

# Which FINISH SYSTEM SHOULD YOU CHOOSE?

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ONE OF THE MOST COMMON QUESTIONS WE GET ASKED IS – WHAT TYPE OF FINISH SHOULD I PUT ON MY FLOORS? THAT’S A GREAT QUESTION TO ASK FOR TWO REASONS. FIRST, BECAUSE IT CAN GREATLY

affect the overall look, feel and color of your floors and second, because it has a huge impact on the durability and longevity of your floors. Obviously choosing the appropriate finish for you and your

hardwood floors is extremely important. In this article we will look at all the different finishes available and discuss the pros and cons of each to help you decide which is best for your hardwood floors.



If you're short of time and you don't need a long, detailed answer, you can skip to page 7 and read the section "What Finishes Do We Recommend?"

## Types of Finishes

"Finish" is the layers of coatings that are applied in liquid form to your hardwood floors to help protect them from wear and moisture.

They also accentuate the wood's natural beauty and color and provide a nice sheen.

These finishes can be split up into three basic groups: surface finishes, penetrating finishes and a new breed of finishes that have become very popular in the last few years called hardwax oil finishes.

Let's discuss them one-by-one...

### Group 1: Surface Finishes

Surface finishes are very popular because they are durable, water-resistant and need very little maintenance.

These finishes are basically combinations of resins mixed with solvents or water. The solvents or water allow the resins to be fluid. Once the finish is applied, the water or solvents evaporate and leave the resin to set up a thin "plastic" film on the surface of the wood.

They're commonly referred to as urethanes or polyurethanes because that is what remains on the surface of the wood to form the protective coating. This creates a protective barrier between the wood floor and the surrounding environment.

When you walk on the floor you are really walking on the finish. As wear occurs on the



#### OIL BASED SURFACE FINISH

Oil based finishes are durable, easy to clean and provide a beautiful rich amber color. The downside is the smell and fumes.

floor, it's the finish, not the wood, that's wearing away.

Surface finishes in general are very durable and make cleaning easy, but they can be difficult to repair and patch without refinishing the entire floor. They're generally available in high-gloss, semi-gloss, satin and matte sheens.

There are four basic types of surface finishes available for site finished floors:

#### Oil Based/Oil Modified Polyurethane

Oil based finish is a solvent based urethane.

In the past this was the most common surface finish used in Delaware and the surrounding areas. It was durable and it turned wood a beautiful rich amber color when applied.

Recently the powers to be have begun to limit this type of finish because of the high VOC's (Volatile Organic Compounds). Finish manufacturers have been scrambling trying to come up with new formulas that meet the new low VOC laws.

The downside of oil based finish is that it has a somewhat strong solvent smell for a few days after application, it takes a long time to dry and it will change color and darken over time when exposed to sunlight.

### Water Based/Waterborne Polyurethane

Water based finishes are polyurethanes, acrylics or a blend of both. They come as either a single or a two component product.

The two component products have a separate catalyst that is added to the finish just prior to use. They are fast drying and the finish is clear when dry. They have far more wear resistance than most regular oil based finishes.

Being water based, they have extremely little odor. There are no solvents released as it

cures, only water vapor. They also have the lowest VOC's among surface finishes.

Two component water based finishes are among the most advanced types of finishes. Every finish manufacturer is putting lots of effort into making these the best finishes available and these finishes are the way of the future when it comes to surface finish systems.

They're among the most durable finishes as well. They are generally the most resistant to chemicals, scratches and abrasion when compared to other types of commonly used residential finishes.

Most have the benefit of having built in UV inhibitors so your floor won't change color anywhere near as fast as it will with an oil based finish.

Of all the finishes, high-end two component water based finishes are the most expensive. The cheap single component water based polyurethanes (found in big box stores) are nowhere near as durable as professional systems. These low-quality versions won't last as long and are affected by UV quicker.



#### WATER BASED SURFACE FINISH

The benefits of these finishes is they dry fast, won't discolor as fast in UV light, have low VOCs and are extremely durable.

## Moisture Cured Urethane

Moisture cure is a solvent based urethane finish. As its name implies, it reacts with moisture in the air to cure. It's one of the most durable and moisture resistant finishes available. It's mainly used on commercial projects. It is extremely difficult to apply, very toxic and has an extremely high amount of fumes, VOCs and smell.

Not many homes have this finish and it's now banned in many areas because of the very high VOC's.

## Swedish Finish/Acid Cure

Most commonly referred to as Swedish finish, acid cure is a very durable finish. This finish was quite popular in many areas years ago. It provides a nice amber color to the wood similar to oil based finishes.

Swedish finish has extremely strong fumes that smell terrible (similar to moisture cure) and comes with a very high VOC level. It will also change color over time and it takes quite a long time to cure.

## Group 2: Penetrating Finishes and Wax

Penetrating finishes, as the name implies, penetrate into the wood pores and then

harden to form a protective penetrating seal. So instead of walking on the finish, like you would with the finishes we talked about above, you are actually walking on the actual wood and it's the wood that wears down, not the finish.

These types of finishes include tung oil, linseed oil, Danish oil and other specialty oils. Most of these oils take a much longer time to dry compared to other finishes.

Penetrating finishes don't offer a lot of resistance to staining from solvents, water, alcohol, and urine. But on the positive side, most scratches can easily be repaired by simply recoating the affected area.

Another advantage of penetrating finishes is that they are flexible and move with the wood, this can be beneficial especially on softer or wider plank floors and in areas with high swings in humidity where wood moves a lot.

After some types are applied, wax is sometimes buffed into the floor to give them a higher sheen and for durability. In this case, wax needs to be regularly maintained with additional thin applications of wax buffed into the floor.

Only certain cleaners can be used on the floor with these penetrating oil finishes otherwise they will be ruined.



FINISH, PETS, KIDS AND FUMES  
If you have pets or young children you'll want to choose a finish that doesn't have strong fumes that off-gas for weeks until it cures.

## HARDWAX OILS

These are the new kids on the block. They combine a lot of the benefits of surface and oil finishes and remove many of the disadvantages.

### Group 3: Hardwax Oils

This group of finishes are the new kids on the block. They've been around for a few years here in the States and far longer in Europe (where they originate from).

Finally we have enough real world data and experience with them to be able to talk about and recommend certain ones with confidence.

These finishes are blended from natural, environmentally friendly ingredients like plant oils and waxes.

One of the biggest benefits is that they are extremely low in VOC's. In fact a few of them have absolutely no VOC's at all. That's good for the environment and good for the nose as well.

At the very most they will have a slight cooking oil aroma for a little while as they dry.

Unlike surface finishes that lay on top of the wood and penetrating oils that sink into the pores of the wood, hardwax oils are

designed so that they impregnate the pores of the wood *and* leave a protective surface—although not a hard “plastic” looking or feeling one. The finished product is like a hand rubbed velvety matte look.

Some are 1 coat systems and others are 2 or 3 coat systems. There's also the option to add a little sheen with additional steps if you like with some of the systems.

One of the great things about these finishes are that they combine a lot of the benefits of surface and oil finishes and they remove many of the disadvantages.

For example, hardwax oils are much easier to spot repair than surface finishes. They don't have the headache of constant maintenance and waxing like penetrating oils.

Plus they don't stink up the house and drive you out of your home like some finishes will.

We've been spending quite a bit of time, money and effort testing them over the last few years and we feel there is definitely a very bright future for hardwax oils in the professional refinishing world.

# So How Do You Choose Between All Of These Finishes?

Choosing a finish is not an easy or obvious decision to make as there are many factors that you need to consider about each of them. One might excel in one area, but is a deal breaker in another area.

We'll talk about each of these factors and then line up each finish in a side by side comparison chart.

For convenience, we'll split them into two groups...

## Group 1: Durability

One of the big deciding factors when it comes to choosing between these finishes is their durability and how they will hold up over time.

Below we've listed the three areas that affect the durability of a finish:

### Abrasion Resistance

Abrasion resistance refers to how well a finish stands up to everyday wear from shoes, dirt or other things rubbing and wearing against the finish.

### Scratch Resistance

Scratch resistance refers to the finish's resistance to damage beyond everyday wear.

Things like furniture and kitchen appliances being dragged across the floor, rocks brought in by shoes and pets running across the floor with unkempt claws etc.

### Chemical Resistance

Chemical resistance is the measure of a finishes ability to be unaffected by a variety of chemicals such as nail polish remover, blood, coffee, wine, cooking oils, ammonia (pet urine) and alcohol within an allotted time.

## Group 2: Other Factors

While durability is a very important factor in a finish, there are other things to consider as well when choosing which finish to use...

### Looks

You want to choose a finish that accentuates the wood's natural beauty and color and provide a nice sheen.

Most *surface finishes* are available in four sheens: gloss, semi-gloss, satin and matte. *Penetrating finishes* have a beautiful hand rubbed look unless they are waxed and buffed. *Hardwax oils* can be either matte or satin.

### Aging/Yellowing

As floors age, some finishes start to yellow or amberize because of the affect of UV rays. This will be especially noticeable in areas where you have furniture and area rugs that have been moved after a long period of time.

### Fumes/Smell

More and more people are concerned about the environmental impact and emissions (VOC's, solvents and off-gassing) from the products they use. This is a good thing for not only the protection of our planet but also the health of your family and pets.

Some of these finishes have such strong off-gassing as the solvents evaporate that you can't be anywhere near them for days, sometimes weeks if you're very sensitive. Others have zero VOC's and extremely minimal smell.

### Maintenance

You also want your floors to be easy to look after, clean and maintain.

*Surface finishes* provide a hard, durable surface that is very easy to sweep, damp wipe and keep clean in general. If properly maintained they provide excellent moisture and chemical resistance. However, when the surface is scratched or damaged, they can be more difficult to repair without professional help.

*Penetrating finishes* on the other hand can be easier to repair if they've been scratched, most scratches can be repaired by simply recoating the affected area. But they offer minimal resistance from water and chemical damage and thus need to be maintained often.

*Hardwax oils* really excel in this regard because they have great moisture and chemical resistance and are also easier to repair and maintain long-term.

### Drying and Cure Time

You want your floors looking great but you also don't want to be out of your home for any longer than you need to be. Because of this the drying, application and curing time becomes important, especially if you need to move back in a hurry.

*Below we have put all these different factors together into a chart with a score for each type of finish...*

## Hardwood Floor Finish Comparison Chart

Type of Finish →	2 Part Water	Single Water	Oil Based	Swedish Finish	Moisture Cure	Penetrating and Wax	Hardwax Oils
<b>Durability</b>							
Abrasion	5	3.5	3.5	4.5	5	3	4
Scratch	4.5	3.5	3.5	4.5	5	3	4
Chemical	5	4	4	5	5	2	4
<b>Other Factors</b>							
Looks	4	4	4.5	5	5	5	5
Aging/Yellowing	5	4	3	3	3	5	4.5
Fumes/Smell	5	5	2.5	1	0.5	3	5
Maintenance	4	4	4	4	4	3	5
Dry/Cure Time	5	5	3	3.5	3.5	3	5
<b>Total Out of 40</b>	<b>37.5</b>	<b>33</b>	<b>28</b>	<b>30.5</b>	<b>31</b>	<b>27</b>	<b>36.5</b>

The numbers above are the general average and our personal opinions for each finish type. Specific products may perform better or worse.

**5 – Excellent    4 – Very Good    3 – Good    2 – Fair    1 – Poor    0 – Horrible**

## So What Finishes Do We Recommend?

That's a lot of information to take in about finishes. It may be hard to believe, but we haven't even begun to scratch the surface when it comes to information about all of these finishes.

This article could be ten times longer if we provided every single detail.

We've had the benefit of testing all of these finishes in many different circumstances over many years. And we continually test new products that come on the market as we like to be up to date with what's happening in the industry so we can provide our clients the best options.

Before we talk about our recommended finishes, let's run through the ones we don't use and our reasons why...

### The finish systems we do NOT use or recommend?

#### Moisture Cure

We ruled out moisture cure because of the toxicity, safety concerns (fire hazards, combustibility etc.) and the horrible smell and fumes from the solvents evaporating as they dry.

#### Swedish Finish

Swedish finishes were ruled out as well for pretty much the same reasons as moisture cure. We don't like subjecting ourselves to those issues, let alone others.

Yes they're extremely durable finishes, but the high-end two component water based finishes are just as durable and they don't have the stinkage or safety issues.

#### Penetrating Finishes

We also ruled out penetrating finishes because most people are used to the convenience of surface finishes and aren't willing to spend the time maintaining a penetrating oil or wax floor like their grandparents were.

They also spot very easily when liquids are spilled on them and they take far too long to dry and cure.

#### Cheap Single Component Water Based Finishes

We also don't use cheap single component water based finishes you can find in big box stores because they're *nowhere* near the quality of professional finishes.

Some guys will use these to save themselves some money, or they use these as a base coat and put better finish on top. But by doing either of these things they end up cheating their customers out of a strong, long lasting floor.

### The finish systems we DO use or recommend?

Depending on your answers to the 10 questions on the following page, we'll recommend one of 4 different finish systems...

- ⇒ either a premium **oil based polyurethane finish**
- ⇒ a top-of-the-line **single component water based finish**
- ⇒ a high-end **commercial 2 component water based finish**, or
- ⇒ a high quality **hardwax oil**

## The 10 Questions to Determine the Perfect Finish For Your Floors:

- What type of floor do you have? Is it residential or commercial?
- Will you be staying in your home long-term, or selling soon?
- How many kids/pets/customers do you have using and abusing your floors?
- Will you be walking on your floors with dirty/wet/muddy outside shoes?
- How regularly will you clean them?
- Do you want the best finish available regardless of cost, or would you like a tough finish at a more reasonable investment?
- What sheen do you want?
- How “green” do you want to go?
- How sensitive would you be to the odors, VOCs and chemicals inherent to some types of finishes?
- Do you want your floors to be easier to repair?



*Good Budget Option*

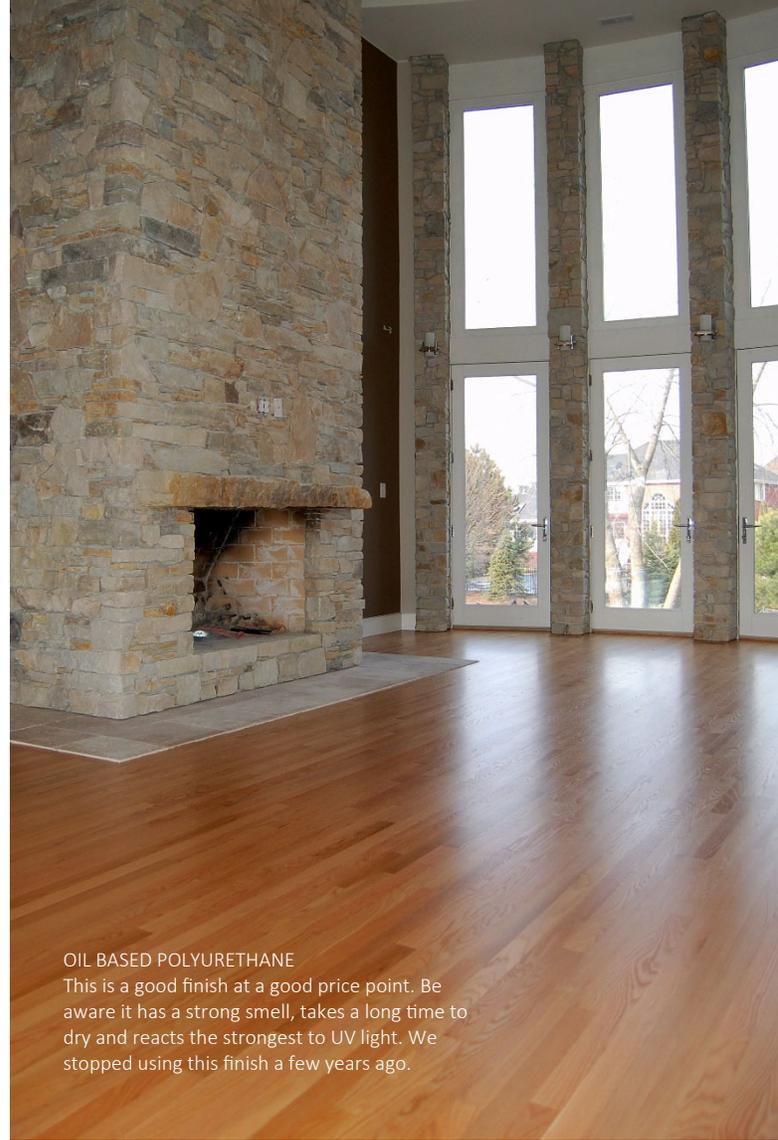
### Oil Based Polyurethane:

These are among some of the nicest looking finishes available. They provide a nice thick build after multiple coats. They have a beautiful traditional amber glow and look great on red and white oak floors.

There's some big downsides to them you need to be aware of though...

**First:** They have quite a strong fumes/smell due to the high VOC level. Depending on air flow in your home, it can last for a few days up to a week or more.

**Second:** They are one of the worst culprits for aging/yellowing. If you have area rugs in rooms with lots of sunlight and don't move them for long periods of time, you will notice a big difference in color.



#### OIL BASED POLYURETHANE

This is a good finish at a good price point. Be aware it has a strong smell, takes a long time to dry and reacts the strongest to UV light. We stopped using this finish a few years ago.

**Third:** Out of the finishes we recommend, these dry the slowest – 8 to 10 hours to dry and up to 30 days until fully cured.

Oil based finishes are not a high-end finish, the most durable, easiest to repair or the lowest in VOCs... and never will be. But for their reasonable price point, they can be a great choice if your budget is stretched and you are willing to compromise a little.

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**Our Choice:** *We don't use oil modified polyurethane finishes anymore.* Mainly because of the 3 reasons mentioned above. We understand many of our fellow floor refinishing businesses still do use them and we agree they can be a good budget option if you use a high-quality brand.

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✓ *Recommended*  
**High-End Single  
Component Water Based:**

As we talked about at the start of this article, high-end water based finish systems are on the cutting edge of technology and are among the most durable finishes available.

But to be completely upfront with you, I'll go through the minor drawbacks of these finishes so you have the full picture.

**First:** One downside to water based finishes, if you have oak floors, is the color. If you just apply a clear water base finish to red or white oak, it looks terrible. It's dull, flat and lifeless.

So... your floor will either need to be stained first or we can use an oil based quick dry sealer that's compatible with this finish as the base coat. This way you'll get a rich, deep color and durability.

*(NOTE: We in no way recommend using lacquer sealers as a base coat under any finish system. They are highly flammable, have super strong fumes and are very bad for durability.)*

**Second:** Another downside to water based finishes is the price. These are among the most expensive finishes. A gallon of high-end finish is in the triple digits—compared to maybe \$30.00 for cheap “handyman” finish.

**Third:** They are also far more challenging to apply because of their extremely fast drying times. This means if your finisher isn't an expert at applying them and he messes a coat up, the entire floor will have to be re-sanded (meaning more surface wood being removed) and the finish reapplied from scratch.

Now for the good points...

Like we've already discussed, these high-end finishes are very durable, multiple coats provide a very nice build layer and they're very easy to clean and look after.

Another huge benefit they have is they don't have the horrible fumes all the other solvent and oil based finishes have (although the stain and sealer will have a slight odor to them if they're used). They dry and cure much faster than oil based finish systems too, which is important if you are pushed for time.

These finish systems have built in UV inhibitors, so they won't change color anywhere near as quickly as the oil based finishes.

There are two types of water based finish systems—single component and 2 component. The difference is in the durability, 2 component finishes being far more wear resistant. We'll talk more about the 2 component finish on the next page.

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**Our Choice:** After years of testing dozens of professional quality finish systems we have finally decided on a single component water based product from a high-end German company called Pallmann. The finish is called *Pallmann Pall-X Power*. We're convinced this is the best single component water based finish on the market today.

If you're looking for a finish with amazing durability, great looks, very low VOC's and is easy to clean and take care of, then this system is going to be an excellent investment for your floors.

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SINGLE COMPONENT WATER BASED  
A great finish that is reasonably priced, very low fumes, dries and cures fast, holds up well to UV and has very good durability.

✓ *Recommended*  
**Commercial Grade 2  
Component Water Based:**

If you want the best of the best in surface finishes, this is it. It's called 2 component because it's made of two parts — the finish and a catalyst.

The catalyst is an industrial grade hardener and when it's mixed into the finish, the chemicals blend and mix to form an extremely tough and extremely durable and scratch resistant floor system when it's dry and cured.

This is the surface finish we use for our commercial projects like retail stores, hotel lobbies, cafes and restaurants. We also offer this system to homeowners that want the absolute best surface finish system they can invest in for their home.

If you have a high traffic home with lots of dogs or children, or you're always walking across your wood floors with your dirty shoes, then you might want to consider this commercial grade option.

You may also want to look into investing in this finish system if you have old antique hardwood floors that have been sanded and refinished many times before and now don't have a lot of wood left to sand. In this case you will want to protect and preserve whatever amount of flooring you have left with the best finish available.

The downside to this finish system — expect to pay around 30% more compared to the single component finish system and about 50% more than an oil based system.

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**Our Choice:** After considerable time and expense spent testing of dozens of two component finishes we decided on a finish from the same German company: Pallmann. The finish is called *Pallmann Pall-X Gold*. It cures in 3 days and comes in 3 sheens — Matte, Satin and Semi-Gloss.

This is as good as you can get if you're looking for a surface finish that looks great, is low in VOC's, is incredibly durable, won't yellow and is easy to clean and maintain.  
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2 COMPONENT WATER BASE  
This is the best of the best for surface finishes.  
Low fumes, great UV protection, easy to clean  
and incredibly durable.

✓ *Recommended*  
**Hardwax Oils**

These relatively new finishes have been a big welcoming surprise to us over the last few years. As you can see from the Finish Comparison chart on page 7, their overall score comes in second only to the 2 component water based finishes.

Like the other two finish systems we recommend, these finishes are highly water resistant, very durable and they're easy to look after and maintain.

**The Upside:**

They have a lot of things going for them over conventional surface finishes. For one thing, they are the most "green" and environmentally friendly finishes available at the moment. The one that we use and recommend has zero VOC's!

The highest one is 50g/liter – compared to oil based finishes that are around 500g/liter and Acid Cure that has upwards of 725g/liter! That means no more being driven out of your home for days on end by strong fumes and toxic chemicals.

Because hardwax oils don't form a plastic film that sits on top of the floor surface, it makes them far easier to spot repair than surface finishes. If you ever have an accident, you can repair the damage in the middle of a room and it will be virtually impossible to see if you didn't know it was there.

To do the same with a surface finish we would need to re-coat the entire area so we could ensure that the new finish and sheen blends in properly.

These finishes can be used in domestic as well as high traffic commercial applications. In fact they're becoming very popular in commercial projects because they dry fast and don't stink up the whole building or restaurant for days.

With certain systems (particularly Rubio Monocoat), the custom colors and mixes you can achieve is incredible. If you want something completely out of the ordinary and unique then you'll definitely want to consider this finish.

**The Downside:**

If you love super glossy finishes then hardwax oils won't make the cut. The highest gloss level they can attain is a satin sheen, usually with extra steps in the finishing process.



**HARDWAX OILS**

These are the rock stars of VOC levels. The one we use and recommend has zero VOCs! Great if you don't want your home to stink for weeks on end.

Fortunately most people that choose to use hardwax oils love them for their matte, natural wood look.

Also, unlike high quality surface finish systems, hardwax oil finishes need to be properly maintained and refreshed several times throughout their life to maintain their protective coating.

But this is a good thing too because if you stay on top of the maintenance schedule you potentially will never have to sand your floors again.

Just keep looking after them, spot repair damaged areas, do the proper maintenance coats and the finish should last a very long time — as long as you still take good care of

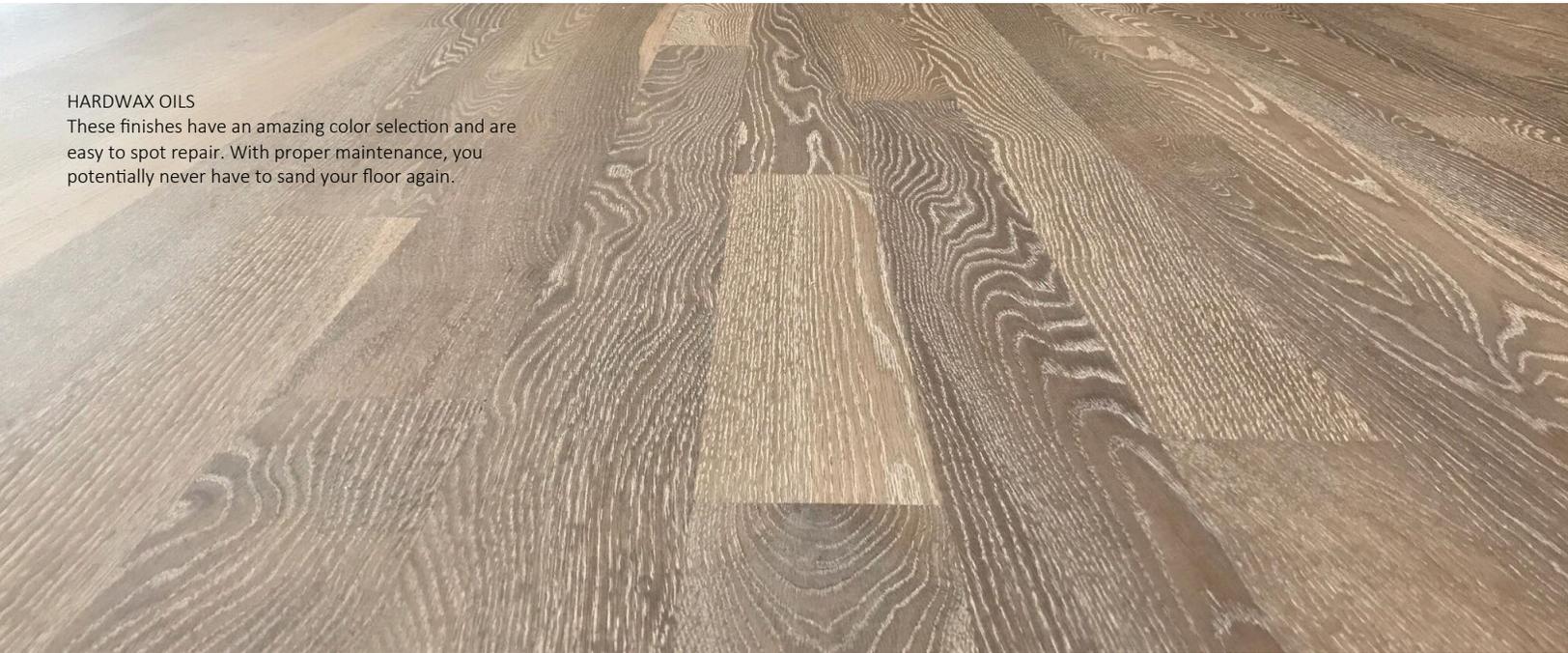
the actual wood and don't gouge, chip and dent your floors.

Hardwax oils have definitely added viable options to the hardwood finish mix. If you're open to a non-conventional finish approach, appreciate the many benefits they offer and can live with the minor downsides, then a hardwax oil could be perfect for your home.

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**Our Choice:** After years of testing all the leading hardwax oil finishes on the market, we have decided to specialize in *Rubio Monocoat* and *Pallmann Magic Oil*. Both are without a doubt the best hardwax oil systems currently on the market.  
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#### HARDWAX OILS

These finishes have an amazing color selection and are easy to spot repair. With proper maintenance, you potentially never have to sand your floor again.



## In Conclusion...

We hope this article has helped educate you on the basics of hardwood floor finishes and has shown you a clear choice as to what finish system you'd like to invest in for your hardwood floors.

If you have any questions or you would like to see samples of our recommended finishes in person, please feel free to call us and ask. We're always happy to help.

Call or make a booking on our website to arrange your free in-home quote and finish system consultation:

PHONE: (630) 995-0662

WEBSITE: [napervillehardwood.com](http://napervillehardwood.com)



Call Today to Discuss the  
Perfect Finish for Your Floors