
The Ultimate Glass Flooring Guide:

*The Myths, the
Magic, and
Making One of
Your Own*



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Get the Facts

7 Myths About Glass Floors and Bridges



There is something mysterious about walking on a glass floor or bridge. You may ask yourself, “Is a glass floor as safe as a common wood floor? Do I have to experience the “thrill” of seeing through it (some people get scared looking through a glass floor)? Will it be too slippery to walk on if the surface is wet?”

In this article I will take you on a journey to dispel the common myths surrounding glass floors and bridges. I will also provide you with a quick glimpse of some fun things you can do in a contemporary home or commercial building with this versatile and distinctive material.

1 Myth: Glass floors are not as strong as floors supported by wood joists

Most floors in residential homes (and many floors in commercial buildings) are supported by wood joists spaced approximately 18” apart. With this level of support you and I have no concerns about falling through the floor to a lower level of the home. Since glass floor panels are often built by laminating two to three pieces of tempered glass together and placing them into a supporting structure around the perimeter—they actually have 2x the support of a common wood floor.

2 Myth: Glass floors can only be used inside

This is definitely not the case. One popular use of glass flooring is as a decorative (and functional) decking material. Glass decks are used to move light from one floor level to another. In many cases after a wood or metal deck is installed it cuts light to lower level spaces. With glass floor panels installed into the deck, light can still pass through to the basement. In addition this flooring can become an outdoor showcase feature by incorporating LED lighting around the floor at night.

3 Myth: Glass floors require a specialized installation crew

While logically it might seem you need a specialized installer given the unique nature of glass floors this actually is not the case. Glass floors are either purchased as a pre-made kit (the kit includes the glass panels with the aluminum supporting members) or are made with the supporting structure already welded around the panels (for a waterproof installation). These pre-manufactured systems (along with the installation instructions on how to prepare the openings to receive the panels) make it very doable for a general contractor who is unfamiliar with the floors to install them.

4 Myth: Glass floors are not available with decorative contemporary art glass

If you’re a big fan (like I am) of colored contemporary art glass and assumed this type of artistry could not be incorporated into a functional glass floor, think again! Using a specialized cast glass process developed by renowned artist (Walter Gordinier) you can have the best of both worlds—a glass floor and a piece of art glass—which is completely safe to walk on. It is fun seeing the colored light moving through this type of floor or bridge.

5 Myth: Glass floor panels can only be made to span small sections of flooring

Since glass floor panels can be engineered with different supporting structures, with multiple layers of laminated glass and different thicknesses, longer continuous spans are possible. If you want a longer span – but also don’t want the glass panel sections to get too heavy – the panels can be split up and separated by spanning members between pieces.

6 Glass floors are slippery and unsafe to walk on when it rains or snows

If a glass floor does not include a top surface treatment it can be slippery to walk on when wet. However, in most cases, glass floors are made with either a sandblasted or patterned ceramic frit top surface which provides traction control even when the glass is wet.

7 All glass floors are see-through so there won't be any privacy from the levels below

Many homeowners and building and art gallery owners are worried about using glass floors because they don't want people on the lower levels to look up and compromise someone's modesty from an upper level (also known as the "skirt factor"). This is not a problem since glass floors can use either a frosted or acid etched finish on the glass to allow light movement between floors while maintaining privacy.



Get Answers

Unlock 7 Mysteries Behind Glass Floors and Decks



Nothing quite gets a debate stirred up like walking on a glass floor. They are cool, scary, fun, sleek, crazy, contemporary and stylish all in the same breath. The word which is no one's vocab about them is – boring! If you're looking to create an exciting, light-filled and dramatic design in a luxury home, professional workspace or public building which can move light (and your eye) from one level to another a glass flooring system is the ticket. At this point you may be saying, "Not so fast buddy – I've got a million questions about these floors before I would even consider using this crazy product!" If you said this you would not be alone.

Glass floors are not well understood and viewed by some as risky and crazy. The fear of the unknown will do that to all of us. Have you heard the popular acronym fear is False Evidence Appearing Real? My goal with this article is to "take you behind the curtain," to give you the straight scoop and reveal the answers behind the mystery which is the glass floor. So strap it on and let's step out "onto the ledge" and learn the answers to 7 questions about intriguing glass floors.

1 Is it safe to walk on a glass floor?

I had to laugh recently when I walked into a local Parade of Homes which displayed a glass floor and the builder roped off the area so people couldn't step onto the floor. I was thinking this is one of the reasons people won't spec a glass floor in their home because they are worried they will fall through. Properly designed glass floors are completely safe. In most luxury home projects these floors are 1" to 1 1/4" thick with one to two lamination layers. Pre-engineered glass flooring systems are the best way to go because they remove the need to "design your own floor." The system below is actually rated to have 2x the strength of a common wood floor.

2 Are glass floor expensive?

Yes.

Well that was a quick answer, but it's honest. If you're looking for the most cost-effective flooring system glass would not be the choice. Most interior glass floor systems wholesale in the range of \$175 to \$250 per square foot. If you're looking for a standard floor though this will not be your choice. On the other hand if you want a distinctive showpiece which can move light safely between floor levels or one which will show off your cool wine collection or sports memorabilia then you've got the right product.

3 Will a glass floor bring back (no modesty) visions of the iconic Marilyn Monroe "flying skirt" on the subway grate?

It was speculated one of the reasons Marilyn Monroe got a divorce from Joe Dimaggio 60 years ago was Joe was mad about the exhibitionist image of his then wife on the subway grate in New York City. It certainly makes sense why some husbands (and wives) don't like the thought of someone seeing under their skirt! With glass floors this is a concern (more so in public spaces and commercial building vs. private residential homes). The decision with a glass floor is simple – do you want it to be see-through (transparent) or not (translucent).

Glass floors can be made private by using a "glass frit" surface at the top or an etched finish applied to the bottom. You won't have to worry about "the skirt factor" if you choose the right finish on glass.

4 Are glass floor slippery?

They don't have to be. Sure any type of smooth glass surface can be slippery if there is not a textured surface added to the top. What is often done with glass floors to make them safe (inside or out) is to add a ceramic glass frit pattern is added to the top layer of glass. These frit patterns can either be understated (like the horizontal perforation pattern shown in the image below) or have an industrial urban feeling like a pattern called "boiler plate." If you want the least vision and the best traction, "mezzo" and "dot" patterns are best.

5 Can a glass floor be used in an outside deck?

An exterior deck is a cool and practical use of a glass floor. When you want to move light into a lower level patio these systems are quite effective. You'll want to combine the glass frit we talked about in question 4 with a glass flooring system which is built for your project. When looking at a glass decking application one key question you'll need to get your arms around is if your project has to be 100% waterproof (this would be the case if you have a finished room below) or not. There are glass floors which are waterproof but I'll warn you they are 2 to 2.5 more expensive than a water resistant glass floor.

6 Will a glass floor scratch?

Glass is a hard material as measured under the Mohs scale of mineral hardness – but it is possible for it to scratch. To prevent against scratching the ceramic previously discussed is the way to go. To lessen the visibility of scratches the translucent acid etched obscure glass works well.

7 Can I get different colored designs or "crystal" clarity in glass floors?

Glass floors can be made with what we would call "standard" glass (which has the greenish hue you're probably familiar with from a normal drinking cup) or with "ultra clear" glass (with the clarity similar to a piece of fine crystal). If you really want a piece of art – which also can serve as a structural floor – there are cast art glass floors which will knock your socks off (check out the pic below)!

So – how did I do? Did I begin to unlock the mysterious glass floor for you? Yes, there are a lot of options and things you can do with this material but it's really not as mysterious (or scary) as you may think.



Get Inspired

6 Truly Remarkable Things About Glass Floors and Stairs



You've reached the stage of life where you're not afraid to express yourself. You've reached the stage of life where you're not going to put up with bad design. You've reached the stage of life where you can finally spend some money on you, your wife or significant other (not just the kids anymore).

These qualities of expressing yourself, demanding remarkable design and having a few dollars to splurge on yourself, fit homeowners who use glass flooring and glass stairs to a tee. If they were looking for cheap, boring and run of the mill they WOULD NOT be installing a horizontal glass feature.

Yes, owners of glass floors will use glass bridges and decks for ordinary reasons (moving light from one level to another) but usually they are installing this product to create an extraordinary experience. And when you look at it, shouldn't life be about creating extraordinary experiences anyway?

If you've ever walked on the glass floors at the CN Tower or the Tianmen Mountain in China, you'd know 'pedestrian' would not describe that experience! Wild, wow (or, it could make me pee my pants) would be more fitting depending on your perspective.

While glass flooring is a remarkable product, many people are confused by them. IMHO (In My Humble Opinion)—they are a 'Ripley's Believe It or Not' flooring system if there ever was one.

I'd like to take you on a 'glass floor and stairs' walking journey. You'll learn six things which are truly remarkable about glass floors and stair treads. Let's step out onto the glass floor ledge (sounds exhilarating and scary, doesn't it?) and see what's so cool about these floors!

1 Glass floors can support 2x as much weight as a wood floor

When most people step out onto a glass floor they approach it gingerly – like at any moment they're worried... THIS BABY'S GOING TO BLOW! You don't need to cautiously walk on a glass floor (insert warning label here: IF it is properly designed).

Since glass floors use tempered and laminated glass (a layer or layers of lamination to create strength between the glass pieces) and are installed on pre-engineered aluminum framing systems, they are tested to be 2x as strong as a wood floor. You can jump up and down on it and not worry about falling through to the level below. If that did happen, it would be not be a good day. Glass floors aren't as fragile as you may think.

2 Glass stairs can float

If you're a Modernist, a Contemporary or Minimalist there is something enticing about building products—and entire homes for that matter—which appear to float in space. They create an architectural look which are not be denied.

Floating shelves are one prime example. You'll see them in virtually every room in the house. They are popping up in kitchens, living rooms, bedrooms, home offices and dens in suburban to urban homes.

A natural big brother to floating shelves are floating staircases. They provide a sense of openness joining floor levels. These remarkable designs are more eye-catching when you have a floating glass floor which doesn't block light from one level to another. Floating glass takes the 'floating concept' to a new level. Check out this floating glass staircase in a modern home and a close up view of the system:

3 Colored cast glass floors can be horizontal pieces of art

When you see an awe-inspiring piece of art, you're usually looking straight ahead at a wall. However, art can be on every plane imaginable (floors, ceilings – wherever). Cast glass floors can become a piece of art moving colored light from one level to another. A luxury suburban home, a downtown loft or even a yacht can gain another level of wow factor with a section of colored cast glass floor art. If you want your home to express you, there is no better way than through art.

4 Glass floors allow you to display... you

I have a cousin, Frank Foti, who has been passionate about trains since he was a little kid 'laying track' with his Dad (my Uncle Sam). What's fun and unique about Frank (and if you know Frank the dude is fun and unique to the max) is his passion for trains. Even though he is a "really old" 60-year-old guy (sorry to bust your hump Frank) leading a successful company called Telos Systems, he still makes time for his passions. You'll find Frank on the weekends running his miniature steam engine through the tracks at Penitentiary Glen Park in Kirtland Ohio. He delights big 'kids' and little kids alike.

Frank displays his passions for the world to see. While Frank has his 'toy' steam engine to display his passions, glass floors can be an excellent tool to display your passions as well.

Maybe you're a wine connoisseur and want others to visually see your wine cellar below. Perhaps you're a baseball fanatic (with a capital F) and want to display the jerseys of your favorite players you purchased at an auction for waaaaay too much money.

5 Glass floors can brighten up a dark space

I wish I had no north elevation in my house. Now, how you could have any structure without at least *one* dark side of your house I don't know. However, I'm a sunlight worshiper. I should have been born in the sunshine state of Florida but I still love the too-often-gloomy Ohio. With this being said, I embrace every drop of sunlight I can find. I'm the guy who wants to keep the blinds up. My wife wants them down, so you don't see how streaky the windows are.

One of the key feature about glass floors and stairs is their ability to move light from one level to another. For example, if you install a wood deck and now your basement or patio below feels like a dungeon, a glass floor deck is a fun solution—especially if you put LED lighting around it so it can shine at night. For homes on tight lots (urban in-fill projects come to mind) you may have limited opportunities for windows on the side of your home. Consider moving light through floor levels with a floor inside your home. If you can't move to Florida, don't settle for dark spaces inside (or outside) your home.

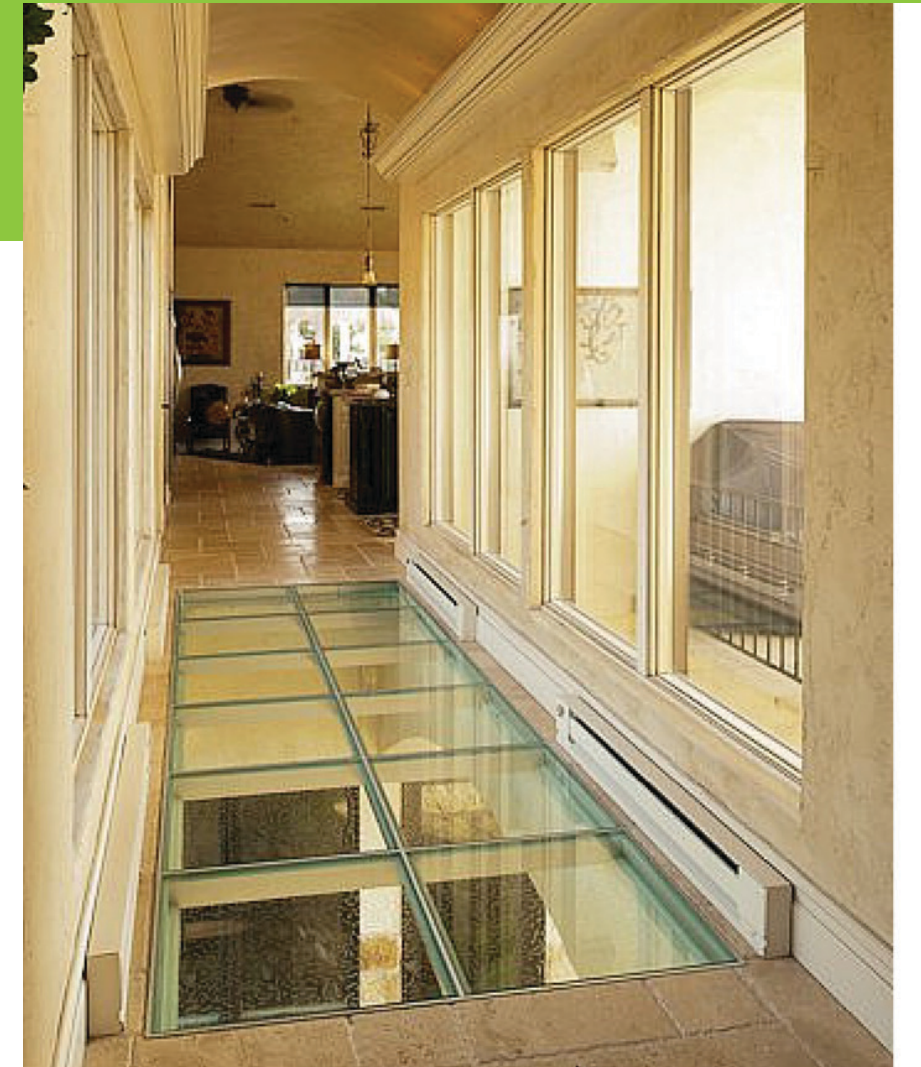
6 Glass floors and treads don't cost as much as raising a kid

I wish I could tell you glass floors and stairs are 'cheap date' and everyone could afford them. If I did I would resemble Fletcher Reede (Jim Carey's part of the conniving attorney in the movie *Liar Liar*). I will tell you buying a glass floor is cheaper than raising a kid, which is now estimated at a whopping \$233,610. Parker, Jade and Grant, a.k.a. my kids—or should I say young adults?—are you reading this???

Seriously, though, it would be nice to say glass floors are cost-effective, but let's call them what they are: a luxury item. For this project you'll want to budget between \$200 to \$225 per square foot for a complete glass floor system (with the laminated panels and framing system to go around the perimeter) and between \$700 to \$950 per stair tread (or up if you have a specialty shape or design) and bracket.

Get Started

Step-by-Step Guide to Selecting a Glass Floor or Bridge



There is a mystique around a glass floor – whether you are walking on one at the Eiffel Tower or in a luxury home. After someone gets done oohing and aahing they will often ask themselves, "Is this floor safe? Can it be private? Will it be slippery? Does it scratch easily?"

These are just some of the questions I've been asked when designing a glass floor or bridge for an upscale home or a commercial business. This got me to thinking it would be helpful to create a simple step by step guide to help people through the process of selecting the right glass floor for their specific project. The 8 1/2 steps below can serve as a primer through the glass bridge or glass floor selection process.

1 Determine if you need clear or obscure glass

A key decision is obviously the type of glass (as will be explained in step 2) – but before you can choose a type of glass you'll need to think through if you want the floor to provide a transparent view or to obscure the view (yet still allow light to flow between floor levels). A common misconception about glass floors is that they are all see-through. While many want the floor to be clear to show off an art collection, wine cellar, water feature, sports memorabilia or an interesting room above or below – this is not always the desired goal with a glass floor. For many projects the objective is to move passive light into a lower level without sacrificing the privacy of the people walking on the level above. This goal is achieved when glass floors have a sandblasted top finish or an acid etched bottom surface.

2 Choose your glass

All thick pieces of glass are not made to be used as glass flooring. Here are 3 proven choices for a structurally safe glass floor:

- ▶ **Laminated and tempered flat glass floor panels**
These floor panels are 1" to 1 ½" thick with a tempered glass top surface and lamination layers in between for added strength.
- ▶ **Glass pavers**
1" thick solid pavers can be circular or square and are set within an aluminum, stainless steel or cast iron framework.
- ▶ **Cast glass**
Usually 1 ½" thick, cast glass is made in a mold as solid one piece panel.



3 Do you want an engineered system?

You wouldn't want to buy a new car without knowing it had sound engineering and safety ratings. To choose a glass floor you—and others—will walk on you'll want to have the same assurances of safety. It is for this reason I highly recommend to my customers they choose a glass and framework system which has gone through architectural testing to prove it is designed and tested for your specific use – whether it's for a custom home or a commercial building.

4 Consider an anti-skid top surface

In some cases a smooth top surface for a glass floor may be adequate (ex. Low traffic areas or where you want to have no obstruction for a view below) – but in most situations I recommend using an anti-skid top textured surface. This surface is enhanced with a ceramic glass frit or the top surface is sandblasted. The anti-skid surface will not only make the glass safer to walk on, but it will help to minimize scratches.

5 Ask, "Is waterproofing required?"

If you need an exterior glass decking system or a glass floor in between two interior floor levels you will generally not require a waterproof system. On the other hand if you're using glass flooring on a rooftop with a finished room underneath it will be essential to select a fully engineered and waterproof system. While waterproof systems are approximately 2.5 times more expensive than water resistant systems they provide the dual function of a walk-able surface above with light transmission below.





6 Determine the size, design and shape of the glass lites

Glass floor panels can be made in virtually any shape (squares, rectangles, circles, angles, trapezoids etc.) allowing for a high degree of design flexibility. In order to determine the design of the glass pieces it's important to take into account weight and the potential need for structural support. For example a common 1" thick glass floor will be 11.5 lbs. per square foot – so a 3' x 5' glass panels will weigh approximately 170 lbs. Make sure to have the panels made to a size which can be handled by your installation crew. It's also preferred to design the panels to minimize structural support through the middle of the floor (if possible). With the most popular 1" thick laminated glass floor panels it is possible to span 4' without the need for structural support through the center.

7 Coordinate the floor with your architectural design

Make sure to coordinate your glass floor with your design style. If you want the traditional feel of pavers on the streets of New York City a concrete system with circular glass pavers is best. For an industrial or retro look a metal grid with square glass pavers is cool. For a sleek contemporary space the large continuous glass panels are the preferred selection.

8 Light it up

For 24/7 impact adding illumination can create a wow feature – even ...and maybe especially – at night. Right now I'm working with a vacation rental home owner on the island of Thomas on an exterior decking application which will have an LED lighting system around the perimeter of the floor. This floor will stand out during evening parties and events.

8½ Call for help

While it's nice to know the overall steps to choose a glass deck, bridge or floor you may still want to get help specifically focused on your application. Call Innovate Building Solutions at 877-668-5888.



