

**resinDEK®**

Manufactured by:



**CORNERSTONE**  
SPECIALTY WOOD PRODUCTS, LLC®



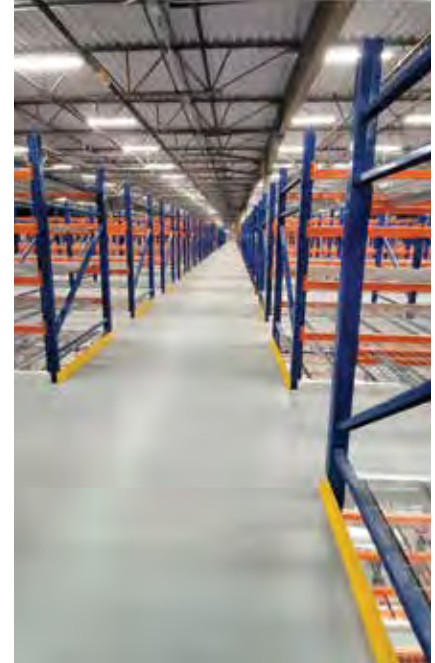
◆ **Performance Engineered Flooring for Material Handling**

# Performance Engineered Flooring Panels Designed for Extreme Wear & Durability

ResinDek® flooring panels, manufactured by Cornerstone Specialty Wood Products®, are the premier value engineered solution for industrial work platforms, pick modules, mezzanines and equipment storage. Since 1994, ResinDek flooring panels have been installed in distribution centers, warehouses, manufacturing plants, and cold storage facilities for major corporations worldwide. The intent of Cornerstone Specialty Wood Products then and now is “We don’t just make better mezzanine floors...We make mezzanine floors better”. We strive to provide solutions that improve the ergonomics in work environments, reduce environmental impacts, and bring significant value to the professionals in material handling and storage.

With this objective in mind the team at Cornerstone Specialty Wood Products is committed to:

- Better products with easier installation
- Application-specific flooring for all industries
- Excellent field support and product testing
- LEED® and FSC® certified products
- Material and labor savings for customers



# ResinDek® Composite Engineered Wood Flooring Panels

ResinDek® flooring panels are custom manufactured with engineered processes which enhance the functionality, durability and life of the floor. Premium materials and unsurpassed manufacturing methods ensure that every ResinDek floor panel will withstand heavy equipment, rolling carts and pallet jacks, AGVs and AMRs.

Product Name (B Deck Gauge)	Pallet Jack & Product Load Limits	Robot & Product Load Limits	Maximum Robot Contact Pressure	Thickness	Weight (PSF)		Material Handling Finishes			Robotics Finishes	
					ResinDek®	ResinDek® with MetaGard®	UF	Gray Diamond Seal® or ESD	MetaGard® GVT	TriGard® ESD or ESD Ultra	MetaGard® SST
<b>ResinDek® LD (20ga)</b> <sup>1</sup>	up to 2,000 lbs.	up to 500 lbs.	500 psi	3/4"	2.8	4.2	✓	✓	✓	✓	✓
<b>ResinDek® MD (20ga)</b> <b>ResinDek® MD (18ga)</b>	up to 2,500 lbs. up to 3,500 lbs.	up to 2,000 lbs. up to 3,000 lbs.	750 psi 1,000 psi	3/4"	3.5	4.9	✓	✓	✓	✓	✓
<b>ResinDek® HD (18ga)</b> <b>ResinDek® HD - B Deck Not Required</b> <sup>1-2</sup>	up to 4,500 lbs. N/A	up to 4,000 lbs. up to 750 lbs.	1,200 psi 750 psi	3/4"	3.8	5.2	✓	✓	✓	✓	✓
<b>ResinDek® MAX (18ga)</b>	up to 8,000 lbs.	up to 6,000 lbs.	1,500 psi	1-1/2"	7.6	N/A	N/A	✓	✓	✓	✓
<b>ResinDek® Xspan®</b> <i>B Deck Not Required</i> <sup>3</sup>	up to 3,000 lbs.	up to 2,500 lbs.	900 psi	1-1/8"	5.2	6.6	✓	✓	✓	✓	✓
<b>ResinDek® Xspan® FR</b> <i>B Deck Not Required</i> <sup>3</sup>	up to 3,000 lbs.	up to 2,500 lbs.	900 psi	1-1/8"	5.2	6.6	✓	✓	✓	✓	✓

## NOTES:

- Flooring used with corrugated B Deck: load values above are calculated on 36" beam spacing, increased spacing will increase deflection and/or decrease capacity.
- For flooring solutions with no B Deck: All allowable loads are based on a two span condition. Uniform load values are based on L/240 deflections, any deviation can positively or negatively impact these values. Please contact Cornerstone for other span conditions.
- The calculations and load tables have been compiled based on specified calculation methods and assumptions. The loads provided are for information purposes for preliminary studies and can not be used as a reference in structural studies. Contact an accredited engineering office or architect to perform a complete stability analysis.

**1** Not Suitable for AGVs

**2** ResinDek HD robot and product load values above are calculated with 225 psf uniform loads at 16" center supports

**3** ResinDek Xspan and Xspan FR load values above are calculated with 375 psf uniform loads at 16" center supports

## Value Engineered Flooring Panels Designed for Performance

ResinDek performance engineered wood flooring panels are manufactured with mostly recycled and recovered wood fibers, environmentally friendly resins with no added urea formaldehyde, and a wax emulsifier for moisture resistance. The ingredients are combined and compressed under extremely high pressure and temperature, resulting in a panel with superior physical properties. ResinDek panels are backed by comprehensive engineering services and a 10-year product warranty.

ResinDek panels are custom manufactured and available in sizes up to 4' x 10' (1206 mm x 3048 mm) with tongue and groove configurations that promote effective panel to panel wheel load transfer. Our finishes are developed by our internal coating innovation lab and are engineered for the specific type of traffic that travels across the ResinDek floor.

### *ResinDek® LD*

ResinDek LD flooring is a tremendous value for warehouse mezzanine, pick modules and work platforms. It is extremely durable, aesthetically pleasing, and easy to maintain. ResinDek LD 3/4" thick panels have proven structural integrity that supports pallet jack rolling loads up to 2,000 lbs and AMRs rolling up 500 lbs. With no delamination and a 10-year warranty, ResinDek LD is an economical and durable alternative to polydeck, OSB, and plywood.



# ResinDek® Flooring Solutions for Heavy Rolling Pallet Jacks, AGVs and AMRs

## ResinDek® MD

ResinDek MD panels provide a showcase appearance with a flat, level flooring surface for heavy rolling pallet jack loads, AMRs and AGVs. Backed by a 10-year product warranty, ResinDek MD panels are 3/4" thick and can support pallet jack rolling loads up to 3,500 lbs and AGV/AMR rolling loads up to 3,000 lbs.

## ResinDek® HD

ResinDek HD is a heavy-duty mezzanine floor panel used on elevated platforms. It is the densest of all the ResinDek mezzanine floor panels and is designed and engineered for heavy equipment, pallet jacks rolling loads up to 4,500 lbs and AGV/AMR rolling loads up to 4,000 lbs. At 3/4" thick, the ResinDek HD panel is the perfect flooring solution for material handling spaces and mobile robotic platforms.

## ResinDek® MAX

ResinDek MAX is designed and engineered to support electric pallet jacks. At 1-1/2" thick, ResinDek MAX can withstand both the daily rigors of heavy electric pallet jacks rolling loads up to 8,000 lbs and AGV/AMR rolling loads up to 6,000 lbs. This maximum duty flooring panel provides long-lasting durability and is easy to maintain in the most extreme conditions.



# ResinDek® Flooring Solutions for Heavy Rolling Pallet Jacks, AGVs and AMRs

ResinDek Xspan and ResinDek Xspan FR panels are 1-1/8" thick and have been extensively tested and approved by IBC Code Officials for use as a structural flooring system in certain applications where a metal corrugated substructure is not required. Structural supports must be reviewed and approved by Cornerstone Specialty Wood Products, LLC® and must be capable of supporting floor loads at specific intervals. For further details, call us and/or your local building code official.

## ResinDek® Xspan®

ResinDek Xspan panels are capable of supporting the designed weight capacities per the load span table below. The underside of ResinDek Xspan is unfinished, but a high gloss white is available as an option when enhanced lighting is required.



### ResinDek® Xspan® Flooring Panels

1-1/8" Thick Single Panel Solution - No Corrugated B-Deck Required

Beam Spacing	16"	24"	32"	40"	48"
Uniform Loads (lbs/ft <sup>2</sup> )	375	225	125	75	50
Total Pallet Jack & Product Load (lbs)	3000	2,700	2,300	2,000	1,500
Total Robot & Product Load (lbs)	2500	2,000	1,500	N/A	N/A
Robot Contact Pressure (psi)	900	750	600	N/A	N/A

Please see table notes on page 3.



## ResinDek® Xspan® FR

ResinDek Xspan FR is a fire-resistant structural mezzanine floor solution that does not require a metal corrugated substructure. It meets ASTM E-84 Class "A" flame spread less than 25, meets UK Class "O", as well as European standards B-Class (B<sub>FL</sub>-s1 | B-s1,d0) for both top and bottom. ResinDek Xspan FR panels are capable of supporting the designed weight capacities per the load span table below. ResinDek Xspan FR comes standard with a white reflective underside.

### ResinDek® Xspan® FR Flooring Panels

1-1/8" Thick Single Panel Solution - No Corrugated B-Deck Required

Beam Spacing	16"	24"	32"	40"	48"
Uniform Loads (lbs/ft <sup>2</sup> )	375	225	125	75	50
Total Pallet Jack & Product Load (lbs)	3,000	2,700	2,300	2,000	1,500
Total Robot & Product Load (lbs)	2,500	2,000	1,500	N/A	N/A
Robot Contact Pressure (psi)	900	750	600	N/A	N/A

Please see table notes on page 3.



## *Gray Diamond Seal® Finish*

Gray Diamond Seal is the standard by which all other coatings in the industrial floor industry are measured.

**The Gray Diamond Seal finish offers several benefits, including:**

- Provides excellent wear, slip resistance & exceptional resistance to common stains
- Easy to clean & maintain, and will provide a showcase appearance year after year
- The formulation incorporates standard antistatic protection to minimize the build-up of electrical charges as personnel and wheeled loads travel over it

## *Gray Diamond Seal® ESD Finish*

Gray Diamond Seal ESD finish is ideal for applications requiring an electrostatic dissipative (ESD) finish.

**The Gray Diamond Seal ESD finish offers several benefits, including:**

- An outstanding static control solution for electrically sensitive devices such as laptops, bar-code scanners, servo-drive motors, and pick-to-light systems that are common in distribution centers
- Eliminates downtime of expensive electronic devices caused by electrostatic discharges, and also prevents uncomfortable static shocks to employees
- ResinDek panels coated with the Gray Diamond Seal ESD finish comply with ANSI ESD Association specifications





## *MetaGard® GVT Finish*

MetaGard GVT is ideal for drop zones, pallet flow and case flow modules, and where aggressive dragging or pulling of non-wheeled loads occurs.

**The MetaGard GVT finish offers several benefits, including:**

- A steel surface that encapsulates the top and sides of the ResinDek panel
- The steel is fused to the ResinDek panel with a proprietary bonding agent creating a floor that will not delaminate, has superior physical properties, is level for rolling loads, and has no sharp edges that could cut or snap objects passing over it
- Engineered to ensure a smooth panel-to-panel transition, ResinDek with MetaGard GVT panels can be used alongside other ResinDek panels without a steel surface, creating a more cost-effective solution as it enables placement of MetaGard GVT flooring in the areas of maximum wear

## *Unfinished (UF)*

ResinDek UF provides a skid resistant surface and installs easily over corrugated metal B Deck with our recommended top side screw fastening systems. The uncoated ResinDek UF, moisture resistant flooring panel is priced competitively and will never delaminate. Also, unlike plywood, OSB or other engineered wood products, ResinDek UF has a 10-year product warranty.



The floor finish plays a crucial role in how well AMRs and AGVs perform, and different robots have different requirements. Coefficient of friction and surface roughness can impact the robot's acceleration, stopping accuracy, and turning. Gloss and light reflectivity, as well as wear can all effect the ability to run at optimal levels. That is why we offer three different finishes for robotic traffic: TriGard ESD, TriGard ESD Ultra and MetaGard SST. Specifying ResinDek flooring with TriGard ESD, TriGard ESD Ultra, or MetaGard SST finishes ensures that the robots perform optimally, deliver higher throughput, and better accuracy

### *TriGard® ESD Finish*

The perfect flooring finish for AMRs that use lidar navigation system or a variable path.

**The TriGard ESD finish offers several benefits, including:**

- Engineered to withstand high-frequency robotic traffic
- Optimal coefficient of friction, allowing robot to run at it's peak performance
- Ideal degree of light reflectivity that does not impair a vehicle's laser-based navigation sensors

### *TriGard® ESD Ultra Finish*

TriGard ESD Ultra is ideal for high-traffic robotic applications characterized by highly repetitive movement patterns, defined travel paths or some type of fiducial.

**The TriGard ESD Ultra finish offers several benefits, including:**

- Provides greater wear than the TriGard ESD coating
- Optimal coefficient of friction, allowing robot wheels to travel fluidly, with precision
- Coating can be modified for surface roughness and light reflectivity



### *MetaGard® SST Finish*

ResinDek with MetaGard SST is engineered for the extreme wear of AGVs and has been proven to withstand more than 2 million annual pivoting passes generated when AGVs change direction. In testing, ResinDek® with MetaGard SST has been shown to be 5x more abrasion resistant than concrete in heavily trafficked areas where dirt and debris are not routinely removed. ResinDek with MetaGard SST flooring panels combine the structural integrity of a ResinDek panel along with the strength and durability of a steel wearing surface.

#### **The MetaGard® SST finish offers several benefits, including:**

- Fused to the ResinDek panel with a proprietary bonding agent and features an edge that encapsulates the perimeter of the panel, creating a floor that will not delaminate
- Has superior physical properties
- Level for rolling loads
- Has no sharp edges that could cut or snag objects passing over it.

### *A Hybrid Flooring Solution*

#### **TriGard® ESD Ultra and MetaGard® SST**

We recommend using a combination of ResinDek with MetaGard in the higher traffic, debris-laden areas and ResinDek with TriGard ESD Ultra in the cleaner, lower traffic regions, maximizing the performance of the platform while decreasing the overall cost.



## Corrugated Metal Decking - B Deck

Cornerstone Specialty Wood Products, LLC® provides corrugated metal deck products in a variety of profiles, thicknesses, yield strengths and finishes. The Engineers at Cornerstone Specialty Wood Products will help you optimize sizes, runs, steel thicknesses, corrugated profiles, and beam spacings, thus saving you time and money. To assist with the ease of installation we can even supply pre-punched B Deck for use with our Invisi-Loc® underside fastening system.

**Note:** A bright white underside is available for excellent light reflectivity. You can also order it in galvanized or gray primer.



## Corrugated Metal Decking - B Deck

We recommend that a minimum of 20 gauge metal B Deck be used on all ResinDek® flooring projects (with the exception of Xspan®) and a minimum of 18 gauge when live and dead pallet jack loads exceed 2,500 lbs.

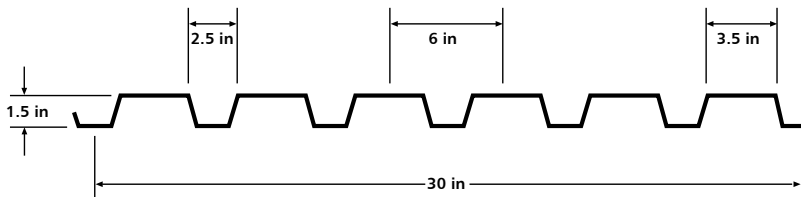
### B Deck 1.5" Allowable Uniform Loads (PSF) / Loads that Produce L/240 Deflection

# of Spans	Gauge	Min Yield (KSI)	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"
Single	20	60	565 / 462	415 / 291	318 / 195	251 / 137	203 / 100	168 / 75	141 / 58	120 / 45	104 / 36	90 / 30
	18	60	792 / 658	582 / 414	445 / 278	352 / 195	285 / 142	236 / 107	198 / 82	169 / 65	145 / 52	127 / 42
	16	33	575*	422*	323*	255*	207 / 186	171 / 140	144 / 108	122 / 85	106 / 68	92 / 55
Double	20	60	563*	418*	322*	256*	208*	172*	145*	124 / 116	107 / 93	93 / 75
	18	60	788*	586*	452*	359*	292*	242*	204 / 202	174 / 159	150 / 127	131 / 103
	16	33	552*	410*	317*	252*	205*	170*	143*	122*	105*	92*
Triple	20	60	692*	516*	399 / 388	317 / 273	258 / 199	214 / 149	180 / 115	154 / 91	133 / 72	116 / 59
	18	60	966*	722*	558 / 534	445 / 375	362 / 273	300 / 205	253 / 158	216 / 124	187 / 100	163 / 81
	16	33	676*	505*	391*	311*	254*	210*	177*	152*	131 / 128	114 / 104

**Note:** Allowable Uniform Load shown only. L/240 Exceeds Allowable Load.

### B Deck Physical Properties

Gauge	Thickness (in)	Weight (lb/ft <sup>2</sup> )	
		Painted	Galvanized
20	.0358	2.1	2.2
18	.0474	2.8	2.9
16	.0598	3.4	3.5



# Installation is Fast and Easy with the ResinDek® Fastening Systems

## Stand-Up Screwdriver & Top Side Drill Screws

For conventional top side screw installation, use Cornerstone Specialty Wood Products, LLC® collated stand-up screwdriver and collated drill screws. Not only will the collated screwdriver save you up to 40% in fastening costs, but it will reduce installation fatigue with its ergonomic design. The screws are engineered for strength, durability and easy installation. No countersinking or pre-drilling is required as the wings near the top of the shaft create a counterbore for the screwheads. The number 2 square drive head in conjunction with the drill point easily pierce up to 12 gauge steel decking. The screws are designed to drill through the ResinDek panels and steel decking prior to the threads engaging, thus preventing the panels from lifting.

## Invisi-Loc® Underside Fastening System

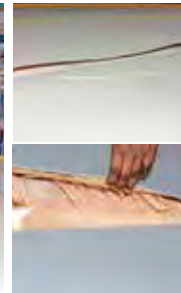
Invisi-Loc provides showcase mezzanine floors with no visible fasteners that are dependable, economical and easy to install. The Invisi-Loc fastening system mounts fasteners under the mezzanine decking hiding unwanted screw holes on top. Plus, when installed with our pre-punched corrugated metal decking, installation time is reduced and potentially dangerous metal shavings are eliminated.





## ResinDek® Panels - The Rework Solution for Damaged Floors

If you have damaged floors ResinDek flooring panels are the optimal choice. ResinDek panels can replace or easily install over polydeck floors that are delaminating, plywood that is splintering, damaged bar or plank grate, and even cracked concrete.

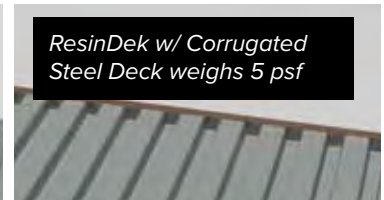
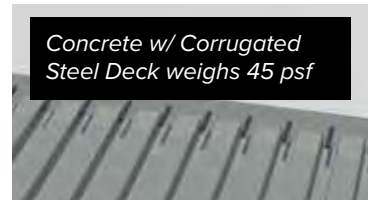
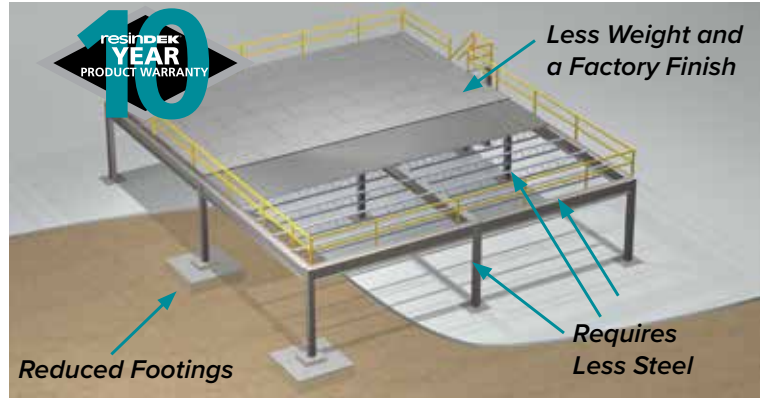


# ResinDek's® Flooring Solution Provides Substantial Savings for New & Retrofit Applications

ResinDek panels have the proven structural integrity and the strength you associate with a concrete floor yet offers significant savings. An independent study found that ResinDek flooring is **exponentially more cost effective than concrete**. How? Simple. . . **Less Weight + Less Footings + Less Steel + Less Time = Real Savings**

- ResinDek is 90% lighter than concrete which allows for less steel to be used in the support structure
- With ResinDek concrete footings may be significantly reduced or eliminated altogether
- Platforms using ResinDek can be designed with an allowable deflection limit of L/240, whereas concrete's allowable deflection is limited to L/360: this reduces the amount of steel required in the support structure
- Construction time can be reduced by as much as 3 - 5 weeks depending upon the size of the job
- Since ResinDek is supplied with a factory finish, and concrete needs time to cure, ResinDek can be installed faster
- The material cost per square foot for ResinDek is less than that of concrete

*\* Actual savings may vary based on project scope and location. Tax benefits are based upon estimates and the ability to categorize the mezzanine as equipment rather than a part of the building structure. Consult local building codes and tax advisor before using any information provided.*



## *Biomechanical Analysis of Walking on ResinDek Flooring vs. Bar Grate and Concrete*

Ohio State University Institute for Ergonomics completed a research study to determine if there were quantifiable differences in objective biomechanical measures that could be used to characterize different walking surfaces used in warehouse and distribution centers.

### **Testing Parameters**

- 16 volunteers fitted with pedometers at two different facilities, ordinary work routine
- Wore their usual work shoes during the collection process (athletic shoes and work boots primarily)
- Pedometers collected at the end of an 8-hour shift
- Using an average of 30" per pace, employees averaged 21k steps = 10 miles per day!
- Measure acceleration of the tibia as participants walk on concrete, bar grate and ResinDek
- Statistically analyze and compare the tibial acceleration data



### **Research Results Summary**

- Significantly less tibial shock with ResinDek at work rate walking speed (15% faster than an avg. walking pace)
- Concrete increased the tibial shock by 7.8%
- Bar Grate increased the tibial shock by 10.6%
- Working on concrete is equal to adding 12 lbs. to your body compared to ResinDek
- Working on bar grate is equal to adding 18 lbs. to your body compared to ResinDek

## *SCS Global Certifications, LEED® and FSC®*

ResinDek panels are certified to have No Added Formaldehyde and conforms to SCS Recycled Content Standard V7-0. ResinDek panels can contribute towards earning points for LEED® qualified buildings. When required ResinDek panels are available with FSC® Certification. FSC® License Code FSC-C124474.



### *Uniform Evaluation Service Report*

IAPMO's Uniform Evaluation Service (UES) has issued a Uniform Evaluation Service Report verifying that ResinDek engineered flooring panels manufactured by Cornerstone Specialty Wood Products, LLC® are in compliance with International Building Code (IBC), International Residential Code (IRC) and UL Fire-Resistance ratings.

Furthermore, ResinDek has been approved for use in Types I-V construction and as part of a fire-resistance rated assembly. United States ER Number 467. Canada ER Number UEL 5027.



### *UL Classification and Flame Spread Index*

ResinDek® flooring system can be UL Classified for up to a 2 hour fire rated assembly under UL Design No. L701 and UL File No. R39265.

When tested in accordance with ASTM E84, the ResinDek panels plus the corrugated metal deck assembly meet Class A criteria for an interior finish. ResinDek Xspan FR is a fire resistant panel and meets ASTM E-84 Class "A" flame spread less than 25, meets UK Class "0", and meets European standards B-Class ( $B_{FL-s1}$  | B-s1,d0) for both top and bottom.



## ResinDek® Performance Advantage - Always Innovating and Always Testing

Cornerstone Specialty Wood Products' team never stops evaluating and testing new approaches for mezzanine floors. We believe in helping our customers solve problems through innovative designs and long-lasting durability. At our advanced research and engineering facility we have designed and built a series of floor testing equipment that accurately replicate field conditions. In addition to testing internally we also send our products out to be evaluated by independent laboratories for a wide variety of tests.

***Below are some examples of the tests that we perform:***

- Taber Abrasion
- Gouge Resistance
- Gloss, 85 Deg.
- Reflectivity
- Surface Roughness
- Uniform Load Capacity
- Modulus of Rupture
- Modulus of Elasticity
- Surface Hardness
- Dynamic Coefficient of Friction
- Moisture Resistance
- Electrostatic Dissipative Surface
- Impact Resistance
- Dynamic and Static Rolling Load Capacity
- Fire Testing
- Pallet Jack Capacity
- Point Load Capacity
- Screw Pull Test

With constant testing and new product development we have been able to solve both existing problems and address the challenges of new technologies and applications for our customers. If you have a custom loading condition that we can recreate, we will work with you to develop a custom test. If a custom test application can be successfully completed to meet the rigors of our requirements, we will stand behind your unique application with our unmatched 10-year product warranty.



# ResinDek® 10-Year Product Warranty

## ResinDek Panels are Backed by a 10-Year Product Warranty!

Cornerstone Specialty Wood Products, LLC® hereby warrants ResinDek panels to be free from defect, structurally sound, and able to safely carry the specified design loads. The warranty will flow through and transfer to the end user for the entire period of the warranty.



**CORNERSTONE**  
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