

Sidewalk Savers, Ltd.

Solving Everyday Problems
with a Diamond Grinding Cup

- **Making Sidewalks more accessible**
 - **for persons with disabilities**
 - **and for everyone else!**

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Solving Everyday Problems with Diamond Cup Grinding

On July 4, 2001, our home town of Westerville, Ohio announced that the city was going to spend \$2.3-million for the reconstruction of 900 curb ramps throughout the city and that residents would be required to repair their sidewalks in order for the City to comply with a settlement between the city and the Americans With Disabilities Act (ADA) plaintiffs. On July 11, 2001, the much larger City of Columbus, Ohio announced that the city would be spending over \$40,000,000 for their part of complying with similar Americans with Disabilities Act Curb Ramp installations plus requiring that the residents also bring the existing sidewalks up to the required standards.

Shortly thereafter, the homeowners began receiving notices from the city advising them that the non-complying Concrete Pavement Blocks would be removed and replaced at the homeowner's expense. For my own residence, the "City Chosen" Contractor quoted a price of \$780.00.

Upon my own examination of the sidewalk and researching the applicable codes on the Internet, I found that there was a requirement that the height difference between adjacent blocks should be less than 1/2" at the point of their meeting. While one option was to declare that one of the "offending" blocks needed to be replaced, (as had been done by the City's selected Contractor), there were clearly additional alternative options. Plus the

alternatives offered methods which made the walks much more easily traveled than the minimum tolerances in the specifications.

Possible Options include:

1. ***Grind the Edge of the slightly higher block to feather the joint, thereby making it a bump free transition without replacing or adjusting block height.***



2. For blocks which are offset by 1" or more, Use Pry bars to raise the lower block slightly while back filling to bring it nearly to the height of the higher block. ***Then Use a Grinding Cup as before.***
3. Using Core Drills to drill holes in the Lower block and raise it by injecting concrete through the hole till the block is at the suitable height. ***Then Grind.***
4. Replace whole blocks where necessary, ***grinding*** the adjacent blocks to produce a smooth transition from the old block to the new block.
5. ***Finish grind all joints after the new block has been in place for 30 days or after the "height adjusted" blocks have settled.***

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Pavement Smoothing

Some jobs are best when done by Amateurs with a good plan! Sidewalk Pavement Smoothing is one of these jobs. It is typically too small a job to bother a contractor who would consider this type of job to be below his capabilities. Yet, it is important that the job be done on a regular basis in order to make the sidewalks passable for the walkers, joggers, wheel-chairs, strollers, skate boarders, in-line skaters, and young children on the bicycles.

The Costs associated with Pavement Smoothing are relatively low, even if it is necessary to purchase the appropriate grinding machine and safety equipment. Compared to the \$780.00 quoted by our "Block Replacing" contractor, the total Do It Yourself (DIY) cost was easily reduced by 50%! And, in my case, I did the walks for 3 of my neighbors well within this 50% cost level, raising the opportunity for a single person to turn this solution into a ready made small business venture!

Equipment

The selected equipment consisted of the following:



1. Milwaukee 4.5" Angle Grinder, model # 6148-6 \$121.00
 2. SAT's 4.5" single Row Diamond Cup \$35.00
 3. SAT's 4.5" Diamond Turbo Blade: \$15.00
 4. Extension Cord (12 gauge), 100 ft length \$ 32.00
 5. Ear Muffs for hearing protection\$15.00
 6. Respiratory Protection to prevent the Silica based dust from being inhaled..... \$3.00
 7. Safety Goggles: \$ 9.00
 8. Safety Gloves \$ 10.00
- Sub Total: \$240.00
Time: 2 hours @ \$75.00/hr \$150.00
Total: \$390.00

Cost Comparison

The cost comparisons are somewhat overwhelming even when including paying for the grinder, extension cord, and safety equipment with a single job.

$$\mathbf{\$390.00 / \$780.00 = 50\%}$$

But, of course, the Grinding machine has a use life of easily 100 jobs and the grinding cup could easily last between 5 and 10 jobs. Likewise, the Turbo Blade would last multiple jobs. The Extension cord lasts 100+ jobs, the ear muffs for 100+ jobs, and the Safety Glasses can easily last 20+ jobs. Cost for the Respirator can be reduced to \$1.00/job.

This makes the Actual Cost become overwhelmingly favorable as follows:

1. Milwaukee 4.5" Angle Grinder, model # 6148-6/100 ... \$1.22

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2. SAT's 4.5" single Row Diamond Cup/5.....	\$ 7.00
3. SAT's 4.5" Diamond Turbo Blade / 5.....	\$ 3.00
4. Cord (12 gauge), 100 ft length /100	\$ 0.32
5. Ear Muffs for hearing protection /100+	\$ 0.15
6. Respiratory Protection to prevent the Silica based dust from being inhaled.....	\$ 1.00
7. Safety Goggles:	\$ 0.40
8. Safety Gloves:	\$ 1.00
Sub Total: ...	\$ 14.09
Time: 2 hours @ \$75.00/hr	\$150.00
Total:	\$164.09

\$164.09 / \$780.00 = 21%
..... A Savings of 79%!

The Homeowner has the additional option of paying himself the \$150.00 for the labor or he can most likely find someone who would be all too happy to do the work for the quoted figure. If he decides to do the work himself, the additional out of pocket cost savings are enough to nearly pay for his Angle Grinder and his Diamond Grinding Cup!

How To Smooth your Sidewalk Safely!

Now, that we have decided to save our existing sidewalks, to make it more pleasant for wheelchair riders, for blind walkers, for mommies with strollers and for skateboarders to pass our house, there are several important points to consider. Perhaps the first item is to survey the conditions of the existing walkway and determine the Safety

equipment and controls that are to be part of our program.

SURVEY the Situation

Check the existing concrete blocks to see if they are of a suitable condition which can be corrected by adjusting the height, grinding and possibly adding concrete filler between the joints where required. These are the jobs that the DIY homeowner is prepared to tackle. If the Concrete blocks are badly cracked, they can possibly still be repaired using the equipment already specified, however, the time component may be longer depending on the specific conditions.

Dealing with a Large Bump

Suppose that your sidewalk Blocks are structurally sound but that they are offset by 2.5" in height. The lowest cost solution would require one (1) additional piece of equipment, namely a large, heavy duty Pry Bar and most likely a strong assistant.

The ideal piece of equipment for this is a "Roughneck 18 lb. Pinch Point Crow Bar, 60" x 1-3/8" for heavy Prying". The estimated cost is \$25.00-\$35.00, provided it is available locally. Otherwise, Freight for an 18 lb. bar would add to the cost.

Depending on the availability of strong assistants, a second bar could be used. The lower block would be raised slightly by your able assistants to approach the height of the higher block

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while you push fine gravel into the opening with a suitable tool, most likely a wooden rod of suitable size to fit the opening.

HINT: *It is best to minimize the shifting of blocks so the lower block should not be raised above the height of the higher block. This will permit a small amount of gravel to be pushed under the newly raised block to backfill under it and provide support to hold it in its new position.*

If the block is raised too high or is otherwise not easily backfilled, it will then be necessary to raise the block high enough to permit scraping and grading of the surface beneath the block. Of course, this requires extreme care to provide support for the block to hold it in its raised position during the grading procedure.

Safety Warning: *At no point should any body parts be placed under the raised block!*

Once the block is re-positioned at nearly the height of the adjacent block, the situation becomes one of Diamond Cup Grinding to smooth the transition as described earlier.

Crack Chasing:

Minor cracks in concrete blocks can be opened up with a Diamond saw blade to permit easy and secure patching. Typically, a 1 / 2" x 1 / 2" groove in the concrete will permit a patching compound to fill the crack as required.

Equipment Options:

The Sidewalk Grinding can easily be done with a combination of the following equipment. For those who

are doing a simple home-owner D-I-Y job, a 4.5" Diamond Single Row Cup with a suitable Angle Grinder and necessary safety equipment will be all that is required. For someone who is intending to expand this into a small business opportunity, the equipment options could easily expand according to the goals of the individual.

The tool selection will depend on the specifics of the job plus the intent of the user. If being purchased by a D-I-Y homeowner, then the lowest cost 4.5" diameter Single Row Diamond Cup is available at <\$35.00/pc (Medium Part # SR041206) and the 4.5" diameter Turbo Blade at <\$15.00 (Supreme Part # CT045001)

The Milwaukee 4.5" Angle Grinder, model # 6148-6 @.. \$125.00 is one the most suitable machine, but lower cost grinders could be suitable if one can be found which is equipped with suitable bearings and hardened steel gearing. Sidewalk Savers is now offering an excellent combination of Industrial Quality and lower prices with the Jepson Grinders available from our store at www.SidewalkSavers.com.

Other Options for larger machines and other Diamond Cups would increase the speed and overall capability for doing multiple jobs and for the Small Business opportunity.

The 4.5" or 7" diameter Air Cups or "T-Type" grinding cups offer opportunities for faster cutting, longer life, or both. Further selections are capable of meeting the demands of Contractor types and sizes of cutting and grinding equipment.

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Safety First !!!

While this list is by no means all inclusive, it is intended to be a list of safety equipment and procedures to protect the operator as well as any persons in the vicinity.

ALWAYS:

1. Always Observe manufacturer's Safety Instructions on the Grinding Machines, Grinding Cups, saw blades, etc.
2. Be sure that all Guards are in place on the grinding machine to protect operators.
3. Be sure to check maximum surface speed and RPM of the blades relative to the operating speed of the grinder.
4. Always wear Safety Glasses or other suitable eye protection when grinding.
5. Always wear suitable Hearing Protection when Grinding.
6. Always wear Respirators for Hazardous Dust when grinding Concrete.
7. Minimize the extent of time that you are exposed to dust during grinding if the dust produced is excessive. Manage the job schedule so that grinding and other tasks are spaced to allow air to clear between grinding sessions.
8. Always make sure that dust generation is minimized as much as possible.
9. When in an enclosed area, always use an exhaust fan or other suitable dust collection and removal system.

NEVER:

1. Never Remove the guards.
2. Never ignore Manufacturer's Safety warnings.
3. Never leave tools unattended.
4. Never exceed the Maximum Speed for the diamond cup or saw blade.
5. Never use the Grinding Cup without required Respirator, Safety Glasses, hearing protection, and other suitable safety equipment such as gloves, etc.
6. Never operate grinder when other unauthorized people are in the area.

The Pay Off:

In addition to the benefits of Lower Costs and improvement of Sidewalk surface quality for our neighbors, friends, and acquaintances to travel safely past our homes, we also get the environmental benefit of re-surfacing existing concrete rather than filling our Landfills and dumps needlessly with scrap concrete.

Of course, the key reason as noted early in this paper is to comply with requirements of the Americans with Disabilities Act (ADA) provisions as noted in the following article from the Sacramento California Standard Times. Hopefully we will see an increasing number of Americans taking these simple steps to do Pre-Emptive Grinding without needing to see such Court Decisions spread throughout the land.

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“Must city sidewalks comply with the Americans with Disabilities Act guidelines?”

“Joan and several other individuals with mobility and vision disabilities complained to the city about the poor maintenance of city sidewalks and lack of curb ramps for wheelchairs. But the city ignored their complaints.

Without other effective alternatives, they brought this class-action lawsuit against the city to force compliance with the federal Americans with Disabilities Act (ADA).

The plaintiffs alleged the city failed to install curb ramps in newly constructed sidewalks and failed to maintain its public sidewalks by removing hazards, such as benches, uneven surfaces, utility poles and other obstructions for the visually impaired.

But the city attorney replied the city is exempt as a government agency from ADA compliance. The plaintiffs then argued Title II of the ADA says no disabled person shall be excluded from participation in the services, programs or activities of a public entity or be subjected to discrimination by such an entity.

If you were the judge, would you rule the city must comply with ADA guidelines because its public sidewalks are a service, program or activity requiring such compliance?

The judge said **YES!**

Public city sidewalks are obviously a service, program or activity paid for by taxpayer dollars, the judge began. The U.S. Department of Justice, which issues ADA guidelines, he continued, has stated public sidewalks are subject to its accessibility regulations.

Realizing the city cannot afford to immediately bring all its public sidewalks into ADA compliance, such as by installing wheelchair curb ramps at every corner, implementation must be in a reasonable manner, the judge explained.

However, when there is new sidewalk construction, the city must assure there are curb ramps and no obstructions for the visually impaired, the judge emphasized. In addition, the city must develop a transition plan for making structural changes to existing public facilities to make its sidewalks fully accessible, he ruled.

The city government is a public entity subject to ADA guidelines, and city sidewalks are a normal function of a municipal entity, the judge noted. Therefore, the city must bring its public sidewalks into conformity with ADA guidelines, the judge concluded.

Based on the 2002 U.S. Court of Appeals decision in *Barden vs. City of Sacramento*, 292 Fed.3d 1073. “

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<http://www.s-t.com/daily/12-02/12-21-02/t24ho151.htm>

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