

Wrestling Mat Specifications



Dear Customer:

Thank you for selecting Resilite Sports Products as one of the potential suppliers of your wrestling mat. For over 50 years, Resilite™ Sports Products has been a world leader in manufacturing athletic mats and wall padding. Our, outstanding service and dedication to customer satisfaction is second to none. We work directly with you to ensure we meet the needs and expectations of each and every customer.

Not all mats are created equal!

A Resilite wrestling mat has been specifically designed to absorb and cushion the impacts that can occur under normal wrestling conditions. It is a common misperception that all foam mats of the same thickness offer the same protection. In the interest of safety, The American Society of Testing and Materials International (ASTMI) established ASTM F1081-97(03) “*Specification for Competition Wrestling Mats*”. The ASTM standard is a basic guideline to assist schools, athletic directors, coaches and architects in the types of foam acceptable and general information about mat construction. Resilite continuously tests our mats internally and with independent testing laboratories to ensure each mat we manufacture fully meets the ASTM standard in accordance with ASTM Test Method F355-01 “*Test Method for Shock-absorbing Properties of Playing Surface Systems and Materials*”. Purchasing a Resilite mat will give you the assurance that your mat will provide superior impact protection for your athletes.

When placing your wrestling mat project out to a bidding process, or when comparing several mats from a variety of manufacturers, we have provided you with preferred wrestling mat specifications. We encourage you to use these specifications to help you develop your RFP, or use them when comparing wrestling mat “apples-to-apples”. These specifications will help you purchase a mat that conforms to the NCAA Official Wrestling Rules and to the NFHS, National Federation of State High School Associations, Official High School Wrestling Rules.

Thank You.

How do I know my mat meets the ASTM standard for shock-absorbing properties?



Dear Customer:

Thank you for selecting Resilite™ Sports Products as the supplier of your wrestling mat. For over 50 years, Resilite™ Sports Products has been a world leader in manufacturing athletic mats and wall padding. Our number one goal is to provide the highest quality athletic mats that minimize the chance of injuries, as much as possible, and at an affordable price.

In an effort to help our customers recognize the importance of purchasing a mat that meets the ASTM F1081-97(03) “*Specification for Competition Wrestling Mats*” in accordance with ASTM Test Method F355-01 “*Test Method for Shock-absorbing Properties of Playing Surface Systems and Materials*”, each Resilite mat will now display a G-MAX Approved seal. This seal of approval is your assurance that the mat you have purchased meets or exceeds the ASTM Test Method F355 impact test and will offer your athletes the best shock-absorption possible. Resilite continuously tests our mats internally and with independent testing laboratories to ensure each mat we manufacture fully meets the ASTM standard in accordance with ASTM Test Method F355-01 “*Test Method for Shock-absorbing Properties of Playing Surface Systems and Materials*”.



The ASTM standards and tests are voluntary for manufacturers, but we believe they are very important in determining the ability the foam has to absorb and properly dissipate the impact from a fall in order to minimize injuries on the mat as much as possible.

Help us spread the word!

As a manufacturer we can only do so much. When talking with other Coaches, Athletic Directors, Referees, School Officials, and Tournament Directors tell them about the importance of using mats that meet the ASTM standards for shock-absorbency. Resilite mats give you the assurance your mat meets the ASTM standard and will offer superior impact protection for your athletes.

Wrestling Mat Specifications for 1.00” Thick Vinyl-Coated Mat

- Wrestling Mat shall use fire-retardant 1.00” thick rubber nitrile foam core. Mats manufactured using a cross link, polyethylene foam are not acceptable.
- Wrestling Mat shall be tested for flammability in accordance with ASTM E648 Critical Radiant Flux of Floor Coverings and shall meet a Class I rating of 0.45 W/cm² or greater.
- Wrestling mat shall be tested by an independent laboratory in accordance with ASTM F-1081-03, “*Standard Specification for Competition Wrestling Mats*”. The foam core shall have received a PASS rating of (<) 100 maximum G_{max} when tested in accordance with Procedure A of ASTM F-355-01 “*Test Method for Shock Absorbing Properties of Playing Surface Systems and Materials*”. Mats that do not receive an average G-max range below 100 G_{max} are not acceptable. Manufacturer shall be able to provide 3rd party, independent test results upon request.
- To further determine the mats ability of impact absorption the Wrestling Mat shall be tested for impact protection using an Electronic Impact Surface Tester such as the Triax 2000, in accordance with ASTM F-1292-04. The wrestling mat shall have a G_{max} reading of less than (<) 200 and a HIC score (Head Injury Criterion) of less than (<) 1,000 from a four foot (4’) drop height. Manufacturer shall be able to provide 3rd party, independent test results upon request.
- Wrestling Mat shall be two-sided to provide wrestling areas on both sides of the mat.
- Wrestling Mat foam shall be coated on all sides and edges using a hot-spray #457 Polyvinyl coating for added durability and cleaning purposes. Vinyl fabric-covered mats, or flame-laminated mats are not acceptable.
- Foam Core shall have a compression / deflation of 5.0 – 7.0 psi and meet ASTM testing standard D1056 “*Specification for Flexible Cellular Materials-Sponge*”.
- Foam Core shall have a tensile (tension) strength of 75 psi or greater and meet ASTM testing standard D412-98a(2002)e1 “*Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension*”
- Foam Core shall have an elongation property of 125% and meet ASTM testing standard D412-98a(2002)e1 “*Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension*”.
- Wrestling Mat manufacturer shall offer mats with built-in Microban® antimicrobial product protection. Microban technology shall provide the mat with an added level of protection against microbes such as bacteria, mold and mildew that cause stains and odors.
- Wrestling Mat manufacturer shall be able to provide customized mat sizes and configurations as needed.
- Wrestling Mat manufacturer shall be able to provide full-color, computer renderings of wrestling mats with graphics for review for layout, design and placement.
- Wrestling Mat shall be guaranteed at least 3 years from the date of shipment.
- Wrestling Mat should be able to be reconditioned in the future if needed.
- Mat storage tubes and straps shall be provided.



RESILITE: RSP600

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Specification Sheet

Physical Properties:

polymur	PVC/NBR
foam core color	NATURAL
weight	.8 (lb/ft ²)
thickness (nominal)	1.00 (in)
coating	Resilite #457 Polyvinyl Formula

Other Specifications:

ASTM D-1056	Compression Resistance @ 25%	5.5 - 7.5 (psi)
ASTM D-1056	Density	5.0 - 7.0
ASTM D-1667	Water Absorption	0.1 max (lb/ft ²)
ATSM D-412	Tensile	75 min (psi)
ATSM D-412	Elongation	125 (%)
FMVSS302	flammability	Pass (0" burn rate)
ASTM E-648	Flammability - Critical Radiant Flux of Floor Coverings	Class I 0.45 W/cm ² (or greater)
ASTM D-1056	temperature use	0 (cold crack) 200 (high)
ASTM F-1081-03	Standard Specification for Competition Wrestling Mats	meets or exceeds
ASTM F-355	Test method for shock absorbing properties (Type I or Type II)	Pass G-max (<100 max.)
ASTM F-1292-04	Impact Attenuation for surfacing materials (Free-Fall method)	Pass HIC (<1000 max.) Pass G-Max (<200 max.)

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Resilite Sports Products, Inc.

PO Box 764 • Sunbury, PA 17801-0764
Phone: 1-800-843-6287 • www.resilite.com

ASTM E648 Critical Radiant Flux of Floor Coverings

Technical Information \ Specifications and Standards\ASTM E 648 Critical Radiant Flux

Resilient floor coverings are not usually included in floor covering flammability requirements. Consequently, building codes, like the NFPA Life Safety Code 101, the BOCA Basic/National Building Code, and the Standard Building Code exempt traditional resilient floor coverings from their flammability requirements.

Despite widespread recognition that resilient floor coverings are exempt, Resilite is proactive in providing our customers with information to assist them in making informed decisions about their mat purchase. Resilite can supply flammability data for ASTM E648 upon request. We do this because code officials are advised to inquire about unfamiliar products. They also might be interested because a test is used to evaluate floor covering flammability.

The test is the Flooring Radiant Panel Test (ASTM E 648). Model building codes and federal government agencies reference this test when they regulate floor covering flammability.

Flooring radiant panel test: Local building and fire codes should be reviewed for applicability of this stringent test. Critical radiant flux limits for specific use areas where automatic sprinkler protection is not provided are as follows:

- **Class I** — average minimum 0.45 watts per square centimeter within exits, access to exits (corridors) of health care facilities, including hospitals, nursing homes, etc., and new construction detention and correctional facilities.
- **Class II** — average minimum 0.22 watts per square centimeter within exits, access to exits (corridors) of day care centers, existing detention and correctional facilities, hotels, dormitories, and apartment buildings.

These limits are based upon known performance of traditionally used materials and the performance of flooring systems when subjected to full-scale fire tests.

The test method also has been adopted as a standardized test by the American Society for Testing and Materials (ASTM) and the National Fire Protection Association (NFPA) and is identified as ASTM-E-648 and NFPA-253, respectively.

The Flooring Radiant Panel test is referenced in the Basic Building Code of Building Officials and Code Administrators International, Inc. (BOCA), the Standard Building Code of Southern Building Code Congress International, Inc. (SBCC), the Life Safety Code of the National Fire Protection Association (NFPA), and the Uniform Fire Code of the International Conference of Building Officials (ICBO).