the sidewalk panel is required to be 4” unless the sidewalk panel is in the driveway area, which would require the panel thickness to be 6”. If you or your hired contractor is replacing the panel there are several additional requirements that must be met such as type of concrete to use, any water valves in the concrete, etc. Please refer to the Sidewalk Permit Document for more information on replacing panels or contact the Building and Zoning Department for these requirements.

Fill in the gap: This is the easiest fix. You can go to your local hardware store and purchase a backer filler. This is commonly called “backer rod” which is merely a foam plastic rope like material that is very flexible. It is usually gray or black in color and comes in a variety of diameters. You take the appropriate sized “backer rod” and stuff it in the crack. Push it down far enough to where there is at least a ¼” depth measured from the top of the “backer rod” to the top of the sidewalk. Once this is done then apply a weather resistant caulking material over the backer rod. This will help seal the gap and prevent surface water from entering into the crack. Caulking will come in a variety of colors and there is even some self-leveling caulk on the market.

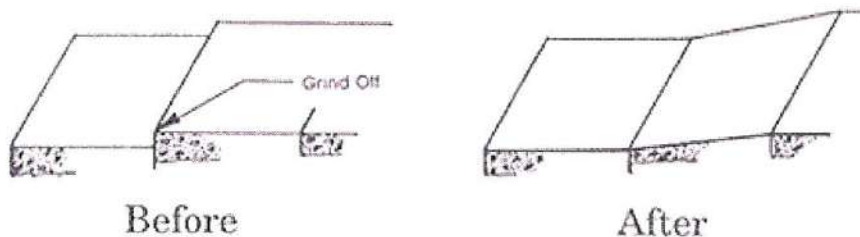
Fill in the hole: This is the easiest fix. The hole or cracks in sidewalks must be enlarged before they can be satisfactorily repaired. Enlarge the crack along its entire length with a cold chisel and hammer. Make the crack wider at the bottom than at the top. This is known as undercutting. It helps to bond the new concrete with the older concrete



Stub Toe Grinding:

Stub toes are areas in the sidewalk where part or all of one square is higher than the one next to it, causing a tripping hazard for pedestrians. It may be possible to eliminate the stub toe hazard by grinding down the high spot.

In some areas, sidewalk sections are lifted up due to the growth of tree roots. If you grind down a stub toe caused by tree roots, the repair may only be temporary.



Grind off the stub toe so that the sidewalk concrete has a **gradual slope** or transition. For half an inch of rise, grind back 6 inches. For one inch of rise, grind back 12 inches.

Note that patches sloped at less than 12:1 grade such as the ones depicted below are NOT acceptable.



Dealing with trees

Trees are a natural resource and improve air quality, lower air temperature, reduce storm water runoff, raise property values, and contribute to the aesthetics of neighborhoods within the Borough of Doylestown. As such, the Borough of Doylestown works to protect trees. We understand that the presence of tree roots can create difficult situations for sidewalk maintenance. While you can replace a heaved sidewalk with a new concrete one we urge you to consider some of the following longer-term solutions.



Bump Out



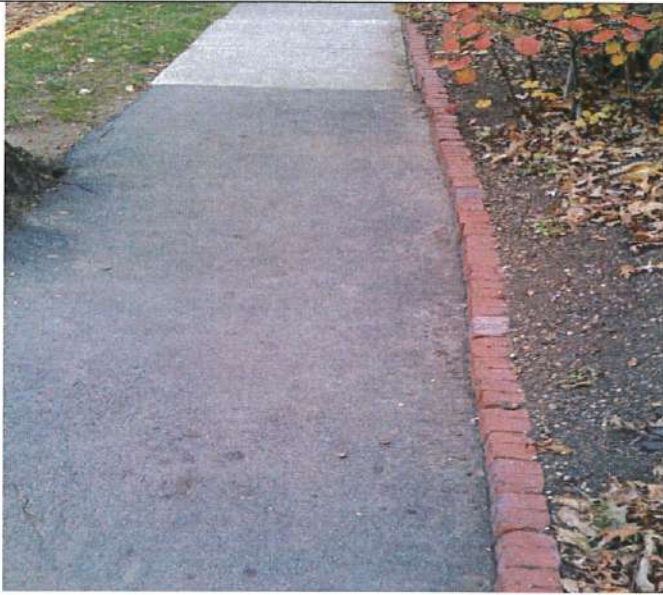
Rubber



Brick



Addapave



Asphalt

*Only permitted with special permission of Borough

All of these methods provide ways to maintain safe walking surfaces around trees. Contact Building and Zoning for more information on any of these options.