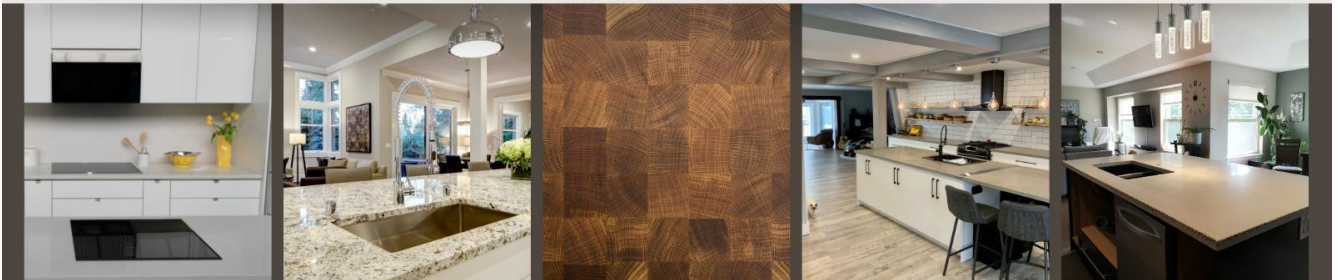




## **CHOOSING YOUR COUNTERTOPS**

**A (MORE) COMPREHENSIVE GUIDE**



**MARCH 2023**  
**D.A.S. CONCRETE COUNTERTOPS INC.**  
[www.dasconcrete.com](http://www.dasconcrete.com)



## CHOOSING YOUR COUNTERTOPS: A (MORE) COMPREHENSIVE GUIDE

If you're reading this, you're likely in the process of researching options for new countertops. And you may be feeling a little overwhelmed. Whether you are visiting showrooms or browsing online, sorting through the different materials, brands, colours and finishes can leave you feeling a little dizzy. Faced with too many choices, you may be tempted to just go with whatever is trendy or looks pretty, or whatever your neighbour has. And some countertop shops will encourage you to do so.

We don't think this is the best approach though. Trends change. Looks fade. And you are not your neighbour. Like most things, every countertop material has its pros and cons related to cost, durability, required care and maintenance, look & feel, and – not to be overlooked – sustainability. As a concrete countertop manufacturer, we will happily explain to you the benefits of concrete surfaces, but we will also tell you that concrete is not for everybody or for every application. While we favour concrete as a sustainable option, we also recognize that an important part of making a sustainable choice is choosing something that YOU can live with in the long run. If you're in search of new countertops, we strongly encourage you do some homework to figure out which material provides the best compromise for your specific needs. We have developed this blog to help you get started. We know it's not a quick read—it may take you a couple of hours to get through the whole thing – but sifting through the information in the hundreds of shorter blogs online, some more unbiased, complete and accurate than others, may take you just as long. In the end, we hope that this document will give you a solid foundation for further research and save you some time trying to sort the good information from the bad as you go.

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Before you dig into weighing the pros and cons of specific materials, think about what's most important to you and what you're willing to compromise on. Do you want a certain look at any cost? Will stains drive you crazy? Are you an avid cook who needs a surface that can handle hot pots? Do you want a clean, neutral look or something full of character? Do you care about where your countertops come from or how they're made? Here are a few considerations to work through as you figure out what you want:

- **Appearance:** Looks are a big one for most people, and rightly so. Countertops are a big expense, so it makes sense to choose something that you like. But, unless you're planning to just admire your countertops from afar and not actually use them, looks shouldn't be the only thing you consider. When you're considering appearance, especially if you're someone who likes to change things up often, think about how easily the countertops might adapt to new paint colours or other décor updates over the years. Will they look dated as soon as the trends change? And will you care?
- **Durability:** Durability refers to how long the surface can be expected to last under 'normal' use and how well it will stand up to different sorts of use and abuse relevant to your intended

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application. This can include things like resistance to heat, stains, chemicals and water, as well as the material's tendency to chip or crack. Of course, how well you care for the counters will play a big role in how long they last and how good they look in the long run. Understanding durability is useful even if you're not planning to keep the counters for as long as they might last (although, from a sustainability perspective, you should consider doing so). Is it worth paying a premium for counters that you plan to replace in five or ten years? If you are looking to replace your counters in relatively short order, you should be asking about how easy it is to repurpose or recycle the counters when you are done with them. If you are in it for the long haul, you might want to know if the surface can be refinished down the road to extend its lifespan (if you decide to sell your house, for example).

- **Care and maintenance:** Make sure you understand both the day-to-day and longer-term care and maintenance for the materials you are considering. This includes the dos and don'ts with respect to heat, water, scratches and cleaning. It also includes things like ease and frequency of resealing, if required, and understanding how to prevent AND repair different types of stains or damage. Most surfaces claim to be various levels of "stain-resistant," not "stain-proof," which means that stains *can* happen. You'll want to know what substances or behaviours are most likely to stain or otherwise damage the surface, and how easy it will be to repair things such as chips, stains, discoloration from heat or sunlight, etc.
- **Sustainability:** While more and more countertop manufacturers are talking about sustainability, most customers and retailers don't put it at the top of their list (although thinking about durability is a good first step). We hope that this will change as we become more conscious of the impact that our consumption patterns have on the future of our planet. The sustainability of a countertop can be considered from many angles, especially if you consider the full life cycle of the material: What raw materials are used to make the countertop (natural materials, chemicals, glues, plastics, etc.)? Where do those materials come from and how are they extracted? How and where is the product manufactured, and how much water and energy are used in the process? How much waste is created during final fabrication (the process of cutting the countertops to size and finishing them to your specifications)? How long will the countertops last? How easily can they be repaired or refinished? And can they be (easily) recycled? It is unlikely that your retailer will have the answers to all these questions, but by asking them, you are showing them that there are customers who care. You might need to do some digging on your own.
- **Structural limitations and design considerations:** It's important to understand the structural and design limitations of the materials you choose. Every material has them. Some constraints could be deal-breakers, depending on what's important to you. Size limits are a big one, whether imposed by manufactured slab sizes, the handling capacity of the installers, or more project-specific limitations related to site access or other on-site factors. Seams may be required – and visible. Supports may be required for overhangs. Some materials don't do well outdoors or in wet environments. Others may not support certain types of cut-outs. In some

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cases, you may be able to convince the fabricators to push the limits of the materials you want to use but be prepared to pay a premium for it. Regardless of the material you choose, remember that no material is perfect and in most cases, neither are the conditions in which countertops are installed.

- **Cost:** No matter how long your wish list is so far, at some point you're going to have to come back to earth and consider your budget. After appearance, cost is perhaps the biggest consideration for most people. For many, it comes down to a choice between laminate on the cheap side, and hard surfaces (stone, quartz, concrete, etc.) on the high side. Unfortunately, there's not much in the middle, unless you're open to DIY. Of course, within these categories, there can be a lot of variation based on specific material, brand, colour, and the details of your particular design and location. Asking for a square foot or linear foot price can be a good starting point for comparison, but don't rely on it for an accurate price. Cut-outs, custom elements, oversized slabs, accessories, travel fees, etc. all need to be factored in.

Finally, a word on **trends**: don't get too hung up on them. Whatever trend you might choose to follow will almost certainly be outdated well before your new countertops need replacing, so choose something that you are willing to live with for the long run.

With the above considerations in mind, you're ready to start weighing your options. We've done our best to give you the low-down on some of the most popular countertop materials below, drawing on our own experience and the information that we've gleaned from customers and those that work in the industry. We don't claim to be the ultimate experts, though, although we've done our research. Shop around, read around, ask around. In the end, the only poor choice is an uninformed one.

You can flip ahead to read about the materials that interest you most, or if you're not sure where to start, take the time to read through from start to finish. We trust it will be worth your time!

## **ENGINEERED STONE (QUARTZ)**

### **GRANITE**

### **LAMINATE**

### **CONCRETE**

### **BUTCHER BLOCK**

### **PORCELAIN**

## **A BRIEF OVERVIEW OF OTHER OPTIONS**

### **FINAL WORDS**

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## ENGINEERED STONE (QUARTZ)

Engineered stone countertops, more commonly known as ‘quartz’, have overtaken natural stone (granite etc.) in popularity as a high-end countertop option, and not without reason. The big advantage of quartz countertops is that they are non-porous, meaning that they don’t require sealing, and they offer a high level of stain resistance, which meets today’s demand for minimal maintenance. Often made to mimic the look of natural stone, quartz can offer a high-end look and a long-lasting surface without the added maintenance (sealing, stain removal, etc.) of real natural stone.

### What is it?

While the nickname ‘quartz’ suggests that these counters are made from slabs of natural stone, just like granite, they are, in fact, machine-made in highly sophisticated factories from a combination of finely crushed quartz, pigments, and a resin binder, all pressed together to form a very hard, non-porous slab.

Engineered stone is an excellent surface for both residential and commercial applications, checking off many of the boxes discussed above. However, like every other option, it’s not a perfect material and there are a few things to be aware of before you jump on the bandwagon.

### Appearance.

While engineered quartz can be made to mimic the veins or patterns of natural stone or concrete, the resin binder gives it’s a somewhat sterile, plasticky look and feel that lacks the charm of the real thing. On the flip side, because quartz is machine-made, the appearance of your slabs will be more predictable than granite or other natural stone, where each slab is unique even if taken from the same quarry. This can be a good or a bad thing depending on your personal preference for either uniformity or character.

If you can get over the plastic feel, the possibilities are seemingly endless when it comes to colour and design options. Many quartz countertops are made to mimic the look of natural stone (marble, granite, etc.), but you can also get more muted solid colours or bright colours with glass specks or sparkles. While most quartz has a smooth, glossy surface, many manufacturers have introduced honed and textured surfaces for a more natural look and feel. In fact, many of these honed surfaces are seeking to imitate concrete in one form or another (but while they might come close, they can’t replace the real thing!). Note that, as explained below, honed and textured surfaces are not quite as carefree when it comes to care and maintenance.

### Durability.

Quartz countertops offer a highly durable, long-lasting surface, as long as they are well cared for. As mentioned above, quartz countertops are non-porous, meaning that – unlike stone and concrete - they don’t need to be sealed to prevent stain and water penetration. It also means that they score very well when it comes to stain *resistance*. They are not, however, stain *proof*. It is possible to stain quartz countertops. And one of the challenges with this material is that, once stained, it can be difficult to get

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those stains out, especially if they are embedded in the resin. How easily quartz countertops stain will depend, at least in part, on the quality of the slab – which, in turn, is related to the quality and amount of resin used (lower quality quartz tends to use more resin). Quartz fabricators also report that the veined and more highly patterned quartz slabs tend to be of lower quality than the solid colours due to variations in the manufacturing method, although this shouldn't necessarily stop you from choosing those designs.

One of the biggest downsides of quartz is its sensitivity to heat. While many quartz manufacturers identify their products as “heat resistant” to some degree, it is widely stated that you should not place hot pots or pans directly on a quartz countertop. The resin binder can melt if exposed to high heat, resulting in permanent discoloration. Another risk is thermal shock, where sudden exposure to high heat can cause the slab to expand and crack. We have talked to quartz countertop owners who report that they place hot pots directly on the surface all the time without issue, but we have also seen the damage that repeated exposure to high heat can do. And once done, it can't be undone. If you want a countertop that can withstand hot pots, consider **concrete** or **porcelain**.

Due to the hardness of the natural quartz component, engineered stone countertops are prone to chipping, especially along the edges. While any stone or concrete countertop will chip if hit hard enough, chips or other major surface damage in quartz countertops can be more challenging to repair, as it requires expertise in mixing resins to match the original colour and design, and even then it is difficult to replicate the factory finish.

Also, be aware that some brands and colours of quartz have been known to fade in the sun over time, as the resins and pigments are not necessarily UV stable, so be careful about leaving flowerpots or other objects sitting on the counter in front of a window. You may end up with visible rings where the objects blocked the sunlight. For this reason, most quartz countertops are not suitable for outdoor use.

## Care & maintenance.

Beyond using hot pads and taking precautions to minimize chipping, daily care instructions are fairly simple (and comparable to most other hard surfaces): wipe up spills – including water - promptly to minimize risk of stains, and clean regularly with water and mild cleaners, such as dish soap or diluted vinegar. While quartz isn't sensitive to acid etching like concrete and granite, you should be careful to avoid spilling harsh chemicals, such as oven cleaner, solvents (e.g. acetone) or undiluted bleach, on the surface as they may cause permanent (non-repairable!) damage. (One advantage of **concrete** is that you CAN use chemicals such as bleach or acetone to remove tough stains, such as Sharpies, if need be. You might damage the sealer, but the concrete will be okay.) One complaint that we have heard repeatedly from current quartz owners is regarding the challenge of restoring the original sheen after attempted cleaning or stain removal (especially if the wrong cleaners are used). Make sure you follow the manufacturer's instructions regarding appropriate cleaners and cleaning methods, not least so that you don't void your warranty.

When choosing colours and finishes, be aware that darker colours and honed or textured finishes can be harder to keep clean and are more likely to develop a patina (a natural build-up of oils that can darken the surface or alter the sheen over time, especially in heavy use areas). Patinas are generally

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considered to add character, but can be removed through cleaning if desired. They are also common with concrete or granite countertops, depending on the sealer used.

Finally – and this goes for all countertops (with the possible exception of butcher block, but even then...) – don't cut directly on the surface! It is incredibly easy to use a cutting board, and it goes a long way to reducing the risk of stains and scratches, not to mention protecting your knives.

## **Sustainability.**

Quartz is promoted as a sustainable material because of its durability, and the incorporation of waste and recycled materials. The major brand names also highlight the significant investments they've made in renewable energy, waste reduction and water recycling to reduce the environmental impact of their manufacturing processes. Notably, the crushed quartz that makes up approximately 90% of a quartz slab by weight can be harnessed from waste materials at quarries. And other waste materials, such as recycled mirrors, are often incorporated for different aesthetic effects.

When it comes to end of life, while manufacturers state that quartz countertops can be recycled in theory, it's not clear how easily or often discarded quartz is actually recycled (or even how it *should* be recycled). In fact, we found several [Declare labels](#) for quartz countertops that identified end-of-life options as "100% landfill". There is a growing waste problem in the countertop world, with large volumes of cut-offs and one-off slabs being sent to the dump or stored indefinitely in scrap piles for lack of better options. As the popularity of quartz grows, so does the mountain of quartz waste.

Another thing to consider is where your quartz comes from. Quartz is manufactured all over the world, with the largest brand name manufacturers headquartered in Israel (Caesarstone), Spain (Consentino), and the US (Cambria, MSI). As of late 2022, the largest source of quartz countertop imports to the US was India, followed by Spain. Many countertop shops will carry only one brand of quartz, so you may not get to choose your quartz based on manufacturing location, but it can still be a factor in your overall material choice.

Finally, the challenges with repairing quartz countertops should give pause for thought, depending on who you are and how you are planning to use your quartz. Your personal habits will play a role in how likely your quartz is to get damaged, and how likely you are to want to replace it if DOES get damaged. From a sustainability point of view, the longer the keep your quartz, the better. Either take impeccable care of it or be prepared to live with a few imperfections. And if you do decide to go with quartz, invest in the good stuff.

## **Limitations and design considerations.**

Like natural stone (granite, marble, etc.), quartz is manufactured in predetermined slab sizes. The most common slab size is around 120" x 56.5", with some companies also offering larger, jumbo slabs in certain colours. If your countertop or island is longer than this, or if you have a large L-shape that doesn't fit on one slab, you will need a seam. While seams tend to have a bad rap, they are an unavoidable reality with some kitchen designs. With the right tools and expertise, seams in quartz can be tight and very subtle, but you will likely still see them if you're looking for them. Seams get more

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complicated if you have chosen a colour with veining or other colour variation, as care needs to be taken to make these patterns look continuous from one slab to another. This may end up increasing the total amount of materials required for your project.

Quartz also comes in different thicknesses, ranging from 1.3 cm to 3 cm thick. 3 cm is the most common for countertops as it is stronger and doesn't require a plywood underlay or edge build-up, but it is also the most expensive.

Remember that while quartz is a machine-made material, it's not perfect. Slabs can arrive bowed, corners can chip during installation, and, of course, the floors, walls and cabinets may not be perfectly straight or level. Good fabricators and installers will do their best with what they have to work with, but it is unrealistic to expect complete perfection.

Finally, as mentioned above, standard quartz is not suitable for outdoor use. However, UV-certified outdoor quartz products are starting to appear on the market, with Caesarstone leading the way. Care and maintenance, installation and design considerations for outdoor quartz may vary somewhat from indoor materials, so be sure that you (and your installers) understand the dos and don'ts before making a final decision.

## **Cost.**

Quartz is considered a high-end countertop option, with square foot pricing varying based on colour, finish and, of course, brand. In general, solid colours are cheaper than those that more closely mimic natural stone. There may be cheaper options out there, often from off-brand companies overseas, but be aware that the price likely reflects the quality, with the cheaper slabs generally containing a higher percentage of resin. Also, when calculating costs, be aware that you will likely have to pay for the total number of slabs used for your project, including any partially unused portions and waste material. If you're the creative type, you may want to ask if you can have the remnants for a DIY project. If you don't, those remnants may be headed for the dump.

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## ENGINEERED STONE ('QUARTZ')

### PROS

non-porous (no sealing)

excellent stain resistance

can imitate the look of higher maintenance materials

predictable appearance

easy to clean and maintain

Made with recycled & waste materials

### CONS

somewhat plastic look & feel

hot pots & harsh chemicals can permanently damage the surface

prone to chipping

difficult to repair

expensive

fabrication creates significant waste

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# GRANITE

## What is it?

Unlike engineered stone ('quartz'), which is made in a factory, granite is truly a natural stone, cut from quarries around the world. Granite is an igneous rock (formed through the cooling of molten rock) composed of a variety of different minerals, including quartz, feldspar, and others. It is not a homogenous material, nor is every piece of granite composed of the same materials. The variation in composition is what gives granite its different colours and patterns and, some would argue, its natural charm.

## Appearance.

Granite comes in a variety of colours ranging from white to black, brown and pink, depending on the combination of minerals present. The colours are not uniform, but can include specks, swirls, veins and other patterns, depending on how the rock was formed. As a rule, granite countertops are highly polished, giving them a glossy finish.

The natural variation of granite can be either an advantage or a disadvantage, depending on how you look at it. On the one hand, granite offers natural beauty and character that engineered stone can't quite live up to, with no two slabs exactly alike. When you decide to go with granite, you will likely have to visit the stone yard to select the specific slabs that will be used in your project as the actual slabs may differ somewhat from the showroom sample, or there may be veins, colour variations, or other natural features that need to be worked into the overall design. This variation is celebrated by those who love character and find beauty in imperfection but can be a source of frustration for those who value uniformity and predictability.

Certain granites can be quite busy, giving them a dated look when compared to today's more minimalist trends. More highly patterned surfaces have the advantage, however, of being more forgiving when it comes to showing wear and tear and minor stains.

## Durability.

Like quartz and concrete, granite is a hard and durable surface that will last for a very long time if you take good care of it, even if it does pick up a few chips or stains along the way. One of the big differences between granite and quartz (and one of the similarities with concrete) is that granite is porous, and therefore requires sealing to minimize the risk of stains. Like concrete, granite can also be susceptible to acid etching (a chemical reaction that occurs when acids, such as lemon juice and vinegar, come into contact with calcium carbonate in the stone, leaving a rough, discoloured mark on the surface of the countertop if not wiped up immediately).

On the upside, granite is naturally heat resistant and, unless you have a topical sealer that can't take the heat, you are unlikely to damage your granite by putting hot pots directly on the surface, although many manufacturers still encourage the use of trivets or hot pads. This is primarily to minimize the risk of

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thermal shock, which is a greater risk if your granite is less uniform in composition, with natural fissures and weak points. Granite is also highly resistant to scratching, although – as with all hard surfaces – the edges may chip if hit hard enough with a heavy pot or other hard object.

Despite the overall durability of granite, the variation in its composition means that you can also expect variation in quality. Some granite is denser than others, which can affect how porous it is, and (as alluded to above) granite slabs can contain natural weak points or fissures, which can lead to cracks during handling, impact, exposure to sudden temperature changes, or as a result of wear and tear.

Resins are sometimes used during the fabrication process to fill in natural cracks and surface imperfections in the granite slabs. Resins can also be used to repair chips and cracks. As with quartz, matching resins so that the repairs don't show too much can be difficult and requires professional expertise. When it comes to overall surface restoration, repolishing granite is easier than repolishing quartz, although you will still need to call in a professional. You may, however, be able to restore small areas by hand yourself – to repair an acid etch, for example.

One final advantage of granite: Unlike most engineered stone, granite is suitable for outdoor use.

## Care and maintenance.

As mentioned above, granite is porous and needs to be sealed to protect against stains and etches. Some granite now comes factory-sealed with a 10-15 year warranty. If not, you may be offered a choice of sealers, with the main choice being between a topical or penetrating (a.k.a. impregnating) sealer. Sealer choice merits a blog of its own, but in very general terms, a topical sealer creates a coating on the surface that will offer better stain protection but that is more prone to heat damage and scratching, and harder to apply and repair. A penetrating sealer, which soaks into the stone and fills the pores but does not coat the surface, will require more care in terms of wiping up spills promptly, but it preserves the stone's natural look and feel and is much more conducive to repairs, if required. How frequently you need to reseal will depend on the specific sealer used and how well you care for your counters. It can range anywhere from every 6 months to every 5 years.

Granite requires a bit more care than engineered stone (quartz), mainly because of its porous nature. The specific care and maintenance regime will depend on the sealer used, but the general rule is “wipe up as you go” using soap and water or a pH neutral stone cleaner (don't use vinegar or acidic cleaners as these will etch the surface!). Of course, “wipe up as you go” applies to engineered stone as well, but granite is more likely to stain or etch if you don't. On the flip side, if you do get stains or etches on your granite, they will likely be easier to repair, although some repairs may still require professional help. Concrete is very similar in this respect.

If you choose granite for your outdoor kitchen, make sure that your sealer is also suitable for outdoor use. Solvent-based sealers, while higher in VOCs, will last significantly longer outside than most of today's water-based sealers.

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## **Sustainability.**

When it comes to the sustainability of granite, you will find arguments on all sides. On the one hand, granite is a natural and very durable material, which requires no significant use of man-made chemicals or additives to manufacture. Depending on where you live and what type of granite you choose, it could come from a local quarry, significantly reducing transportation emissions. If you are choosing your granite based on looks rather than place of origin, however, it could also be coming from the other side of the continent – or planet. On the downside, granite is considered a non-renewable resource given the length of time it takes to form. The mining and processing of granite can be highly energy intensive, and it inevitably has an impact on the surrounding environment and landscape, with massive blocks of material being cut or blown out of the mountainside. Questionable labour practices are a concern in granite quarries in some parts of the world, as well.

Like quartz, granite is manufactured in large, standard-sized slabs that are then cut to size as required, creating large quantities of waste cut-offs. These scraps could be crushed and recycled as aggregate for use in concrete or landscaping, but they often find their way to the dump instead.

Where your granite comes from, the conditions in which it was cut and processed, how far it had to travel to get to you, and what happens to the waste are all things to think about.

## **Limitations and design considerations.**

Like quartz and most natural stone countertops, granite comes in standard-sized slabs, so be prepared for seams if your countertop design includes pieces that are too long or wide to be cut from a single slab. Seams should be subtle if well done, although the natural variation from slab to slab may make it more difficult to give the illusion of a continuous pattern across the seam.

If you have to order in slabs specifically for your project, especially if you have chosen a rare colour, don't cut it too tight when determining the number of slabs required, as you may have trouble sourcing additional matching slabs if something goes wrong. Granite is not reinforced, so you will be limited in the size of unsupported overhangs or stretches of countertop. Rods or mesh reinforcement are sometimes added on the underside of granite slabs to provide additional support around cut-outs or other fragile areas.

## **Cost.**

Cost-wise, granite is a high-end countertop option, although square foot pricing can vary significantly based on the quality of the granite, how rare your chosen colour is, where it comes from, etc. As with quartz and other natural stone, you can expect to pay for the full slabs used in your project, not just the square footage that is actually installed.

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## GRANITE

### PROS

natural look & feel

each slab is unique

more tolerant of heat than quartz  
(but hot pads still recommended)

can be used outdoors

locally sourced options may exist

easier to refinish than quartz

### CONS

porous surface requires sealing

can contain natural fissures and  
weak points

may be sensitive to acid etching

expensive

extraction and transportation can  
have big environmental impact

fabrication creates significant  
waste

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# LAMINATE

## What is it?

Laminate countertops are the most economical type of countertop, and the most DIY-friendly. They are generally composed of a particle board or MDF base, laminated with a coloured plastic sheet to give the desired look. The laminate sheet itself is composed of thin layers of resin and paper compressed together under high pressure. Laminate countertops are often prefabricated to standard countertop depth (25 1/2”), with a built-in drop edge in the front and backsplash in the back (this is known as post-form). However, it is also possible to fabricate custom shapes and sizes, such as islands, by gluing the plastic sheets to custom-cut substrates using specialized adhesives.

Many new construction projects will start with laminate countertops to control upfront costs, with the intention to upgrade when the laminate is due for replacement, or when budget otherwise permits.

## Appearance.

Laminate countertops get a bad rap sometimes as cheap-looking and not very durable. However, the designs and finishes have come a long way in recent years, and you can now get laminate that closely resembles just about any other material you could think of, textures and all. Nevertheless, given what it’s made of, laminate invariably has a somewhat plastic look and feel.

Like quartz, because laminate is produced in a factory, the patterns are repeatable and predictable, which can make matching across seams easier (although you will may require more material to make it work).

## Durability.

The durability of laminate has a lot to do with how it is used and cared for. We’ve seen laminate in great condition after twenty years, just like we’ve seen it be thrown away within a year or two. The plastic sheets that make up the surface are non-porous and fairly low maintenance (no sealing required), as long as they remain in good condition and don’t come unglued.

Heat and water are perhaps the biggest enemies of laminate. Hot pots can permanently scorch the plastic surface, so be sure to use hot plates or trivets. Water on the laminate surface itself shouldn’t do any damage, but if water gets to the substrate – usually through a seam or a scratch – it will cause the particle board or MDF to swell, potentially signalling the end of your countertop. For this reason, it is important to avoid cutting directly on laminate or dragging heavy pans etc. across the surface. As a rule, smooth, glossy laminates are more prone to scratching and will show marks more than the textured laminates. Textured laminates, however, may be more difficult to clean.

Some people favour laminate over stone because the surface isn’t as hard. Chipping along the edges due to impact is not such a concern with laminate, and in general, it provides a less noisy surface when placing plates, glasses, etc. on the countertop.

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It may be obvious based on above, but laminate countertops are not suitable for outdoor use.

## Care & maintenance.

Like with every other countertop material, you can prevent most stains by wiping up spills promptly with water, or a mild, pH-neutral cleaner. Avoid harsh or abrasive cleaners as they can dull and scratch the surface. Take care, too, when working with oven, drain and toilet cleaners, which should not come into direct contact with the laminate if you can help it. Some stains, like coffee, can usually be removed, while others, such as food or hair dye or sharpies, may stain the plastic permanently.

As noted above, it is important that you don't place hot pots directly on a laminate countertop as you may cause permanent damage. And you should always use a cutting board to avoid scratching the surface. Don't let water sit for long periods, either, in case it finds its way into a seam or crack. Be especially careful to maintain the caulking and wipe up any water around the lip of the sink to prevent water seeping into the exposed particle board around the sink cut-out.

## Sustainability.

Laminate is generally considered a less sustainable countertop choice, mainly because laminate countertops are less durable than other options and offer very limited options for repair. Furthermore, discarded laminate countertops cannot be recycled and usually end up in the landfill. While the particle board might eventually decompose, the plastic sheeting will not.

One of the other big concerns with laminate is the glues that are used to make it. The adhesives used to bind the particle board together and attach the laminate sheeting to the particle board can be high in VOCs and have historically contained formaldehyde, which can off-gas in the home after installation, contributing to poor air quality. Many manufacturers, however, have now switched to low-VOC adhesives, with certifications such as Greenguard to back it up.

On the upside, while laminate countertops are not recyclable, there is potential for them to include recycled materials, including recycled paper, plastic and wood by-products. Also, within North America at least, laminate countertops offer a broader choice of locally manufactured products. And because laminate is much lighter than stone or quartz, the carbon footprint associated with transporting laminate countertops is lower.

The temptation to guard against with laminate countertops is the "buy cheap and replace" approach, whereby we don't worry too much about damaging and discarding old (or fairly new) laminate because it's relatively cheap to replace. If you do choose laminate, commit to caring for it well to ensure that it lasts as long as possible. If you are disposing of laminate countertops that are still in good condition, remove them with care and offer them to a local charity, such as Habitat for Humanity. Using screws rather than glue to secure them to the cabinets will make it easier to remove them without damaging them when the time comes.

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## Limitations and design considerations.

Laminate sheets for custom fabrication come in standard sizes, the most common being 4' x 8', with larger sizes available (up to 5' x 12') from some manufacturers to accommodate islands etc. Postform laminate countertops come in standard lengths up to 12', which can be cut to size as required. As with granite and quartz, if you have an L-shaped counter, or if your counters don't fit within the constraints of the available sizes, seams will be required. Corner seams are usually made using mitre joints (creating a diagonal seam). Remember, water should be kept away from seams to prevent damage to the particle board substrate, so consider the placement of your sink in relation to any seams that may be required.

Laminate is also available in different grades and thicknesses, with thicker laminates being more durable (and more expensive). The standard thickness for countertops is 5/8". Vertical applications may be able to use thinner laminates, depending on structural requirements.

One of the biggest limitations with laminate countertops is sink options. While undermounts are becoming the default option for hard surfaces (stone, concrete, quartz, etc.), most laminate countertops take drop-in sinks, given the sensitivity of the substrate to water. While undermount sinks are possible (we've seen it done), special care must be taken to seal the edges of the countertop around the cut-out to prevent any water getting through.

On the upside, laminate countertops offer a broader selection of edge profiles than stone and concrete, ranging from ogee to bullnose to beveled or crescent. Edge profiles are something to consider if you are looking to have your laminate countertops imitate another, higher end material.

## Cost.

As mentioned above, laminate is without question the budget-friendly choice. As with everything else, price will vary based on factors such as colour and dimensions, the number of cuts required, and the grade or thickness of the laminate you choose. If you are really on a budget and have some basic woodworking skills, you can buy the materials yourself at your local hardware store and save the labour costs.

Note that, unlike stone, post-form laminate is priced by *linear* foot (not square foot).

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## LAMINATE

### PROS

non-porous (no sealing)

large choice of colours, textures and designs

can imitate the look of higher cost materials

easy to clean and maintain

low cost & DIY friendly

Can incorporate recycled materials

### CONS

plastic look & feel

hot pots & harsh chemicals can permanently damage the surface

water can permanently damage the substrate

very limited options for repair once damaged

limited sink options

cannot be recycled; most laminate goes to the landfill

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# CONCRETE

## What is it?

Concrete countertops are harder to define than some other materials as they are not only man-made but also handmade, with lots of variation in terms of structure, quality, finishes, and care and maintenance.

At its most basic, concrete is composed of a mixture of cement, aggregate (sand and crushed stone), and water, with some sort of reinforcement. But concrete is a bit like bread, with many different types, individual recipes, and environmental variables that affect the end result. Several different kinds of concrete are commonly used for countertops, including 'conventional' wet cast, glass-fibre reinforced concrete (GFRC), and ultra high-performance concrete (UHPC), each with its own cost and design constraints. Some fabricators will work with two or three different types of concrete depending on the application, while others will work with just one type and tailor their offerings accordingly.

People choose concrete for different reasons. As the materials themselves are relatively cheap and the end product, if well-made, is very durable, it can be an attractive DIY project for those with the appropriate tools, skills and time. When made by professionals, concrete is generally considered a high-end surface, given that each piece is handmade and one-of-a-kind, with lots of room for customization. Concrete countertops are also resilient, in that they can be more easily repaired than many other materials and can be refinished throughout their long lifespan. For those who value local products, concrete is often one of the few locally manufactured countertop options available.

## Appearance.

The appearance of concrete countertops can vary considerably from one artisan to another, and from one project to another. In general, however, concrete offers a natural look and feel, and embodies the concept of 'beauty in imperfection'. Concrete countertops are often associated with minimalist or industrial styles, but they are surprisingly versatile and can work equally well in warmer designs, such as a country kitchen (especially when paired with a locally made butcher block).

The potential for customization – in terms of colour, form, size, finish, and the inclusion of specialized aggregates and inlays, etc. - is a big attraction for some people, especially those who want something unique or whose design can't be easily accommodated by more mainstream materials. However, concrete countertops don't have to be highly customized to offer character, natural variation and a unique look and feel (which will vary based on how the countertops are finished). Simply exposing the aggregate (crushed stone) that is an integral part of a conventional concrete mix can add beautiful, unique terrazzo-like textures to the surface – with the added bonus of helping to hide minor stains and etches.

Raw-look concrete has become quite popular, and we get asked for it often. However, we don't recommend it for high-traffic surfaces like countertops. The 'cream' layer that forms on the surface of unprocessed concrete is very delicate and will dust off over time. While not every concrete countertop

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manufacturer polishes their surfaces to the same extent that we do (as high as 3000 grit), most will process their slabs to some extent to remove the cream layer and provide a more durable surface.

Like marble and some other stones, concrete will develop a patina over time. This means that the appearance of the surface (sheen, depth of colour, etc.) may evolve as natural oils build up on the surface, especially in heavy use areas. If you're looking for a perfect surface that will look brand-new for as long as you have it, quartz might be a better option (although even quartz can stain and patina if you aren't careful).

## **Durability.**

Concrete is a hard surface, on par with quartz and some granites. Just how hard it is will depend on the quality of the mix and production processes. Most professionally made concrete countertops will be made with some sort of specialized mix that produces a denser, stronger concrete than is used for general construction. The strength is often less important than the density, in the end, as it is the density that will affect porosity—how deeply and easily liquids can penetrate the concrete.

Regardless of how dense the concrete is, though, it is still a porous material. Like granite and marble, it must be sealed to help reduce the risk of stains, etches and water penetration. Be aware that concrete is particularly susceptible to acid etching (a chemical reaction that occurs when acidic substances, such as vinegar or lemon juice, come into contact with calcium carbonate in the cement paste). Acid etches leave a slightly rough, lighter coloured patch on the surface. They happen fast—in seconds or minutes—but they can be repaired (and largely prevented with appropriate precautions).

Indeed, ease of repair is where concrete really shines, although just how easy repairs are will depend on your sealer. For the most part, stains and etches can be removed or polished out, and chips and cracks can be patched using the same materials that the countertops are made of (or chips can be simply smoothed out and left as part of the character). Well-made concrete surfaces are hard to scratch, but if you do succeed, those scratches can be polished out. We have seen many concrete countertops be refinished after years of use and abuse, brought back from a state that would likely have spelled the end of many other materials.

Many people are concerned about concrete countertops cracking. After all, we're used to seeing cracked sidewalks and foundations. If well-made, however, concrete countertops are probably less likely to crack than granite. The reinforcement helps, as does the quality of the mix and the overall production process (mixing, curing, handling, etc.). A low water:cement ratio is particularly important to prevent shrinkage cracks that can occur as the concrete cures—a gradual process that carries on well beyond your installation date. The one kind of crack that fabricators can't entirely control (or guarantee against) is hairline cracks. These are very thin, superficial cracks that do not affect the slab's structural integrity, often caused by repeated expansion and contraction due to changes in heat or humidity. These are most common around the corners of sink or cooktop cut-outs, which represent weak points in the concrete slabs.

Like porcelain and some granites, if your concrete is sealed with a penetrating sealer (no coating), you can put hot pots directly on the surface. Concrete should not, however, be exposed to high heat for an

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extended period as this can dry out the concrete and cause it to crack or crumble. This is more of an issue with firepits and fire tables than it is with countertops, although it is often recommended to put a hot pad underneath your slow cooker.

Finally, concrete is an excellent choice for outdoor kitchens. While freeze-thaw damage can be a concern in some climates, for the most part, a well-made concrete countertop will be able to withstand the seasons. Covering the countertops when not in use during the winter, clearing off snow and ice build-up, and maintaining the sealer are good prevention measures. In general, as long as the concrete doesn't become saturated with water during winter months, it should be okay.

## Care & maintenance.

As with granite, your sealer will have a big impact on your care and maintenance protocol, although “wipe up as you go” applies regardless, especially for oily and acidic substances. There are many different sealers out there, including several that have been designed specifically for concrete countertops, but as for granite, most will be either topical or penetrating (impregnating). While topical sealers, such as polyurethane, provide protection against stains and etches, they tend to give the concrete a more plasticky look and feel, detracting from the natural look that people are often seeking from concrete, and they are more difficult to repair and reapply. Note that wax is often used for added protection in conjunction with another sealer but doesn't do a great job on its own. Concrete sealed with penetrating sealers is more prone to stains and etching, but it is also easier to repair as required. (See our [Youtube channel](#) for more information on how to go about this.) Penetrating sealers preserve the natural look and feel of the concrete surface, as well as its inherent heat and scratch resistance. Penetrating sealers will need to be reapplied from time to time, but you should be able to do it yourself (no stripping required). If your counters are inside your home, a water-based sealer would be preferable.

Most concrete countertop manufacturers will have narrowed it down to one or two sealer choices, based on what they have found works best with their specific concrete and processes. It is important to understand what type of sealer your countertops come with and how to care for them accordingly. Be sure to ask about sensitivity to acids, oils, heat and water, as well as scratching, repair options, and resealing regimes.

Specific cleaning dos and don'ts will vary from sealer to sealer, but as with natural stone, water or a pH-neutral cleaner is usually recommended. For example, we offer our customers a pH-neutral stone cleaner that contains a small amount of sealer, helping to extend the life of their penetrating sealer if used regularly. Avoid harsh, abrasive and acidic cleaners as these may damage the surface of your concrete and/or your sealer. If you are in the habit of cleaning with vinegar, DON'T use it on your countertops as you risk etching the entire surface! Soapy dish water can be used for general wipe downs, if you choose, but the dish soap may break down the sealer over time, meaning that you will have to reseal more often. Certain liquid and bar soaps can be quite harsh on concrete, so be sure to use a soap dish or tray to protect your countertops from drips and soapy residue.

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## Sustainability.

When it comes to sustainability, concrete offers long-term durability and resilience (ease of repair). Concrete countertops are also one of the few countertop materials that can be produced locally from locally sourced materials, greatly reducing the carbon footprint associated with transportation of both raw materials and finished product. There is also plenty of opportunity to include recycled materials, such as recycled aggregate, crushed glass, and various cement replacements (fly ash, slag, silica fume, powdered glass, etc.). Note that not all concrete countertop manufacturers rely on locally available materials, however, with some preferring to use specialty bagged mixes, which may be shipped long distances (across the country, continent, or even overseas).

The biggest downside of concrete when it comes to sustainability is the CO2 emissions associated with cement production. While cement is an essential ingredient in concrete, the amount used varies from mix to mix. In a more conventional wet cast mix, it makes up a relatively small percentage (10-20%) of the overall materials and can be further reduced by using cement replacements, known as pozzolans. GFRC and UHPC mixes use a much higher percentage of cementitious materials (up to 50%), but the properties of these mixes allow for thinner slabs that use less overall material and weigh less to transport.

A final advantage of concrete countertops is the limited amount of waste they create. This is because concrete countertops are usually made-to-measure rather than cut from larger slabs. Resourceful companies will use any leftover concrete mix to make smaller, useful products. (We use our leftover mix to make soap dishes and trays, for example.) And when concrete reaches the end of its lifespan it can be crushed up and reused as recycled aggregate in construction products or even new concrete countertops.

## Limitations and design considerations.

Although the dimensions of a concrete countertop aren't limited by prefabricated slab sizes, they are limited by other factors, including overall size and weight and on-site access (stairs, openings, ceiling height, etc.). Remember that most concrete countertop businesses operate as small, local businesses without the same level of automation or heavy equipment as larger stone fabrication shops. If your slab can't be made in one piece, options could include a seam or a pour-in-place project (most concrete countertops are made precast in a workshop as this is more efficient and makes it easier to control the conditions required for a high-quality product).

The standard concrete countertop seam is a visible, butt joint grout seam, similar to a tile grout line. Most concrete countertop manufacturers are not equipped to do 'invisible' seams, as typically seen in quartz and natural stone. Mitre joints (angled seams) are not recommended as they create sharp corners which can be very fragile during transportation and installation. If visible seams are a deal breaker for you, you may have to adjust your design or get creative by turning the seam into a decorative feature.

As noted above, different types of concrete lend themselves better to different applications, and not all concrete artisans work with all types of concrete, as they can require different equipment, materials and

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know-how. For example, conventional wet cast concrete is an efficient way to produce flat countertop slabs but makes 3D forms, such as sinks, more challenging. Different artisans will offer different options for customization, depending on the type of concrete and colours they work with, the type of aggregates they have access to, and of course their business model (how focused they are on custom work).

One popular application for custom concrete is integral sinks. While concrete sinks have a definite cool factor, remember that if your sink and countertop are one piece, you may have to replace your whole countertop if the sink gets damaged. For this reason, many concrete artisans caution against integral sinks in a kitchen setting, where there is heavy use and a high risk of impact from pots and pans, etc. Regardless of the type of sealer used, be prepared for concrete sinks to wear – and possibly stain – more than a countertop given the frequent exposure to soap and dirty water.

When it comes to colouring concrete, the most durable option – and the most common – is the use of iron oxide-based integral dyes, which are added to the wet mix prior to casting. This means that the colour is consistent throughout and will not wear off the surface, which is ideal if you want to refinish the surface at some point. The majority of these dyes are also UV stable, making them suitable for use outdoors. Note that the final concrete colour is highly sensitive to changes in raw ingredients, water content, curing conditions, polishing routines, etc., making it hard to achieve an exact colour match between two different batches of concrete, although a certain level of consistency can be expected from professional operations.

## **Cost.**

Depending on the type of mix used, the complexity of the mould, the size of the slabs and the inclusion of other custom elements, you can expect custom-made concrete countertops to be on par with or more expensive than quartz and natural stone. A good chunk of the cost is related to the skilled labour, knowledge, time, and specialized equipment required to produce a high-quality concrete mix, build precise moulds, and polish or otherwise finish the concrete such that it in no way resembles a sidewalk. Note that many fabricators will happily offer a lower square foot price for supply-only projects if you are willing to take care of the installation yourself. This can be a good option for smaller, DIY projects, but may not be practical for larger or more complex pieces.

While there are many custom options associated with concrete, they don't come free. Just because it can be done, doesn't mean it's easy! Expect to pay a premium for oversized or highly customized slabs (custom colours or aggregates, complicated or awkward shapes, 3D pieces, massive islands, etc.). White concrete usually comes at a premium, as the raw ingredients required to make it are more expensive (some concrete artisans work exclusively with white concrete as it is considered more refined, but grey works just fine for most things).

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## CONCRETE

### PROS

durable & repairable

natural look & feel with unique character

lots of options for customization

not damaged by water; may tolerate hot pots, depending on sealer

can be used outdoors

can be made locally with minimal waste & local/recycled materials

### CONS

porous surface requires sealing

more prone to stains and acid etching

seams are visible

expensive, depending on level of customization

raw materials, sealer, production methods, etc. vary between fabricators

cement production (the 'glue' in concrete) is associated with high CO2 emissions

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# BUTCHER BLOCK

## What is it?

Butcher block countertops are composed of strips of wood that are glued together to form a thick, solid slab. They offer a warm, natural, inviting feel, and are among the most sustainable countertops available when it comes to manufacturing processes, local supply, ease of repair and end-of-life options. However, they come with a more involved care and maintenance regime, depending on how they are sealed, and they do have some design limitations – especially where water is involved.

## Appearance.

Beyond the general warmth of wood, the appearance of butcher block countertops can vary considerably based on the type of wood used and the grain pattern chosen. However, when making these choices, you should consider more than just looks, as these variables will also affect performance and cost.

The grain pattern refers to the way in which the wood is laid out when the butcher block is being assembled. The choices are usually edge grain, end grain or face grain. Edge grain is most common, whereby long boards are placed side by side, with their narrow edges facing up; it is suitable for general food preparation, but isn't the best choice if you're planning to use your counter as a cutting board (which you should avoid anyway, unless your countertop is specifically designed to be a cutting surface). End grain is the strongest (and most expensive) option, with small cubes of wood glued together to form a checkerboard pattern. If you are looking for a built-in cutting board, this is the best bet. Face grain places the wide face of the boards on the surface and is more prone to dings and scratches.

## Durability.

As noted above, the choice of wood and grain pattern will affect both the appearance and durability of your butcher block countertop. When it comes to different woods, denser, close-grained woods will provide a better, more durable work surface. Cherry, maple, and walnut are popular choices, as is bamboo, which is considered a more eco-friendly option given the speed at which bamboo regenerates.

Regardless of the type of wood you choose, butcher block needs to be sealed regularly, both to prevent the wood from drying out and cracking, and to prevent water getting in, which can lead to issues with mould and mildew. Options and considerations for sealing are discussed in the section below.

Perhaps the three biggest downsides when it comes to the durability of butcher block countertops are their sensitivity to scratches, heat and water. On the flip side, one of their major advantages is the ease with which scratches, stains and burn marks can be repaired. Wood is soft and prone to scratching and denting, although harder woods, such as maple, will be less so. When your butcher block is sealed with mineral oil, however, those scratches and dents can be easily sanded out, or the whole surface can be sanded down if your counters need a refresh.

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You shouldn't put hot pots directly on butcher block countertops, regardless of how they're sealed, as the hot pots can burn the wood and/or damage your topical sealer. If you do get a burn mark, however, it can likely be sanded out if you have opted for an oil finish.

While scratches and burn marks can be repaired fairly easily, water damage—especially around a sink—can be more problematic, with warping, mould, and rot being the biggest concerns. There are ways to address these issues, but the implications of not doing so promptly are a little more serious. Ultimately, while it is common to see sinks installed in butcher block countertops, the better option is to keep wood away from the sink altogether. Butcher block works beautifully as an island or peninsula, paired with a more water-resistant surface (like concrete!) in the sink area.

## Care and maintenance.

The care and maintenance of butcher block is quite similar to concrete (another reason for pairing the two materials, which really do look great together!). As with granite and concrete, your sealer choice will affect your care and maintenance regime and how you can use your butcher block surface.

The most common way to seal butcher block is with a food-grade mineral oil. This is the best choice if you want to use your butcher block countertop as a food prep area (but not necessarily as a cutting board!). As with a penetrating sealer on concrete, your counters will be more prone to staining if you don't wipe up messes promptly, but they will be easier to repair and more versatile in terms of how you can use them day-to-day. It is important to apply the oil regularly, whenever the wood starts to dry out. This can be as often as every month in the first year. While this may sound like a lot of effort, it is another example of the trade-off that exists between low maintenance and ease of repair.

If you're not planning to prepare food on your butcher block countertop and regular oiling feels like too much effort, you can opt for a topical sealer, such as a lacquer, varnish or polyurethane coating. These coatings require less regular maintenance, and will do a better job of keeping stains out, but they are prone to scratching and are more difficult to repair if they do get damaged. These coatings are not always considered food-safe, either. Topical coatings are sometimes recommended around sinks to protect the wood from water damage, although, as noted above, the better option is to avoid using wood around sinks altogether.

While exposure to harsh chemicals should be avoided, wood does not react with acids (as opposed to concrete and many natural stones), and diluted vinegar can be used for disinfecting the surface when required. Daily cleaning, however, is best done with soap and water. If you have a topical sealer, be sure to check the specific care and maintenance instructions for your sealer to ensure that you avoid cleaning with substances that could cause discolouration.

Although scratches and burn marks can be sanded down, using cutting boards and hot pads will help minimize the number of repairs required—remember, each time you sand down your surface, you are wearing away a bit of the wood. If you do frequent repairs in the same area, and don't take care to even out the surface, you may end up with dips in your counter over time.

Finally, given butcher block's sensitivity to water, be sure to wipe up liquids promptly. This will help minimize staining as well. If you do put a sink in your butcher block counter, it is especially important to

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dry the area around the sink when you're finished washing the dishes. You should also avoid trapping water against the surface under wet dishes, cutting boards, flowerpots, etc.

## **Sustainability.**

Butcher block countertops have a lot going for them when it comes to sustainability. They are made from natural, renewable materials that store carbon dioxide, with no plastic and chemical additives other than the glues used to bind the boards together. Butcher block also requires relatively minimal manufacturing inputs (energy, water etc.), although the wood still needs to be harvested and processed. Choosing locally and sustainably harvested wood, or even better, repurposed wood is preferable from a sustainability perspective, if available.

Like concrete, butcher block is also a resilient material that can be repaired and refinished relatively easily to extend its lifespan, which will of course vary depending on how well you care for it. Decommissioned butcher block offers plenty of opportunity for reuse as well, given that it can be cut and refinished using tools that most DIYers have on hand. And if it is finally discarded and allowed to rot, the wood will biodegrade over time (releasing its store of CO<sub>2</sub>), which is not true of most other materials.

## **Limitations and design considerations.**

Where butcher block is handmade, it offers greater flexibility with respect to overall dimensions, although as with everything else, there are limits. The skill set and creativity of your manufacturer will determine what is possible in terms of less standard shapes and designs.

Perhaps the biggest limitation for butcher block countertops is the material's sensitivity to water. As discussed above, the best way to prevent water damage is to choose another material around the sink altogether. The concern has less to do with water splashing on the countertop as you wash the dishes than it does with standing water that can get trapped around the lip of the sink or faucet, where it might go unnoticed until a problem develops. While undermount and farm sinks are possible with butcher block, drop-in sinks are most common as they avoid creating a lip of exposed wood around the inside of the sink cut-out.

When designing with butcher block, remember that wood expands and contracts with temperature and humidity changes as seasons or other conditions change. Be sure to allow for expansion and movement when measuring and installing your countertops, especially where the edge of the counter butts up against a wall or gable.

Finally, remember that the relationship between form and function is especially pronounced with butcher block. Don't overlook durability and sustainability considerations when choosing your wood and grain pattern.

## **Cost.**

As noted above, the cost of butcher block countertops will vary depending on the type of wood and the grain pattern chosen. The thickness of the butcher block can affect price too, as can custom shapes and

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sizes. Like concrete, butcher block is often custom-made by local artisans who have their own price structures, which can vary based on location, production capacity, and the craftsman's skill and experience.

While butcher block can be as expensive as quartz, concrete and natural stone, with the right variables in place, it can also be one of the few mid-range options that offers a more durable surface than laminate at a lower cost than stone. You may be able to find some more savings by doing some of the work yourself, including final cutting and installing, if you are equipped to work with wood.

## BUTCHER BLOCK

<b>PROS</b>	<b>CONS</b>
easy to repair and refinish	requires regular sealing to protect wood & minimize stains
warm, natural look & feel	susceptible to water damage
mid-range cost, depending on wood and design options	prone to scratches and dings
sustainable option, especially when made from local wood	hot pots can burn the surface
softer surface is more forgiving toward dropped glasses, etc.	quality may vary depending on craftsman's skill and wood used
pairs well with other materials	wood may expand/contract with humidity changes

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## PORCELAIN (AND DEKTON/NEOLITH)

While porcelain countertops have been around in Europe for a while now, they are relatively new to North America. However, they are catching up with quartz (engineered stone) in terms of popularity. Like quartz, porcelain is dense and non-porous, meaning it offers excellent stain resistance. However, porcelain has the added benefits of being resistant to heat, acids, and scratches. And it can be used outdoors.

Note, though, that large porcelain slabs can be fragile, especially during fabrication and installation. As it is a relatively new material in many regions, not all countertop fabricators know how to (or want to) work with it, so you may have to shop around a bit depending on where you live.

### What is it?

Just like the more familiar porcelain tile, porcelain slabs are man-made from a mixture of clay and minerals that are heated in a kiln to a very high temperature (1400 C). Different colours and patterns can be created on the surface using pigmented glazes during a second firing, although you can also opt for unglazed porcelain.

*Dekton & Neolith.* Dekton (by Consentino) and Neolith are closely related to porcelain and often confused with it, but they aren't considered porcelain per se. The manufacturers assert that they are even better. These products are described as "ultra-compact" or "sintered stone" surfaces as they contain the raw ingredients for porcelain *as well as* other minerals, all of which are sintered (look it up!) together under extremely high pressure in a way that mimics the creation of natural stone, forming a surface that is claimed to be even more dense and durable than porcelain. If you are interested in these brands specifically, we would encourage you to do some further research to understand their specific characteristics and how they differ from porcelain. Broadly speaking, however, the pros and cons discussed below apply.

### Appearance.

Like quartz countertops, porcelain slabs come in a variety of colours and patterns that mimic other natural materials. Veined marble is particularly common, but you can also find porcelain that looks like wood, concrete, natural stone or even metal. Be aware, however, that, for the most part, these designs are only printed on the surface of the slab during the glazing process. Unlike quartz or the natural materials being mimicked, they do not extend all the way through. This means that if your porcelain countertops chip or crack, you will see the body of the slab showing through as a different colour. If you want to avoid this, unglazed porcelain may be an option if you can find it. The colour of unglazed porcelain is consistent throughout, but the finish may not be as smooth or uniform as a glazed finish. The glaze also adds an extra dose of durability and stain resistance. Most porcelain countertops are glazed.

Glazed porcelain comes in different finishes, mainly high-gloss or matte, and sometimes textured. As with quartz, the finish you choose may affect your slab's performance when it comes to things like stain

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resistance, ease of cleaning and repair, etc. Make sure you ask about this before making your final choice, especially if you are choosing a less-standard finish.

## **Durability.**

Durability is where porcelain shines. Like quartz, the surface is effectively non-porous (especially when glazed), meaning that it offers excellent stain resistance. Better yet, unlike quartz, stone and concrete, porcelain is also resistant to most chemicals, notably acids. This means that it will not etch or discolour if you spill acidic substances such as lemon juice or vinegar on the surface.

Porcelain also offers high heat resistance, to the point where you can put hot pots directly on the surface if you choose, and it is UV stable, so it won't fade or degrade if used outdoors. This is also true of concrete and some granites, depending on how they are sealed, but not of quartz or laminate.

Porcelain is hard, on par with granite and quartz, meaning that is hard to scratch. On the downside, however – and this is one of porcelain's biggest drawbacks – porcelain can be quite delicate, especially during fabrication and installation. Many fabricators report significant frustration working with porcelain (and its cousins, Dekton and Neolith), as it is prone to breaking when being cut and handled. Of course, this could be partly related to inexperience with a relatively new material. Either way, fabricators may charge a premium for the hassle – and the extra material that they allow for in case of breakage. While manufacturers claim that porcelain is resistant to chips and cracks once installed, chips and cracks appear to be a common concern – especially as a result of impact (a pot hitting the corner, for example).

The other major downside to porcelain is that these cracks and chips can't necessarily be repaired. As mentioned above, under "Appearance," the patterns on most porcelain slabs are only printed on the surface, so if you do get a chip, it will show. Chip repair kits are offered by some brands, but the repairs will likely be visible, as you can, at best, match the base colour, but not the pattern. If your slab cracks, you may have to replace it. Depending on where the crack happens (if a corner cracks off, for example), it may be possible to glue it back on, but you will see the break (like you would on a cracked tile). Because many fabricators aren't so familiar with porcelain, you may have to wait on their suppliers for the required expertise to assess repair options and/or warranty claims.

As with all materials, it is a good idea to read through the warranty before making your final decision to see what is (or isn't) covered regarding chips and cracking - as well as other kinds of damage (heat, stains, fading, scratches, etc.).

## **Care & maintenance.**

Because porcelain is non-porous, resistant to most chemicals, and heat- and scratch proof, caring for it is fairly straightforward, with a relatively short list of dos and don'ts.

Despite porcelain's chemical resistance, most manufacturers recommend mild (pH neutral) soap and water, or simply warm water, for daily cleaning. Soapy water should be rinsed off afterwards to avoid soap scum build-up. For the most part, harsh and abrasive cleaners – such as acidic cleaners and bleach – are discouraged as they can affect your countertop's sheen, especially with glossy surfaces. Metal

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scrubbers, including steel wool and Scotch-Brite pads, should be avoided. Recommended cleaning products may vary from one finish or brand to another, so make sure you know what cleaners are okay to use on your specific product, and under what circumstances (on a daily basis, occasionally to disinfect or deep clean, for spot stain removal, etc.).

While the likelihood of staining is low with porcelain, like with every other surface, it can happen. Make sure that you understand what could cause staining and how to handle different sorts of stains when they happen. Some manufacturers will provide more specific instructions than others. In our experience, specific is better! As with every other surface, your best bet is to wipe up spills as they occur. Be sure to protect your surface from permanent inks and dyes, as these may not come out. (The same applies for quartz and laminate.)

As a rule, porcelain doesn't need to be sealed, especially if glazed. However, from what we've read, we understand that it CAN be sealed for extra protection if you choose. Unglazed porcelain, in particular, may benefit from sealing, although we would recommend that you seek additional information directly from your supplier or retailer before going down this road (is sealing recommended; if so, what kind of sealer should you use, etc.). While all porcelain is effectively non-porous, the finish you choose may make a difference when it comes to stain resistance. For example, Dekton describes their matte finish as being virtually impossible to stain, whereas their polished surfaces require a little more care. Ask about the recommendations and performance expectations for your specific brand and finish.

One last note: while porcelain is hard to scratch, ceramic knives will scratch the surface. Like with every other surface, it is always best to use a cutting board rather than cutting directly on the counter, regardless of the type of knife you're using.

## **Sustainability.**

Similar to granite, porcelain is often considered sustainable because it is made from natural materials, without the use of plastic resins or glues. This means that it is easier to recycle by crushing for use as construction or landscape fill, where facilities exist. However, clay is considered a non-renewable resource, and like any natural material, it still has to be extracted – mined, in this case - which consumes energy and has an impact on the surrounding environment. As with cement production (a key ingredient in concrete), significant energy is also required to heat the raw materials to very high temperatures during the manufacturing process. The mining and manufacturing practices of individual manufacturers can make a big difference in the overall carbon footprint of a particular brand of porcelain, but you may have trouble finding this information, unless you are working with a major brand name. Consentino, for example, promotes Dekton as a carbon neutral product, with reference to the use of recycled materials, renewable energy, water recycling systems and, as required, carbon offsets.

From a durability standpoint, porcelain surfaces have their pros and cons. If you take good care of them, there isn't much that can damage them beyond heavy impact – but if your porcelain does break, it can't be easily repaired. (Ease of repair is one area where concrete and butcher block shine.) Produced in large slabs that can be cut to size, porcelain also presents the same issues as granite and quartz with respect to potentially high volumes of waste cut-offs, not to mention the waste from slabs that get broken during fabrication before your countertops are even installed.

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Finally, like with every option, you want to consider where the porcelain comes from. In late 2022, the bulk of porcelain in the United States was being brought in from Italy, India, Turkey and Spain. Porcelain is thinner and lighter than stone, however, so the carbon footprint associated with transporting it across long distances will be lower.

## **Design limitations & considerations.**

One of the biggest differences between porcelain and other materials when it comes to design is that porcelain is much thinner and lighter. This introduces new design possibilities, such as creating continuity between vertical and horizontal surfaces (walls and countertops, for example). Dekton, for example, is available in thicknesses ranging from 4 mm to 30 mm (roughly 1/4" to 1 1/4"). For countertops, 1/4" to 1/2" is most common. Because of how thin the slabs are, you may need a substrate to support them, and you will need to build up the edges to create the look of a thicker countertop. Because the edges are built up using separate edge pieces, edge styles are more limited than with stone. Most people will opt for a square edge with a mitre joint, as this makes it easier to achieve a continuous pattern between the top and the edges.

Like quartz and granite, porcelain is produced in large slabs. Slab dimensions may vary somewhat from one manufacturer to another, but the largest available slabs seem to fall in the 10' x 5' range. This is larger than standard quartz and granite slabs, which can be advantageous for oversized islands as well as vertical or flooring applications where there is a desire to minimize seams. While the size of the slabs can minimize the need for seams in your countertops, seams may still be required on longer stretches of countertop, to accommodate 'L' shapes, or if site access limits the size of slabs that can be used. As with quartz and natural stone, it is more difficult to create continuous patterns across seams with designs that have lots of veining or pattern variation. Extra material may be required to allow for a good match.

One of the frequently cited advantages of porcelain is that it can be installed over your existing countertop, avoiding the cost and effort of removing the old materials, but be careful if you take this approach. It is very important that porcelain be installed on a level surface to avoid it cracking due to uneven pressure or support. Whether you plan to install your porcelain directly on the base cabinets or on top of an existing surface, make sure that the base is level BEFORE the install crew shows up.

Finally, because of its unique properties, porcelain lends itself to custom elements, such as integral sinks lined with the countertop material and even invisible induction cooktops that transfer heat through the countertop, allowing for extra counter space when you're not cooking (some brands advertise their invisible cooktops as being suitable for granite countertops as well).

## **Cost.**

Given that porcelain countertops are relatively new in North America, and there is less brand name recognition, it is harder to pin down a price range. The majority consensus amongst other countertop blogs seems to be that porcelain countertops can come in somewhat cheaper than their granite and quartz alternatives, although they still qualify as a higher-end product. As with other countertops, the actual cost will depend on where the slabs come from, the slab size and thickness, your chosen pattern

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or design, and your project layout. As discussed above, because of the challenges that many fabricators and installers face when fabricating and handling large porcelain slabs, your cost may include a premium to account for anticipated breakage. Note that, while generic porcelain may be more affordable than higher-end quartz and granite, Dekton and Neolith are not. These specific products are considered high-end products with a high-end price tag. They come, however, with the advantage of brand-name manufacturers who may be better positioned to offer advice, support and detailed warranties.

If you are attracted by the benefits of porcelain, but don't have the budget for it, there are still people out there who swear by their tile countertops, even if the trend has passed. Using smaller porcelain tiles is an option, and a more DIY-friendly approach, although the grout lines can stain and create an uneven work surface, and removal of the tile down the road—if tiles get cracked or cabinets need repair—can become a demolition job.

## PORCELAIN

PROS	CONS
non-porous - sealing not required	prone to cracks and chipping during fabrication and impact
resistant to stains, acids and hot pots	patterns are often printed on the surface only
wide variety of designs available; predictable patterns	cracks & chips are not easily repaired
large slabs allow for bigger islands, fewer seams	more limited edge designs
thinner slabs are lighter to transport and handle	difficult to find experienced fabricators in North America
more design possibilities, including continuity between horizontal and vertical surfaces	may require a substrate for structural support

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## A BRIEF OVERVIEW OF OTHER OPTIONS.

**Solid surface.** Sometimes known by the original brand name *Corian*, solid surface countertops are made from a mixture of acrylic or polyester, resin, pigments and stone dust, melted together and formed in a mould to produce sheets of various thicknesses ( 1/2" and 3/4" thick are most common for countertop applications). These sheets come in a variety of colours and patterns, including some designs that resemble natural stone. Solid surface countertops were very popular for a time as a mid-range option for residential kitchens, considered superior to laminate countertops as they are made from a homogenous material that has no potential to delaminate. These days, however, the material is primarily used in commercial applications where long-lasting, non-porous surfaces are required. Aside from the somewhat plasticky feel, the biggest drawback of solid surface is its high tendency to scratch—although those scratches can be buffed out more easily than in higher-end quartz and granite. Solid surface is also susceptible to heat damage from hot pots given its high resin content. Like with quartz, trivets or hot pads should always be used to protect the counters from melting or being scorched.

**Soapstone.** Soapstone is a natural stone, like granite and marble, but it has some unique features that set it apart. One of the biggest benefits of soapstone, as compared to most other natural stones, is that it is non-porous, meaning that it does not require sealing and is not prone to staining or etching. It can also withstand hot pots being placed on the surface. Left to its own devices, a soapstone countertop will develop a heavy patina and a worn look. If you want to preserve the original appearance and ensure that the surface wears evenly, you will have to oil your counters regularly, which will darken the slabs. If you don't oil your soapstone, oil spills can leave dark spots on the surface. When it comes to design options, soapstone doesn't offer the same range of colours as granite or engineered stone (quartz), being limited to muted shades of grey, often with white veining and a blue or green tinge, but it offers a unique warmth and a soft, natural feel. While beautiful, it is a relatively soft stone, meaning that it can dent and scratch easily. Soapstone is quarried around the world, including in Brazil, India and—notably—North America. If you're looking for a locally quarried stone in North America, soapstone could be an option, although it may be an expensive one.

**Marble.** While marble countertops are less popular these days because of their more demanding care and maintenance regime and a premium price tag, the marble look is highly sought after, with no end of imitation marble designs available in quartz and other manufactured materials. Nevertheless, perhaps because of the number of imitations available, there is a certain prestige associated with the real thing. Notably, the imitation surfaces can't match the feel of real marble. Marble is a soft stone—softer than granite, but harder than soapstone—meaning that it can scratch easily (although these scratches can be polished out). Marble is also porous, meaning that it must be sealed regularly. Depending on the type of sealer used, marble will stain if spills are not wiped up promptly, and it is highly sensitive to acid etching—much like concrete. Again like concrete, however, those stains and etches can be repaired. As with granite, marble offers a high heat resistance, such that it is generally safe to place hot pots directly on the surface, although hot pads are often recommended as a precaution. If you are looking for a no-maintenance surface whose appearance will remain pristine like the day you bought it, then marble isn't for you, but if you love natural beauty and character, and can embrace patina and etching as

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part of life, then marble can offer a beautiful, durable surface. Just be prepared to put a bit of work into it—and a fair bit money. From a sustainability perspective, marble’s pros and cons are similar to those of granite (see above). Where your marble comes from will depend on the specific colouring that you choose. While there are marble quarries in North America, the most prestigious marble comes from Italy, with Turkey, India, China and Brazil also being major producers.

**Stainless steel.** While stainless steel is primarily found in commercial kitchens, it can also be used in residential kitchens to accommodate avid cooks. Stainless steel is non-porous, and—as the name suggests—it will not stain or react with acids and other harsh chemicals. It is also heat proof. It can, however, scratch and dent, which will contribute to a worn look over time—not necessarily a bad thing if you want to come across as a serious cook. Stainless steel countertops are formed by wrapping metal sheets over plywood or a similar base. The lower the gauge, the thicker the stainless steel and the more resistant it will be to scratches and impact. Generally lower gauges are more expensive, so you will have to balance durability and budget. Stainless steel on its own can look somewhat sterile, but used as an accent piece or married with warmer materials, it can add a modern, professional touch to your kitchen. Stainless steel is often presented as a sustainable countertop option as it contains a high percentage of recycled materials and can be recycled again at the end of its lifespan.

## FINAL WORDS

Whether you’ve read through this whole document, or just a few of the entries for the materials that you’re most interested in, we hope that you come away understanding two basic truths:

1. There is no perfect surface.
2. How well you care for your surface is as important as the properties of the surface itself when it comes to how well it performs and how long it lasts.

Every surface has its pros and cons, and it is up to you to figure out what works best for you and your particular situation. Based on what our company stands for, we have tried to help you go a little deeper in this exercise, encouraging you to move beyond the most common considerations of cost, appearance, and maintenance to also think about long-term durability and sustainability. Choosing materials that are locally made and easy to repair is a great place to start if you care about the latter.

While the interior design and kitchen industries place a lot of emphasis on aesthetics, remember that countertops are first and foremost a functional surface – in the same way that our homes are first and foremost a shelter, not a showroom. You may not like the look of a stain or a chip, but that doesn’t mean that your surface is no good anymore. Whatever kind of countertop you choose, if you can make it last and repair it when you can, you’ll be doing both the environment and your wallet a favour.

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