

ASM

smart building products

Datacenter Raised Access Flooring

RAISING THE BAR

Protect your servers
and data by using ASM.
Find out how.



ASM's Commando Panel

ASM's High Strength Welded Steel Cement Filled Floor Panel

- Low ultimate load capacity a problem?
- Weak corners a problem?
- Warped panels a problem?

Not with ASM!

Each panel is color coded, and labeled to identify panel model and date of manufacture as part of our extensive quality control program.

Beautiful hand polished epoxy powder coat finish.

60 Perimeter Welds as compared to 40 in earlier designs.

All ASM panels have 15 welds along each perimeter edge: a 50% increase, and a total of 20 extra welds around the entire panel perimeter. The additional 20 welds dramatically improve edge load capabilities, and overall panel durability.

ASM's Answer to Warped Panels

No rock and roll with ASM - each panel is put into a flattening press after welding, then checked for flatness. ASM is the only company to go to this extent, guaranteeing a super flat panel. It's the reason ASM can claim the flattest panel in the industry.

49 Reverse Structural Embossments

One at the center intersection of each structural cup. This eliminates any flat areas which are weak spots in early designs.

Ribbed bottom beams

In order to strengthen the perimeter of the panel only ASM has a rib in the perimeter beam which increases loading capabilities.

Corner Strength Solution

ASM's Commando Panels are a structural marvel: corners are 90 degree deep drawn steel beams filled with high strength cement. Any loads placed on the panel must transfer to the panel corners, and travel through the pedestals to the subfloor. In terms of load bearing, corner strength is factored as absolutely critical to the overall performance of the panel.

ASM's deep drawn beam corner is a difficult process with regard to its manufacture, but other panel designs that depend only on flattened or crimped steel corners cannot achieve the ultimate load capacity necessary to prevent bending up of corners or dishing panels.

When choosing access flooring, look closely at the strength of the corner area. It's the ultimate determinant of system performance.

High Strength Corners

High strength cement fill, along with more steel in the corners where it is needed, give ASM the best corner panel loading in the industry.



Why go with an ASM System

ASM belongs to the Kingspan Group of companies. Kingspan Group PLC is a publicly traded company, specializing in the manufacture and sale of building materials and components. ASM specializes in the manufacture and sale of access floor systems designed and built for the North American market. Our ISO 9002 factory, along with rigorous quality control systems and procedures, ensures ASM produces only the highest quality products. ASM is a long-standing member of CISCA.

worldwide

RAISING THE BAR

Ultimate Load Capacity

The ultimate load capacity is defined as the point at which panel failure occurs. This point of potential collapse may cause human injury or massive equipment damage.

ASM designs and builds its panels to a minimum safety factor of 2.5. That means a 1000 lb rated panel must support a minimum of 2500 lbs before failure occurs. In accordance with CISCA test procedures, the panel must accept this load anywhere on the panel's surface, specifically on the corner. (The load must be placed on an indenter of 1" x 1" maximum size to comply with CISCA testing standards.)

The point of failure or collapse is the single most important indicator of performance. Be sure to look at ultimate load when selecting an access floor panel for your application.

ASM's Datacenter System

ASM's three unrivalled features that deliver the strength and safety you need in your datacenter

- **Electrical Grounding:** protect your equipment & data
- **Nickel Chrome Plating:** eliminate the hazards of zinc whiskering
- **High strength:** The industry's strongest understructure

FAQ

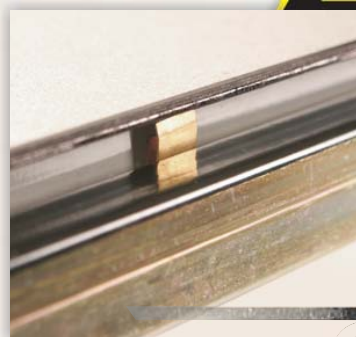
Electrical Grounding

Is your floor grounded? If there is electrical build-up or a grounding problem on top of the floor, it can cause major problems and shut down your system.

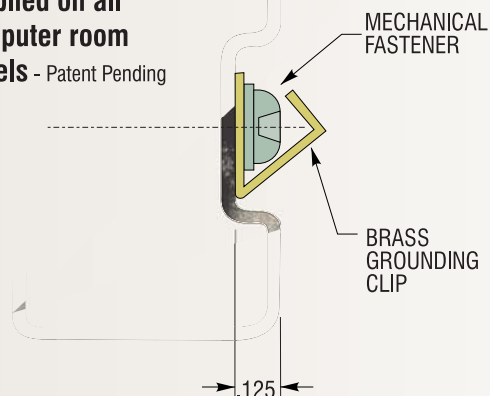


The access floor panel must be positively grounded to the understructure, providing for less than 10 ohm resistance from the metal top of the panel to the bottom of the pedestal base where the building's grounding system is attached.

ASM is the only manufacturer to comprehensively address this problem by incorporating a solid brass Positive Grounding Device (PGD patent pending) in every panel as standard equipment. A small detail solves a critical problem. Make sure your panels are grounded - PGD is standard with all ASM panels that have an ESD finish.



PGD Grounding clip supplied on all computer room panels - Patent Pending



FAQ

Zinc Whiskering

Zinc whiskering happens when certain electro-plated zinc based coatings are used under the access floor. The zinc in the coating gradually forms zinc particles. These particles can become airborne and cause your systems to short circuit. There is a wealth of articles and information available regarding this growing phenomenon in the data center environment.

ASM guarantees no zinc whiskers

ASM has extended clean room technology to the data center by using nickel chrome plating on critical parts. Only ASM understands how important it is to eliminate the zinc whisker concern, and is the only company to nickel plate the stud and nut. All other companies use the standard zinc finish on the stud and nut, or no finish at all which invites rust.

Only ASM guarantees no zinc whiskers. Be sure to clearly specify a zinc-free or hot dipped finish on all underfloor components, especially the adjusting stud and nut.



Pedestal head and adjusting nut are completely chrome nickel plated.



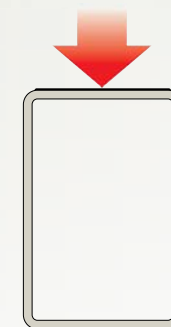
Pedestal bases are hot dipped galvanized.

FAQ

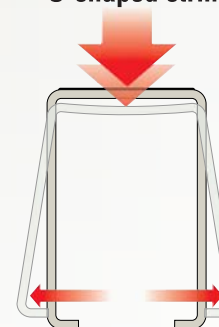
New High Strength Stringers

ASM's new high strength stringers deliver unprecedented strength because of their unique solid tube design. ASM's tube configuration is structurally superior to the standard U-shaped roll formed stringers offered by other access floor companies in North America. Be sure to specify the tube type stringer with the black vinyl strip, for ultimate strength and quiet durability.

ASM's unique new solid tube design



Conventional U-shaped stringer



Bolt-Tite: The Industry's Strongest Understructure

ASM's new high strength stringers are fabricated out of welded tube sections, coated with hot dipped zinc whisker-free plating. Every stringer has a black vinyl coating on the top surface to eliminate metal-to-metal contact, for a solid quiet floor.



Advantages of ASM's Datacenter are clear!

ASM RAISING THE BAR
Raising the Bar with Cleanroom Technology

Quality Control

ASM's commitment to quality is uncompromising. Our factory is ISO 9002. All finished product is subjected to a final inspection by our ASM Quality Control engineer prior to being shipped. These extensive quality checks have allowed ASM to enjoy the industry's highest quality acceptance year after year.

Once again, clean room standards have evolved toward our Datacenter products.



FS-Series Concrete Filled Welded Steel Panels

Our best seller, the FS-Series panel system, is constructed of a welded structural steel assembly designed to accommodate ultimate and dynamic loads. It's specially formulated cementitious fill and powder coated epoxy finish give the FS panel a quiet and very solid feel underfoot. Panel systems are available in both 24" x 24" and 600mm x 600mm . The FS-Series systems are perfect for use in the following applications:

Computer Rooms
Once factory laminated with a variety of high pressure laminates or VCT, the FS panel is perfect for those heavy rolling loads typically applied to raised flooring in ever changing data centers.

General Office
This panel is extremely quiet. With its powder coated bare finish and low cost, it is always a great choice for your general office requirements.

FAQ **How are ASM panels protected from rust and corrosion.**

Corrosion Resistant Process
The ASM FS- and S-Series panels are first fully immersed in a corrosion resistant bath of phosphate to protect inner and outer surfaces prior to applying the epoxy powder coat finish. Each panel is hand polished to a bright clean luster.

S-Series Hollow Welded Steel Panels

The S-Series hollow steel panel system uses the same welded steel technology found in the FS panel. With its high strength and light weight, the S-Series panel is the product of choice for many computer room applications. This panel has the ability to interchange with the FS panel, allowing for ultimate flexibility in flooring design. Panel systems are available in both 24" x 24" and 600mm x 600mm.

The S-Series systems are perfect for use in the following applications:

Computer Rooms
Lightweight says it all. These panels are easy to handle making those day to day changes within your data centers extremely easy.

FAQ **How do you ensure panel flatness?**

ASM is the only manufacturer to stamp the hollow panel one additional time after welding to ensure the panel is flat after possibly distorting during the welding process.

ASM reserves the right to change, alter or improve products without written notice.

ASM Outperforms and is Simply the Best
ASM's vast experience and extensive product development policy has created the world's strongest access floor panels. Designed in the US, developed in the US, for the US market, tested as per CISCA procedural requirements, using stringent US standards.

The performance charts shown indicate product performance when tested in accordance with CISCA test procedures.

FAQ **Is it the industry standard to advertise CISCA performance results only?**

No - you must check tables and charts and make certain it is clearly noted that results represented are according to CISCA test procedures. If there is no mention of CISCA, you can assume they are not by CISCA standards.

The Ultimate Load is considered the single most important test in the CISCA series, as it indicates when panel failure occurs.

FS-Series Performance Guide

Panel	Ultimate Load LBS. (KN)	Concentrated Load	Impact Load LBS. (KN)	Rolling Load 10 Pass LBS. (KN)	Rolling Load 10,000 Pass LBS. (KN)
FS100	3250 (14.52KN)	1000 (4.41KN)	150 (67KN)	800 (3.53KN)	600 (2.64KN)
FS200	3800 (16.72KN)	1250 (5.51KN)	150 (67KN)	1000 (4.41KN)	800 (3.53KN)
FS300	5000 (22.00KN)	1500 (6.61KN)	150 (67KN)	1250 (5.51KN)	1000 (4.41KN)
FS400	6000 (26.40KN)	2000 (8.81KN)	175 (78KN)	1500 (6.61KN)	1200 (5.29KN)
FS500	7000 (30.80KN)	2500 (11.01KN)	200 (89KN)	1800 (7.92KN)	2000 (8.81KN)

Notes: ASM Products are tested by a certified United States testing company. Certified test reports in accordance to CISCA test procedures are available upon request.

S-Series Performance Guide

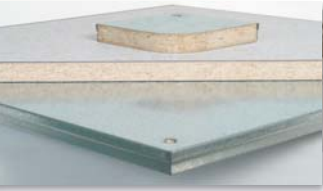
Panel	Ultimate Load LBS. (KN)	Concentrated Load LBS. (KN)	Impact Load LBS. (KN)	Rolling Load 10 Pass LBS. (KN)	Rolling Load 10,000 Pass LBS. (KN)
S100	3200 (14.08KN)	1000 (4.41KN)	150 (67KN)	400 (1.77KN)	400 (1.77KN)
S125	4500 (19.81KN)	1250 (5.51KN)	150 (67KN)	500 (2.21KN)	500 (2.21KN)
S150	5000 (22.01KN)	1500 (6.61KN)	150 (67KN)	600 (2.65KN)	600 (2.65KN)

Notes: Hollow steel panel deflection is measured on the panel underside (Beam) and is noted as a fraction of the panels span. All testing witnessed and reported by Intertek Testing Services, Middleton, Wisconsin.

MC125 Metal Clad Woodcore Systems

The ASM MC125 Panel is constructed of a high density composite core encased in a sheet metal shell. The MC Systems offer high performance characteristics in a fair valued product. Its solid feel and light weight offers an economical solution to your access floor needs. Applications:

Computer Rooms
In addition to its light weight, a strong ultimate load capacity makes this a favorite for computer rooms.



- Class A flame spread rating
- Internally grounded
- Quiet
- Lightweight

General Office
The woodcore panel's solid feel is quiet yet economical. An excellent rolling load and Class A flame spread rating make this a perfect choice for general office use.

Renovation Projects & New Construction
The woodcore panel's flexibility and light weight make it an excellent option for retro-fits as well as new construction.

MC125-Series Performance Guide

Panel	Ultimate Load LBS. (KN)	Concentrated Load LBS. (KN)	Impact Load LBS. (KN)	Rolling Load 10 Pass LBS. (KN)	Rolling Load 10,000 Pass LBS. (KN)
MC125	3000 (13.2KN)	1250 (5.29KN)	150 (67KN)	1000 (4.41KN)	800 (3.53KN)

Notes: ASM Products are tested by a certified United States testing company. Certified test reports in accordance to CISCA test procedures are available upon request.

MC-Series Understructure

Bolt-Tite/Snap-Tite



Corner Bolt



ASM's Understructure

Custom understructure can be developed and supplied for conditions specific to any application.

ASM's superior finishes are effective and consistent, giving a bright and polished look with protective properties. All ASM's parts are dipped in the corrosion-resistant, zinc whiskering-resistant finish after stamping and welding, to protect welds and raw edges from rusting.

- Versatile understructure for all types of installations
- Electrical resistance of less than 10 ohms
- ASM's steel manufacturing facility is ISO 9002 registered
- All pedestals are dipped after stamping and welding to protect welds and raw steel edges against rust.



Bolt-Tite

Offering great lateral support, this system is generally used where the panels are gravity held on the understructure. Stringers are available in 2' (600 mm) and 4' (1200 mm) lengths allowing for standard (2' x 2') or basketweave installations (4' x 4' or 4' x 2'). Every ASM stringer is hot dipped galvanized to preclude the possibility of equipment shorting as a result of zinc whiskering. Every ASM stringer boasts solid tube construction to resist bowing and spreading during load impacts, and a solid vinyl strip for a snug, quiet fit between stringer and panel.

ASM Raises the Bar Introducing Atlas ASM's New Heavy Duty Pedestal Systems

ASM offers the most comprehensive variety of pedestal types allowing for durable strength in any of zones 1 through 4. This full line of pedestals can further be strengthened by bolting them to the concrete slab for the most solid access flooring systems available.

ASM introduces its Atlas Pedestal Systems, designed for optimal heavy duty support and for the most severe conditions. No other system compares for strength and simplicity.

FAQ Seismic

What special considerations must be taken into account for data centers in geographic zones prone to seismic activity?

Raised floors enhanced for seismically active regions must have heavy cast undersides and the sturdiest support pedestals in the industry. When architectural components, electrical and mechanical equipment mounted in your computer room must withstand the displacing forces that arise from seismic activity, choose ASM's new Atlas Pedestal Systems.

ASM's Atlas Pedestals have the highest support rating. The pedestal head is threaded into the pedestal base, eliminating the fear of panels shifting or lifting during sudden movements. This allows equipment to be bolted directly into the raised floor, and eliminates the need for additional elaborate bracing under the floor. Unparalleled strength and simplicity, designed for seismic lateral loading without the need for diagonal bracing. Easy to install.



ASM's Air Flow Panels

Lev-A-Flow™ AF200

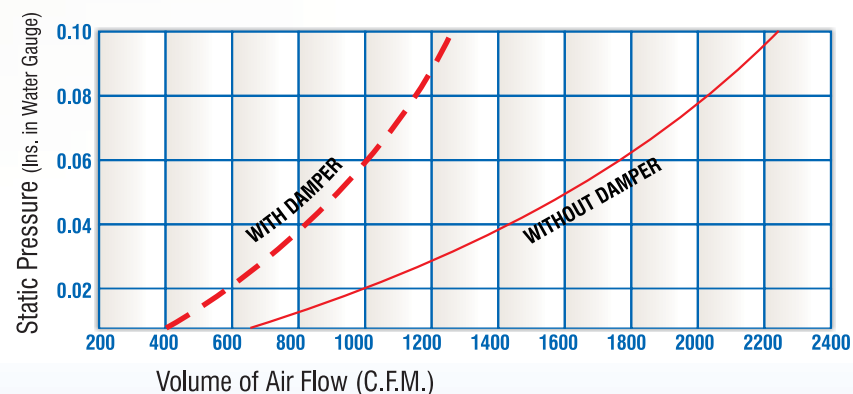
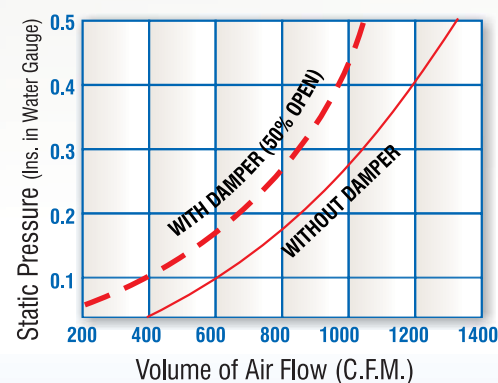
ASM's adjustable height Lev-A-Flow AF200 perforated panel (patent pending) is part of a series of air flow panels - the industry's only air flow panel that allows adjustment in thickness to sit flush with the adjacent solid panels. The AF200 is available in all HPL thicknesses, has a free area of 25% and comes with or without mechanical dampers.

- Free open area of 25% allows for significant air movement
- The AF200 panel is completely interchangeable with FS and S-Series systems
- Properly distributes airflow to those areas where additional air is required

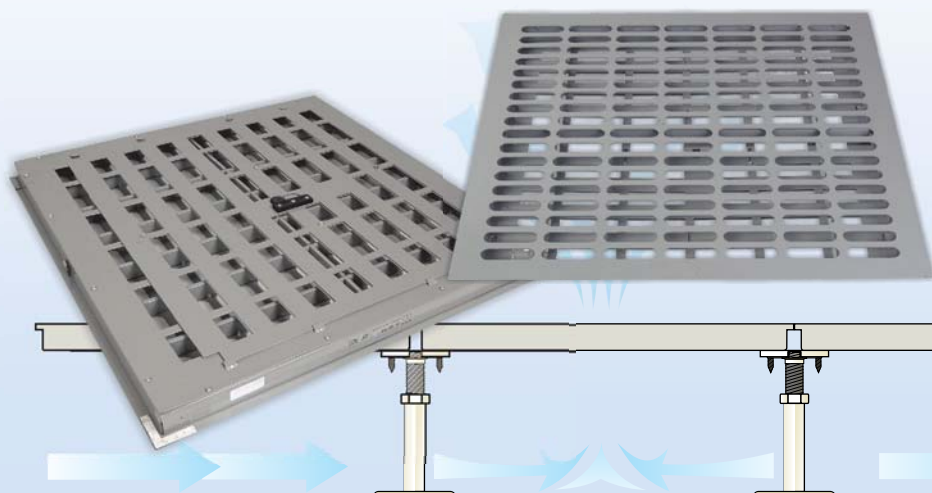
Lev-A-Flow™ AF400

ASM's new adjustable height Lev-A-Flow AF400 air flow panel is a lower cost alternative to the Accel-Air panel. Our AF400 airflow panel is constructed of rigid steel and has a free open area of 50% for those applications where additional cooling is required. It comes with or without mechanical dampers.

- Free open area of 50% allows for excellent air movement
- The AF400 panel is completely interchangeable with FS and S-Series systems
- Distributes large volumes of airflow to those areas housing servers and other computer equipment



ASM's panel welds are not punched, for added panel strength



Keeping Your Servers Cooled

FAQ With new high-density equipment in computer rooms, such as blade servers, do you question your computer room's ability to handle such heat loads?

ASM's Air Flow Series allows for maximum movement of cool air from the plenum throughout the workspace, keeping equipment protected from overheating. If you need a concentrated volume of cool air, choose ASM's air flow panel.

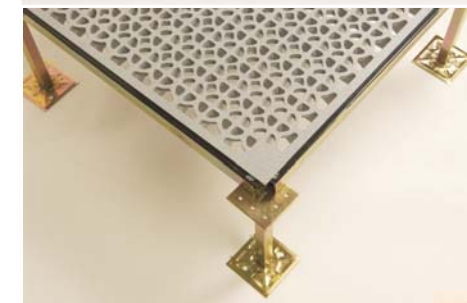
FAQ Is it possible to have a smooth transition from solid panel to perforated panel?

ASM's adjustable height system (patent pending) solves long running industry problems of leveling the perf panel with the adjacent solid panel - a smooth transition from perf to solid panel is now possible!

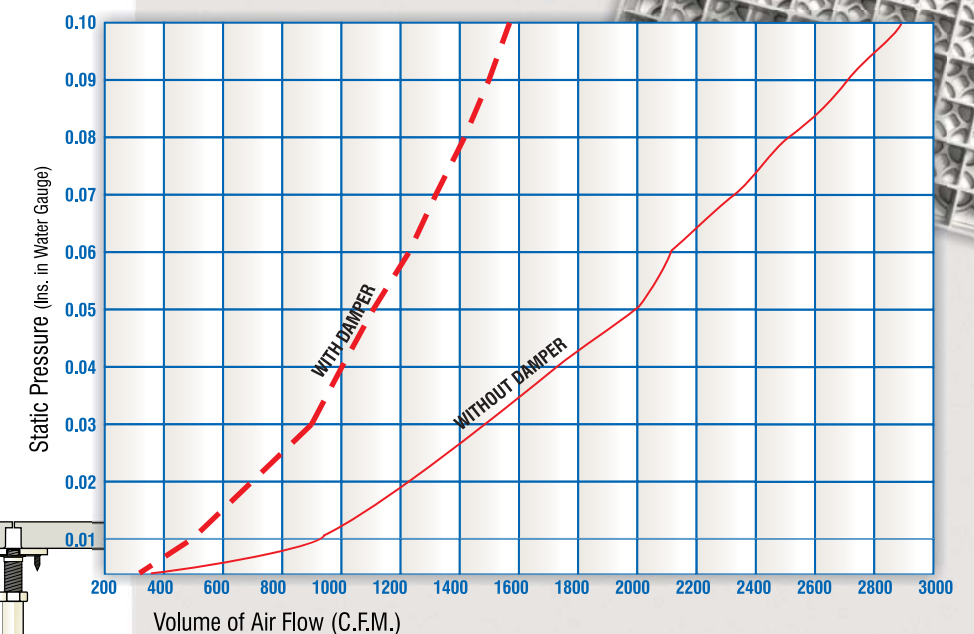
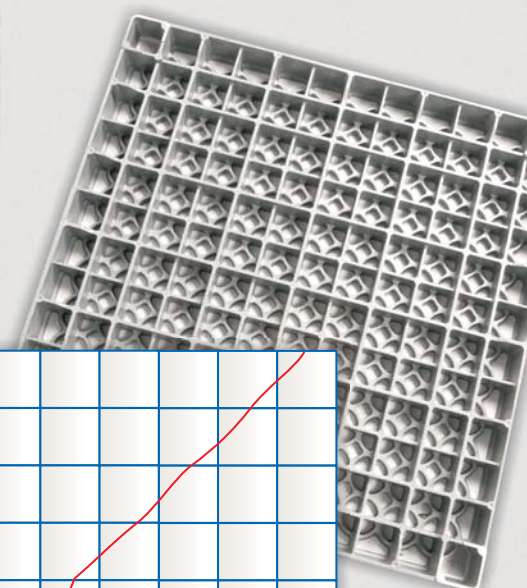
FAQ Can a perforated panel provide structural integrity?

Yes - ASM's AF200 panel can. The AF200's exterior surfaces sandwich an interior structural grate, providing strength unparalleled by industry counterparts.

Aluminum Accel-Air Panel



For cold aisles the Accel-Air die cast aluminum panel has a free open area of 56% for those applications requiring the highest cooling conditions. Accel-Air panels can be finished in powder coat epoxy or cast aluminum.



ASM's Floor Finishes

High Pressure Laminate & Solid Finishes

High pressure plastic laminate is used in 90% of all computer room applications, and is the largest product used on factory laminated floor finishes. Laminate is a one piece tile (24" x 24"), and unlike vinyl, will provide a uniform finish with no joints. HPL has the advantage of not requiring wax or maintenance that could produce static problems in the data center.



Designer Laminate Finishes

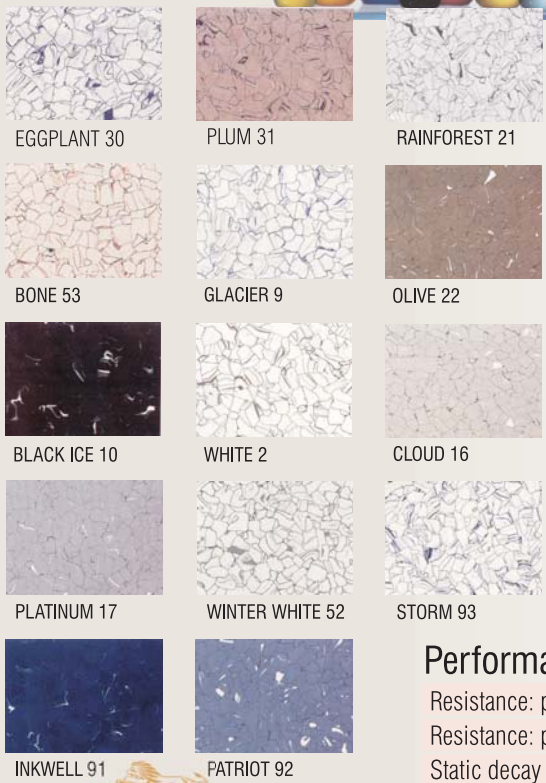
Beautiful and durable, and available at no extra cost, this eclectic line is exclusive to ASM.



ASM Laminate Performance Specifications			
PROPERTIES	NEMA Test Method	NEMA Standard	ASM Laminate Results
Electrical Resistance	NFPA 99	-	1.0 x 10 ⁶ - 2.0 x 10 ¹⁰
Stain Resistance	3.4	No effect	No effect
Boiling Water Resistance	3.5	No effect	No effect
High Temperature Resistance	3.6	Slight effect	No effect
Wear Resistance	3.13	3000 cycles/min.	3000 +
Scuff Resistance	3.16	No effect	No effect

ConTile & StatTile

Vinyl Plastic Technologies



The use of VPT conductive or static dissipative floor covering checks the influence of electrostatic charges in the sensitive work places. The effects of electrostatic influence is very serious, and many incidents include damage to integrated circuits in semiconductor production and loss of valuable data caused directly by a build up of static electricity. Static discharge may also cause inadvertent ignition of inflammable and explosive substances.

When two objects with electrostatic charge come into contact, electron movement occurs with electrification to positive and negative poles which are stationary at the points of mutual contact. Direct action against these points will cause instantaneous electric discharge, resulting in product damage, pollution or malfunction. Both UL and NFPA strongly recommend the use of conductive floor coverings.

Performance	Conductive	Static Dissipative
Resistance: point to ground	2.5 x 10 ⁴ to 10 ⁶ Ω	10 ⁶ Ω to 10 ⁹ Ω
Resistance: point to point	2.5 x 10 ⁴ to 10 ⁶ Ω	
Static decay	5000 to 0 volts in < 0.01 sec	5000 to 0 volts in < 0.2 sec

VPT sizes: 24 inch x 24 inch , 12 inch x 12 inch , 60 cm x 60 cm , 30 cm x 30 cm. Custom size if requested.

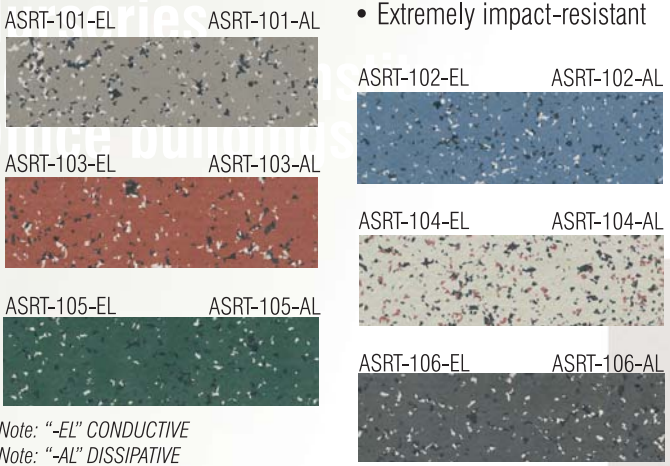
Where VPT is recommended:

- electronic manufacturing facilities
- computer/server room installations
- clean rooms
- assembly factories
- telecommunications rooms
- healthcare laboratories

Lifetime conductivity warranty - resistant to chemicals.

Superior polished finish that maintains its conductivity and appearance, in 14 designer colors

Antistatic Rubber Tile



Note: "-EL" CONDUCTIVE
Note: "-AL" DISSIPATIVE

A practical approach to maintenance, ASM's Rubber tile system is easy to clean, and especially suitable for areas with high hygienic requirements. The materials are dimensionally stable, impact- and shock-resistant, durable and beautiful.

ASM's rubber flooring has all the special properties that satisfy the broad spectrum of requirements with respect to production and laboratory facilities, manufacturing space and workshop areas.

ASM's line of rubber flooring has been designed to meet the most stringent demands of high traffic areas, clean rooms, and environments sensitive to electrostatic discharge hazards. To counter the potential damage of static buildup, electrostatic dissipative (ESD) flooring has become an essential in many high-tech workspaces, particularly in environments using integrated circuit technologies.

Long a reality for the electronics industry as a whole, ESD flooring both inhibits charge generation and dissipates accumulated charges. These two properties need to be considered separately when selecting a flooring material. ASM's ESD rubber flooring initially minimizes accumulation of charges, making the discharge of charges less of a concern.

Standard sizes: 20" x 20" , 24" x 24" , 50cm x 50cm, 60cm x 60cm, 61cm x 61cm. Custom sizes available upon request.

Special Properties

- Electrostatic conductive "el"
- Electrostatic dissipative "al"
- Suitable for fork lift trucks
- Extremely fire-resistant
- Safe in fire-toxicological terms
- Resistant to oils and greases
- Extremely impact-resistant

Rubber Properties

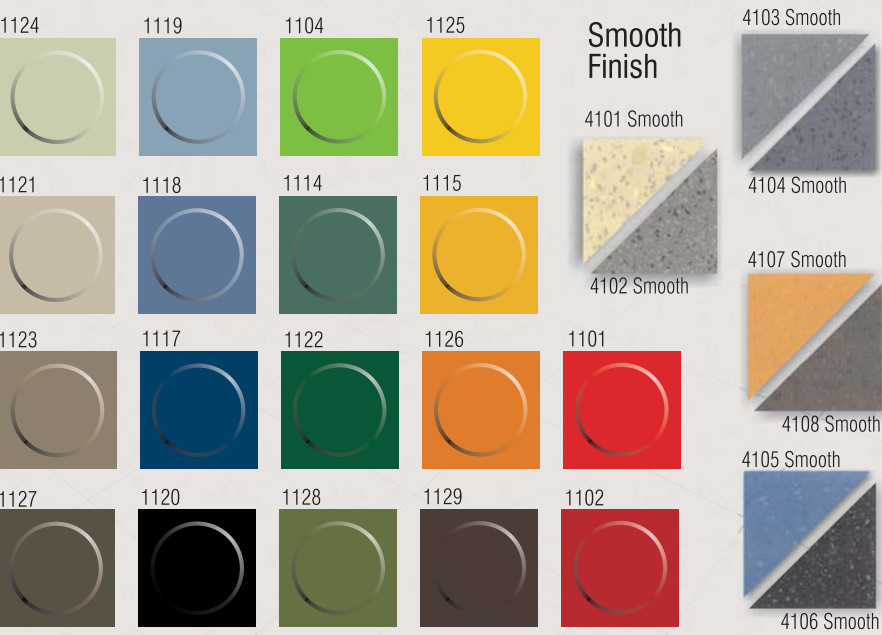
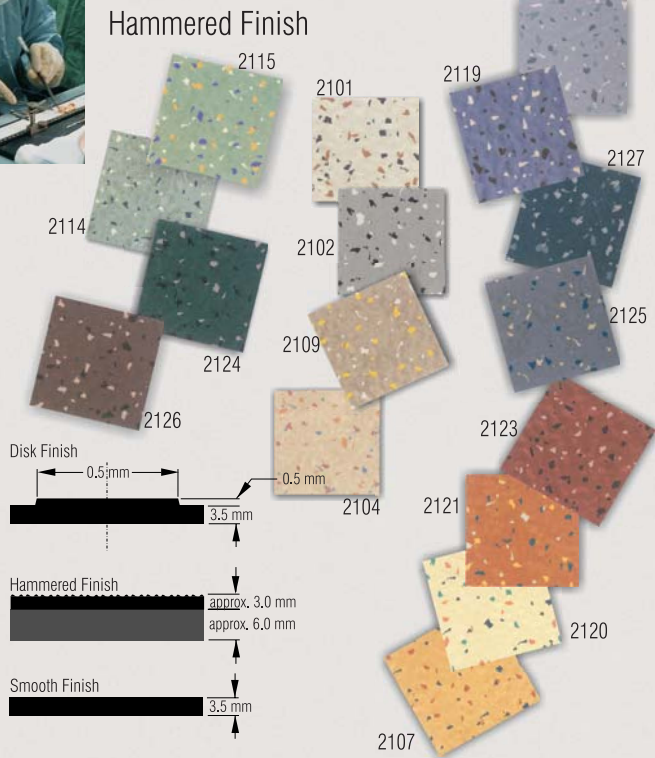
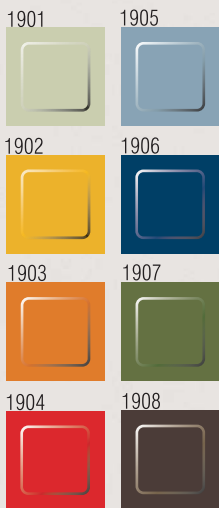
- Highly wear-resistant
- Extreme long life
- Dirt-repellent
- Cost-efficient maintenance
- No seal or finish to maintain
- Resistant to cigarette burns
- High degree of fire-resistance
- Excellent sound absorption properties
- Joint-sealing not necessary

Electrostatic Protection

- Static generation less than 20 volts per AATCC-134
- Easy to maintain - no conductive wax necessary
- Chemical and hot solder resistant
- Resistant to most oils and grease
- Ultra low vibration
- No carbon black for electrostatic dissipative flooring
- Outgassing according to ASTM-E-595-84 VCM less than 1.2%



Standard Rubber Tile



ASM's Accessories

Handrail



The ASM Handrail System is a clear anodized aluminum extruded railing. The system meets ADA requirements, ASTM E-985, and the latest UBC codes. There are many design features that set our railing system apart from our competitors.

Lifting Devices



ASM provides a variety of lifting devices, including double suction cup and airflow panel lifters - designed to make installations and alterations simple. They can be easily stored in Lifter Wall Mount Brackets.

Cable Tray

FLEXTRAY'S Raised Floor (RF) System provides maximum accessibility and flexibility for your raised floor cabling needs.

Self Supporting

Patented vertical support that does not compromise raised floor support weight limitations or warranties.

No Stringer Types to Consider

RF system is not suspended from tile stringers - it is independently supported, meaning no variables or regulations to consider.



The RF System's modular design adapts easily for use with any cabling applications.



Easy Drop-In Design

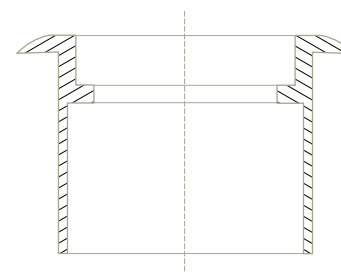
RF components are designed to fit 24" RF designs - just drop through tile space and lock into place - no fastening required. No cutting or splicing needed.

Add More RF Easily

Additional runs and layers of RF can easily be added or changes without waste, demolition or lost time.

Multiple Tray Sizes

24, 12 and 6 inch standard sizes. Others available upon request.



Grommets & Trims

Grommets and trims allow for simple connection of electronics through clean and attractive cut-outs. The face of the grommet slides to provide for cable adjustment.

ASM offers an array of grommets and trims designed to give professional office space a clean-lined finish. They are available in both round and rectangular configurations.



Round grommets are available in 3", 4" and 5" diameters



Rectangular grommets are available in two sizes: 4" x 4" square, and 4" x 8".



ASM's Seismic Braces

For those highest risk seismic projects, ASM offers one, two, three and four leg seismic braces that can easily be attached to any ASM pedestal for ultimate lateral support.

Seismic braces secure ASM's flooring system to the building structure such that any movement of the system is in concert with the structure. Providing rigidity and secure attachments to the structure is effective not only in limiting damage to the raised flooring, but as well as minimizing damage to other systems within the building.





In July of 2005 ASM Modular Systems joined the Kingspan Group. In addition to being the largest access floor manufacturer in the world, the Kingspan group is a major manufacturer of an integrated range of products for the construction industry. The Group continues to innovate and improve on an existing product range, and have done so successfully for over 30 years. These innovations are clearly seen within Kingspan's emphasis on Modern Methods of Construction and importance on increasingly sustainable buildings.

The Group's companies have a presence around the world that is ever increasing. ASM looks forward to using the vast experience and resources now available to further bring about a whole new level of service to its customers.

For more information about Kingspan please visit us at www.kingspan.com

ASM's

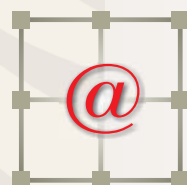


Comprehensive Raised Access Flooring Systems for Data Centers

Build perfect infrastructure
for your data center

Businesses have responded quickly and dramatically to rapid technological changes over the last several years. Yet, building systems have been slow to accommodate these demands. Risk to sensitive equipment and data remains unnecessarily high.

ASM's Datacenter Systems address advances in electronic work flow and safe data storage. ASM - Raising the Bar on building performance.



ASM

constructing smarter buildings

9500 Industrial Center Dr.
Ladson, South Carolina
29456
(843) 534-1110
(843) 534-1111 Fax

www.asmproducts.com