

Checklist for ESD Flooring Selection



Intro

Selecting ESD flooring for your organization may not be rocket science, but it certainly does involve science—with a strong consideration for math (AKA finances). This eBook covers a variety of things you should consider with regard to selecting an ESD flooring solution.

Selecting an ESD flooring solution is about more than merely reducing static electricity. There are several more specific variables at play as it pertains to the performance of an ESD floor. Here are some questions you should be asking:

Electrical Properties

What is the most critical chip sensitivity?

You want to control the static buildup in the environment based on the most sensitive chip. Some chips can be damaged at 200 volts, others at 100 volts. Some of the newer, smaller chips can be damaged with as little as 30 volts. The ESD management program would start with your most sensitive chip and that would drive the level to which you want to control the static in the environment. Different flooring options will reduce the charges generated by workers in a controlled area to different levels. The specs on StaticStop flooring state the maximum static electricity generated on a person walking on the floor. Typically, our conductive tiles keep static electricity generation on a person to below 30 volts.

What standards are you trying to adhere to?

There are industry-accepted standards that are built around sensitivity. The generally accepted standard is ANSI/ESD S20.20, which is designed around 100 volts. You can use that as your standard and its typical for most electronics manufacturers. For other manufactures, explosives for example, the voltages must be kept lower or you risk an explosion. On the other hand, data centers are a bit different and don't have the same level of static sensitivity. At StaticStop, we employ a thorough survey/screening to help determine the appropriate tile to suit the needs of your operation.

Based on the above, do you need conductive or dissipative ratings?

If your work involves an ultra-sensitive chip, in general, you should go with conductive. In less sensitive environments, dissipative will suffice. This is something we help customers determine as part of our survey/screening. Some customers will demand a specific rating. Some companies have an internal ESD protocol they must follow and want conductive, even though the actual use may not require it.

Checklist for ESD Flooring Selection

Is humidity controlled in the area? If not, what range will it vary within? (this affects the ESD properties of some materials)

Some ESD flooring products rely upon specified humidity levels to function effectively while others do not. If you have a very sensitive chip and don't control humidity, the environment could get very dry and humidity reliant flooring products may lose their ability to conduct static charges to the ground. That's why there are certain products we would tell customers not to use in those types of situations. We've seen companies use humidity reliant products in low humidity environments and then start pointing fingers when the product doesn't work.

Physical Properties

Do you require resistance to rolling loads?

Does your operation use carts or forklift trucks to transport items throughout your facility? If so that does play a large factor in your ESD flooring selection. For example, rubber flooring should not be used if heavy rolling loads are part of the work flow. The weight of the rolling loads can also have an impact on how you install the floor, particularly if you're considering gluing down the flooring. The heavier loads and the frequency of those rolling loads will determine the type of glue used (e.g. heavier loads require a stronger adhesive). The same holds true for interlocking tiles. Consideration of the weight of the rolling loads must be taken into account.

Will there be excessive foot traffic?

Excessive foot traffic typically requires more frequent cleanings and/or the use of a floor finish to help reduce the build-up of dirt on the tiles. But, beware of ESD flooring that requires a wax for ESD properties and warranty coverage. A "must wax" floor product of this nature is certainly not recommended for ESD best practices and consistently meeting audit and compliance goals. For StaticStop products, conductivity is built into the tile. So, for high traffic areas, you may want to consider products that require less frequent maintenance, such as our PLUS products that are pre-finished and naturally resist dirt build-up. In these high-traffic areas, you'll also want to make sure that you use a regular cleaning protocol to prevent dirt from accumulating on the flooring. (e.g. once a day, once every other day, etc. based on use).

Will there be fork lift traffic?

Similar to rolling loads, the amount of fork lift traffic on your floor will be a determining factor in the tile you select.

Do you require any type of chemical resistance?

Some facilities employ chemicals that may impact the flooring you select. Therefore, having a detailed conversation about your operation is critical to making a wise selection. If there are chemicals in your work environment, there are some possible solutions. For example, resistance to certain chemicals, such as solvents or acids. Vinyl is resistant to many chemicals and is generally a good choice. Rubber is good for other chemicals, like chlorinated solvents. It's pretty rare that there's a chemical that would impact the effectiveness of our tiles, but it is important to do your due diligence to ensure that doesn't happen. If possible, get a sample of the flooring that you are considering and test it against the chemicals that you have in your area.

Do you require special slip resistance?

Obviously, you want to select a tile with ESD qualities and slip resistance. Some environments may need greater slip resistance. If your facility requires a greater level of slip resistance, then you will want to steer clear of slick materials like epoxies. Seek out products that provide more secure footing. Our SelecTile product, for example, utilizes a coin top texture for better slip resistance.

Do you require comfort, ergonomic, or anti-fatigue properties?

Quite simply, some flooring is better for humans to stand on for long periods of time than others. Floor selection takes on an even greater weight nowadays when sitting is viewed as the new smoking and workers who could sit are choosing to stand (e.g. standing desks). So, what are your options and how comfortable are those options?

For example, epoxies are hard. Same holds true with glued-down vinyl flooring. Unfortunately, the more ergonomic and comfortable the floor, the higher the cost. Going the extra mile can provide a return on investment in that workers who are more comfortable will be more productive and miss less time due to standing-related injuries, like plantar fasciitis. Less injuries and more comfortable work conditions also improve retention. Our FreeStyle interlocking tiles offer exceptional comfort due to the thickness of the tile, it's composition, and the waffle structure in the base of the tile. As a footnote, many SelecTech and StaticStop customers have recouped the cost of buying more comfortable, ergonomic flooring based on those factors.

Installation Considerations

Does the underlying concrete pass moisture tests?

If beneath your existing flooring there is concrete, moisture could be an issue and will need to be checked first. Particularly, if the flooring you're considering is a conductive vinyl or rubber that needs to be glued. High levels of moisture in the concrete will cause adhesives to fail. Either a moisture barrier has to be installed first or alternately use an interlocking system that doesn't require adhesives.

If new concrete, can you wait for the 90-day cure period?

If you can't glue on concrete with moisture issues, it stands to reason that newly installed concrete floors must cure before you can glue down new flooring. Ninety days is the recommended amount of time. Our interlocking flooring can be installed as soon as the new concrete flooring is hard, usually within a few days of pouring. Time is money. Construction schedules are getting faster every project. Waiting for concrete to cure and dry is not always an option, making moisture sensitive adhesives less desirable.

If there is an existing floor, does it have asbestos either in the tile or adhesive?

Both the flooring and the adhesive of your old flooring should be tested for asbestos prior to gluing down new flooring or, honestly, before installing interlocking flooring. Dealing with asbestos is costly and will delay installation. Removing flooring with asbestos is a heavily regulated process that can add time to a project schedule. Areas of the floor need to be closed to workers, cleared of machinery and equipment and sectioned off with plastic to contain any dust. In many cases, an interlocking flooring system can be installed over the existing asbestos flooring to avoid creating an asbestos dust hazard, reducing business interruption and saving time and cost.

If there is an existing floor, do you want to install without removing it?

For clients who prefer flooring that requires an adhesive, most adhesive manufacturers recommend removing the old flooring first and preparing the subfloor for a new installation. This requires an open and empty floor area where work can be completed safely. It also may cause disruption and downtime. Some clients choose not to take on that challenge. One of the beauties of our interlock flooring is that it can be installed over existing flooring, eliminating demolition and expensive floor preparation. If conditions are favorable, we may suggest installing a new glue down floor on old flooring. However, this method may save money now, but may contribute to increased costs of demolition and prep on future flooring replacements. Installing interlocking floors over existing floors is a clean, quick and effective solution.

Checklist for ESD Flooring Selection

Can the facility tolerate the dust and noise generated from a sub-floor preparation?

When you rip out the old flooring, it will generate some levels of dust and noise. Will dust have an impact on your equipment and electronics at your facility? Will noise have an affect on your employees? These must be considered and assessed. It could have an impact on your decision to go with a glue-down flooring or interlock.

Operational Considerations

If in an existing operating environment, can you shut-down during installation?

If you are thinking about a glue down surface, you must think of all the steps involved, especially if it's an existing factory. First, you must rip out the existing floor. To do that will require disconnecting all the equipment from power, water, air and electric and then removing all the equipment. Then comes prepping the floor, gluing down the new floor, waiting for it to cure and that usually takes a few days. After that, you will have to move back all the equipment and then reconnect to air, water, electric, etc. and re-level everything. From a business standpoint, you must ask can you retain some level of functionality with all that going on. Most businesses can't, and a shutdown is the only way if you want to glue down your new flooring.

What is the cost to shut-down the area per day? Relate this to cost/day/square foot.

What is the area that will be shut down worth to your business per day in terms of output? Do you want to undertake that kind of loss? For example, a 10,000 square foot facility that produces \$30,000 profit per day or \$3 per square foot. If you choose to glue down the new floor it could mean two weeks of downtime. For this example, \$30k per day over two weeks is a lot of money to most businesses, especially those that run three shifts, 24/7. Interlocking flooring can easily be installed in occupied space. That's why many customers opt for the interlocking flooring to minimize or avoid shutdowns altogether.

Do you require the floor to be portable for re-configurations or future moves?

Some types of facilities require flooring to be portable. Expansions, downsizing or relocation to a new facility are just some of the reason why companies want a flooring they can move. When you choose a glue-down option for flooring, you sacrifice portability. Glued down tiles can't and shouldn't be removed and used again. Again, many of our ESD customers choose the interlocking floor tiles for this very reason. Interlocking floor tiles may cost more than glue-down tiles, when comparing the cost of materials only, but interlocking tiles far exceed glue down tiles in Total Cost of Ownership and overall practical value once moves and changes are factored into the analysis. Many clients feel that one move justifies the extra cost.

Is the floor for a clean room? What are the VOC and particulate requirements of the room?

Some floors are better for clean rooms than others. Epoxies and vinyl's work well in clean rooms when properly applied. Clean rooms will have strict specification standards that have to be adhered to and that's something we review carefully with customers. For example, vinyls may generate particulates when you scrub. This requires a sealant to be applied to prevent that from happening. Again, this "attention to detail" is part of a project review conducted with customers to ensure the flooring meets the requirements of the clean room properties.

Aesthetics

What type of finished look do you want? Is it industrial, more decorative, clean-room, office space? Does it need to match a certain color? Does it need to be light or dark?

The topic of aesthetics comes up more than you might think. We have a broad product line, including a variety of colors and price points. The combination of color and ESD properties has made our FreeStyle ESD product very popular with electronics manufacturing and handling facilities, labs and cleanrooms. Conversely, if your primary interest in a tile is the electrical properties, our SelecTile product is a very effective solution but only comes in black. Even though most companies want our products for the electrical properties, how a tile looks comes up quite a bit, particularly if you are working with an architect.

Maintenance

Does the environment have a lot of dirt? Will the floor need to be cleaned frequently? Does the floor need to look clean and shiny all the time?

If there is a lot dirt in your work environment and the floor requires frequent cleaning that can and should factor into your ESD tile selection. Again, when we sit down with a customer, we review all angles of your floor selection. Part of the decision is how important the look of tile is to your organization. Our FreeStyle ESDPlus stays cleaner longer. If you have a very dirty environment we recommend that tile. If your floors receive regular or daily cleaning, then you have some flexibility on choice.

Does the flooring option require regular waxing/coating to maintain electrical properties?

Our products don't require regular waxing or coating to maintain conductivity. The electrical properties are built into each tile. With some other products on the market, the electrical properties are dependent on an ESD floor finish or coating and could require stripping and reapplication several times per year. Our ESD customers may eventually replace tiles based on wear and tear and appearance, not because of the effectiveness in mitigating static electricity.

Do you have the resources for frequent cleaning, if needed?

Again, many times the more expensive tile is less expensive to maintain. So, you could select a less expensive tile, but it will require more in maintenance (e.g. additional janitorial services; more expensive floor maintenance equipment). Over time, the more expensive tile will probably offer better value and cost less than the less expensive tile. This is something we typically review with customers in discussing budget for flooring.

Make sure to consider the full costs of the floor, including: Material costs, subfloor preparation, downtime costs, installation costs, and ongoing maintenance and repair costs.

Purchasing flooring requires a comprehensive look at all angles. The cost of the tile is but one angle. Installation and down time is another. So are operational considerations as well as maintenance. The longevity of a tile also should factor in. Is a less expensive tile that will require replacement within five years a better value than a tile that will last 10 years and require less frequent maintenance and be more effective from an ESD perspective? When comparing options, it's good to look at costs over a longer period, say 10 years, and then ask a series of questions that might impact the value. For example, is there a chance you will need to move the flooring? Portability might be something that a facility wasn't thinking of when researching a tile but might be an important consideration for a growing company. Our Total Cost of Ownership analysis compares the total costs of materials and installation plus the net present value, (NPV), of a 10-year maintenance program.

Your Free ESD Binder

Thank you for downloading our eBook. We hope you found it useful. If you are looking to take the next step, click on the button below to download our FREE digital binder of ESD products. Or, call our office at (508) 583-3200,

Download Digital Binder

About SelecTech, Inc.

SelecTech, Inc., which was founded in 1993 with the mission of creating valuable products from scrap plastics. The company has become a leader in the manufacture of flooring products from recycled materials and uses one million pounds of recycled materials annually. Their floor products—which include StaticStop, FreeStyle and Place N Go flooring tiles—are made with up to 100 percent recycled content, are 100 percent recyclable and installed without adhesives, making them some of the “greenest” and most cost-effective flooring products available. The unique interlock system on SelecTech’s flooring products enable them to be installed at a much lower cost, without a lot of costly downtime, which provides significant value to customers.

SelecTech is headquartered at 33 Wales Avenue, Suite F in Avon, MA. For more information about SelecTech, visit <http://www.selectech.com>.