

Advantages & Specifications for the Use of Perma-Patch® for the Repair of Utility Cuts



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www.permapatch.com
made in the U.S.A.

TRADITIONAL ASPHALT REPAIR FOLLOWING UTILITY CUTS

Typically asphalt repair is a two-step process. First the cut made to reach the utility pipe would be temporarily filled with standard cold-patch. After a period of time crews return to remove the cold-patch and replace with a hot asphalt patch. This is both costly, time consuming and adds to the amount of excavated material which must be taken to a landfill.

PERMA-PATCH CAN BE APPLIED IN A SINGLE APPLICATION, RESULTING IN A SUPERIOR, ENVIRONMENTALLY FRIENDLY REPAIR TO THAT OF A COLD-PATCH/HOT-PATCH PROCEDURE. PLUS, IT ELIMINATES THE NEED TO DISRUPT TRAFFIC FOR A SECOND TIME.

Perma-Patch is an all season, all weather permanent asphalt patching material used throughout the United States and internationally with extraordinary success.

PERMA-PATCH REQUIRES LITTLE PREPARATION

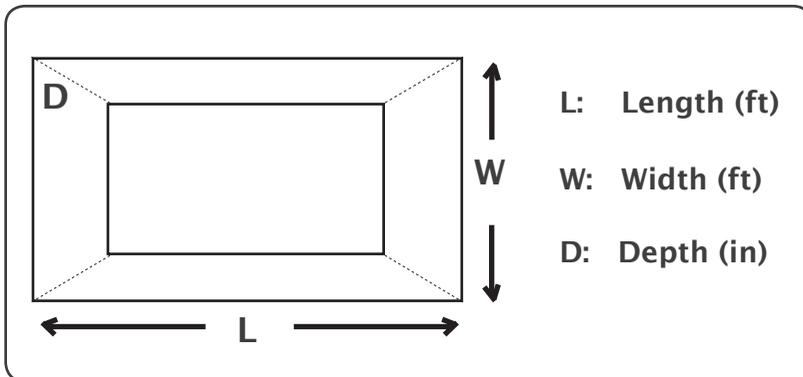
Perma-Patch can be applied in a temperature range between -15 °F to over 100 °F

Perma-Patch does not shrink because of its self-sealing properties.

Perma-Patch maintains an excellent watertight bond to adjoining pavement unlike hot asphalt patches, which invariably separate from the surrounding surface. Allowing water to penetrate the pavement base, the patch soon fails with hot asphalt.

Perma-Patch, when properly applied, will outlast the surrounding pavement.

EASY CALC



$$L \times W \times D/12 = \text{cubic feet}$$

Multiply answer by 2.

= # of Bags of Perma-Patch required for your job.

**EASY TO USE • NO MIXING OR TACK COATING
PERMA-PATCH ACCEPTS IMMEDIATE TRAFFIC**

**Perma-Patch is available in convenient, water-resistant
60 lb. bags & 50 lb. and 30 lb. pails.**

Perma-Patch has a minimum shelf life of two years.

SPECIFICATIONS FOR APPLYING PERMA-PATCH FOLLOWING UTILITY CUTS

Crews must first replace excavated dirt or add suitable fill material in layers of 6 inches (15.2 cm) and compact each layer with a pneumatic ball-type tamper, or "Jumping Jack" tamper, until the fill material is within 6 inches (15.2 cm) of the base of the pavement. Fill material must consist of stones no larger than 3 inches in diameter. The gravel shall be compacted to not less than 95% of the maximum dry density in accordance to ASTM D1557.

New crusher run aggregate should then be placed in 3 inch (7.62 cm) layers with compaction following each lift. Continue placing layers until the aggregate reaches the bottom of the surrounding asphalt.

Perma-Patch is then poured from the bag into the hole in layers of 3 inches (7.62 cm) and compacted after each layer until the Perma-Patch reaches the surface of the surrounding pavement.

A final layer of Perma-Patch is applied at a height of 1/2 inch to 1 inch (1.27-2.54 cm) above the surrounding pavement and tamped with a portable vibratory plate.

Because Perma-Patch remains pliable below the hard surface, Perma-Patch should be applied in utility cuts which are bound on all sides by solid paving or curb. If parts of the perimeter of the patch are not supported by existing paving or curb, a support form consisting of wood or metal should be constructed, up to the surface level of the patch.

The seal between the surrounding, existing pavement and Perma-Patch is tight and will remain in place for the life of the surrounding pavement. No further sealing of the edges is required.

The repaired area can be immediately open to traffic. The greater the amount of traffic, the faster the surface level of Perma-Patch hardens.

If desired, in areas of light traffic, surface hardening can be accelerated by applying a light dusting of dry Portland Cement to the finished Perma-Patch surface and tamped again with a vibratory plate compactor.

Specifications are subject to individual RFPs and city requirements. Please consult your local Public Works Department with any questions.



REPAIRS ARE SMALLER BECAUSE THERE IS NO NEED TO CUT BACK SURROUNDING AREA

If due to improper compaction or unforeseen conditions, depressions develop, repairs can be made simply by applying a layer of Perma-Patch directly to depressed surface.

PERMA-PATCH VS. HOT ASPHALT FOR SMALL UTILITY CUTS

Perma-Patch	Hot Asphalt*
1. Set up Temporary Traffic Control	
Traffic control may not be required Repair takes less time than required for traffic control	Place signs, cones, flaggers, etc. according to MUTCD
2. Mark the Area to Remove	
Expanding the area is often not required	Use paint or chalk to mark straight-sided rectangle 8 - 12 inches beyond visible deterioration
3. Prepare the Cut	
No vertical cuts are required	Make vertical cuts Remove damaged material
4. Apply Tack to Sides and Bottom	
No tack coating is required	Spray hot-mix asphalt emulsion to improve bond
5. Place and Compact the Mix	
Pour directly from bag Compact each layer with a roller or vibratory plate	Dump into area Compact each layer with a roller or vibratory plate
6. Seal the Edges of the Patch	
No sealant material is required Repair is immediately open to traffic	Apply a 6 inch wide coat of asphalt emulsion to keep water out

*hot asphalt methodology as per Asphalt Institute recommendation

Calculate and Compare
Perma-Patch is the "Do-it-Right" Method for Utility Cut Repairs

MARSHALL STABILITY & FLOW TEST ASTM D1559 FOR PERMA-PATCH

SAMPLES	STABILITY (LBS)	FLOW (0.01")*
Perma-Patch		
A, B, C, D, E, F	4620 avg.	8.7
G, H	4120	14
<hr/>		
Average	4370	11.35"

* Results are based on 2,700 lbs/sq. inch of applied pressure.

FREQUENTLY ASKED QUESTIONS

How is Perma-Patch different from a standard cold patch?

Perma-Patch is a unique type of paving material which cannot be compared to the standard “cold patch” that sets up by evaporation of the hydrocarbon solvents in it. The usual “cold patch” is more like candy popcorn, which holds together temporarily but rapidly disintegrates because of lack of stick-to-itiveness. Perma-Patch is composed of specially treated asphalt, special aggregate, chemicals and pressure sensitive plastics. It is not a temporary pavement, but a permanent paving. It adheres so strongly that placing a thin layer on the street surface can level even a slight shallow dip, and it stays there. Perma-Patch can be used even in standing water with no adverse effects. No tack coat or any other type of adhesive is required as a bonding agent between the existing paving and the Perma-Patch material.

Why do utility contractors find Perma-Patch to be a superior patch material?

Experience shows that wherever repairs to utility cuts, potholes or roads are made using hot mix asphalt, within three months to three years after a standard repair, there will be a gradual increase in the separation of the old paving from the new paving. This separation is due to the difference in thermal coefficient of expansion between dissimilar materials. This separation allows water to penetrate under the paved area. With the effect of the perma-frost, this leads not only to gradual disintegration of the repaired area, but can extend to the street base up to 500 feet away. The only solution to this observable problem is to substitute Perma-Patch for the repair. Perma-Patch eliminates this separation because underlying the hard surface layer of Perma-Patch is a pliable layer of Perma-Patch. In effect, Perma-Patch acts like a large expansion joint, continuously sealing the interface between the surrounding paving and the new Perma-Patch repair.

Why should I use Perma-Patch from a bag instead of from a stockpile?

Unlike loose asphalt material in a dump truck...

- a. Perma-Patch is **environmentally friendly** with little or no waste when poured from a bag. If all material is not used, the bag can be re-closed and used at a later date.
- b. Perma-Patch bags can be easily transported in small vehicles, using only one driver/worker.
- c. Perma-Patch can be stored in a small warehouse or under tarpaulins, saving space and the cost of a large bulk storage site.
- d. Perma-Patch in bags eliminates the possibility of contamination from stone, sand, dirt, etc. that would affect the performance of the product.

Once Perma-Patch is placed, how long must we avoid driving over the area?

Immediately after the repair is made, Perma-Patch is ready for traffic. Since Perma-Patch contains pressure-sensitive plastics, the greater the amount of traffic, the faster Perma-Patch hardens.

National Research Council Strategic Highway Research Project Finds Perma-Patch® Best In Durability*

** "The most important indicator of performance for the repair placed during the project is the percent surviving."
(SHRP-H-353)*

"Materials And Procedures For The Repair Of Potholes In Asphalt-Surfaced Pavements"

Perma-Patch, a permanent cold patch for instant repair of potholes, is a material that was used in the extensive tests and reports undertaken in Project H-106, "Innovative Materials Development and Testing".

In an important decision; necessitated because of the need to repair roads economically, rather than completely rebuilding them; the Federal Department of Transportation obtained five million dollars from Congress on the advice of the National Research Council, to study the best materials and equipment for repairing potholes. This resulted in publication of SHRP-H-348 (Strategic Highway Research Project) under the auspices of the National Academy of Sciences, United States Government, and the American Association of State Highway and Transportation Officials, known as Project H105 and H106.



EXCERPTS FROM STRATEGIC HIGHWAY RESEARCH PROGRAM SHRP-H-348 OF THE NATIONAL RESEARCH COUNCIL

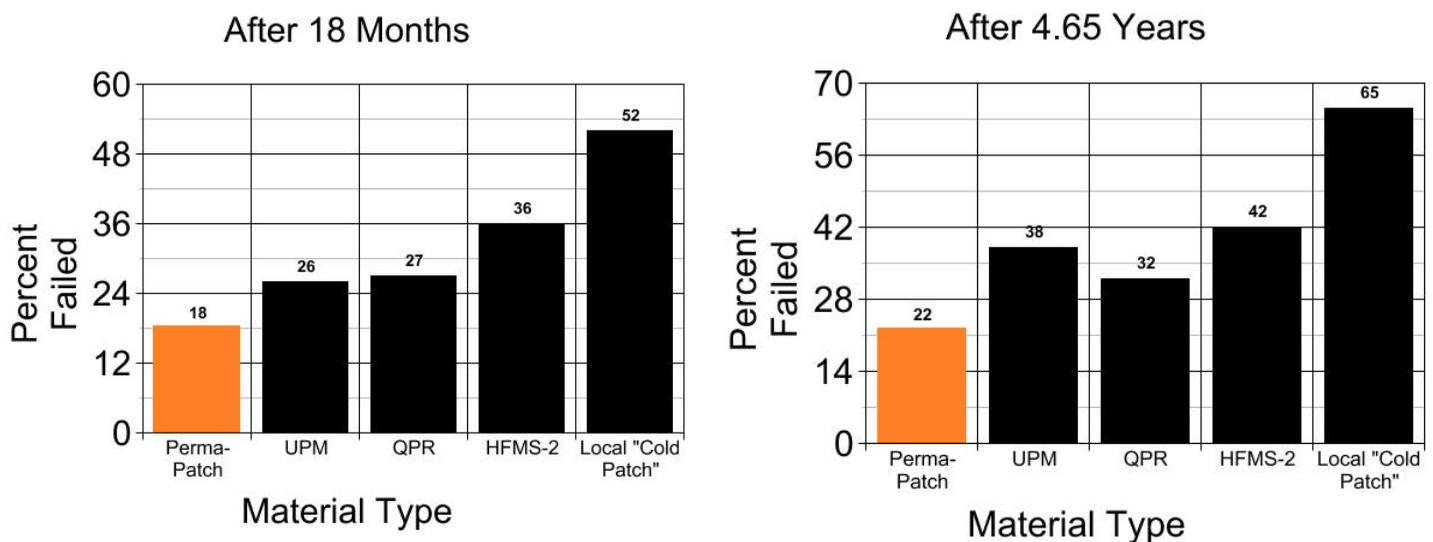
In project H-105, "Innovative Materials and Equipment for Pavement Surface Repair", the researchers conducted a massive literature review and a nationwide survey of highway agencies to identify potentially cost-effective repair and treatment options. The information and findings from this study were then used in the subsequent field experiments conducted under project H-106, "Innovative Materials Development and Training".

In the H-106 project, the installation and evaluation of many different test sections were conducted to determine the cost-effectiveness of maintenance materials and procedures. Test sections were installed at 22 sites throughout the United States and Canada between March, 1991 and February, 1992, under the supervision of SHRP representatives. The researchers collected installation and productivity information at each site and periodically evaluated the experimental repairs and treatments for 18 months following installation.

As asphalt pavements age and deteriorate, the need for corrective measures to restore safety and rideability increases. Funding for rehabilitation and overlay of these pavements is not likely to keep up with the demand, requiring more agencies to use the most cost-effective methods when patching distressed areas. The patches will also be expected to survive longer and carry more traffic loadings.

The cost most commonly associated with pothole patching is the cost of purchasing material. This is usually one of the least significant contributors to the overall cost of a patching operation. However, the material used for patching does impact the cost of the overall operation when there are differences in performance. More expensive materials that are placed with less effort and last longer can reduce the cost of the initial patching effort, as well as the amount of re-patching needed. This reduces the labor and equipment cost for the overall operation.

SHRP shows Perma-Patch with lowest failure rate among commercially available material types tested



FAILURE RATE OF COMMONLY USED POTHOLE PATCH MATERIAL

This chart shows **Perma-Patch** to have the superior durability of all the innovative materials tested.



- Pour Perma-Patch directly from the bag or pail into the utility cut.
- Use Perma-Patch instead of hot mix asphalt for repair of utility cuts, cable trenches and in test pits.
- Perma-Patch accepts traffic immediately after completion of repair.
- Perma-Patch is an ideal repair solution for the repair of sinking or cracking asphalt surrounding manholes.
- Perma-Patch does not shrink and because of its self-sealing properties maintains an excellent watertight bond to adjoining pavement, unlike standard cold and hot patches, which invariably separate from the surrounding surface.
- Perma-Patch can be applied as thin as one stone thickness because of its excellent bonding strength. It easily fills depressions and utility cuts.
- When using Perma-Patch there is no need for sealant at the edges of utility repairs.
- Perma-Patch is **environmentally friendly** by eliminating the need for a two-step utility cut repair process, which adds to the amount of debris going into landfills.

