

Commercial Carpet Cushion Requirements

For many years now, carpet padding (pad) has been recognized as the supporting foundation of carpet. The use of a properly specified commercial carpet pad also provides a minimal amount of improved underfoot comfort, greater insulation, improved acoustics impact resistance, and vacuuming efficiency. Added to these considerations is that carpet installed over pad is less expensive to install, and makes carpet replacement a significantly easier and less expensive process. Because of the potential for carpet wrinkles and buckles, the use of a pad in commercial carpet installations is not recommended in any facility subject to wheel traffic.

All carpet pads must meet the minimum physical property requirements outlined in the HUD Use of Materials Bulletin, UM 44d. Included here is ASTM D 1667-Compression Set (constant deflection), ASTM D 357- Thickness and Density, Compression Force Deflection, and Constant Deflection Compression Set, ASTM D 3676-Weight, Thickness, and Density, Compression Resistance (constant deflection), Compression Set, and Accelerated Aging, as well as four other ASTM test methods. Key here is the ability to determine the percentage of lost pad thickness without “bottoming out”. This measurement is used to obtain an understanding of a carpet’s long-term carpet appearance retention. Compression Set relates to a pad’s performance in installations where furniture is moved to different locations in a room. The maximum Compression Set for urethane pad constructions is 15%, whereas synthetic fiber and rippled rubber is 20%. Pads with a higher Compression Set percentage will have a tendency to leave noticeable and long-lasting indentions in both the carpet and pad.

Carpet pad is measured based on the amount of material in a given volume of pad, which is typically reported in pounds per cubic foot (pcf), or less frequently, in ounces per square yard (oz/sq. yd.). These measurements are generally perceived as a number that reflects an expected level of pad performance. Although there is no set industry standard minimum requirement for minimum carpet pad density for commercial carpet pad, it is generally accepted to be no less than 12 lb. pcf. Areas subjected to high traffic loads, such as business facility corridors, will require the use of higher pcf density pads. However, it is always best to err on the side of higher pcf density pads when estimating pad needs for any commercial carpet installation to help ensure better carpet appearance retention.

Pad thickness is also a critical consideration for carpet performance in order to obtain the desired long-term performance of a carpet. Here again, although there is no industry standard for commercial pad thickness, it is generally agreed that these pads should range from ¼ inch to a maximum of 3/8 inch thickness.

Although there is no federal standard for testing the flammability characteristics of pad, it is not uncommon for specifiers to require a Flooring Radiant Panel Class designation for both carpet and pad. In commercial installations, a Class 1 Radiant Panel rating can be expected of pad where it is used in areas without sprinklers, whereas these similar areas may only require a Class 2 Radiant Panel rating if sprinklers exist.

The following information lists the minimum specification requirements for various carpet pads as required for the three levels of commercial traffic types, based on traffic load. The specifications listed in ounces (oz), is in ounces per square yard. The manufacturer's allowable specification tolerance is -5%.

Type Pad	Class I Moderate Traffic	Class II Heavy Traffic	Class III Extra Heavy Traffic
Natural Hair	40 oz., .270" 12.3 lb. pcf, .270	40 oz., .270" 12.3 lb. pcf, .312"	50 oz., .375" 11.1 lb. pcf, .375"
Synthetic Fiber	22 oz., .250" 6.5 lb. pcf, .250"	28 oz., .300" 7.3 lb. pcf, .300"	36 oz., .350" 8 lb pcf, .350"
Textile Fiber	24 oz., .250" 7.3 lb. pcf, .250"	30 oz., .300" 7.3 lb. pcf, .300"	Not Recommended 38 oz., .375"
Rubberized-Flat	56 oz., .220" 18 lb. pcf, .220"	64 oz., .220" 21 lb. pcf, .220"	62 oz., .150" 26 lb. pcf oz., .250"
Rippled Rubber	.56 oz., .270" 14 lb. pcf, .285"	Not Recommended 16 lb. pcf, .220"	Not Recommended Not Recommended
Rubber-Reinforced	64 oz., .235" 22 lb. pcf, .235"	64 oz., .235" 22 lb. pcf, .235"	54 oz., .200" 22 lb. pcf, .200
Bonded Urethane	13 lb. pcf, 300"	15 lb. pcf, .223"	19 lb. pcf, .183"
Densified Prime Urethane	5.0 lb. pcf, .313"	6.5 lb. pcf, .250"	8 lb. pcf, .250"

If a pad is used, Beaulieu requires that it must be a commercial pad construction, with a minimum 12 lb. per cubic foot weight density, and a maximum thickness of 3/8 inch.

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