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Carpet

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A. Summary

This section contains general design criteria for carpet.

B. System Design and Performance Requirements

1. Provide carpet material, including roll goods and modular tiles, intended for use in commercial and public spaces. Construction, accessibility, fire–life safety ratings, static control, and appearance must be appropriate for commercial and public spaces.
2. Provide a detached, synthetic rubber or urethane carpet cushion that meets applicable federal standards.

C. Submittals

Contractor must submit samples, product data, and shop drawings for each carpet type to be used. Also, the contractor must submit manufacturers' recommended maintenance data at project closeout.

D. Product Standards

1. Products must conform to the following standards.
 - Carpet and Rug Institute (CRI) 104-1996 – Standard for Installation Specification of Commercial Carpet.
 - CRI – Carpet Installation Guidelines for Indoor Air Quality.
2. Carpet materials must meet or exceed the performance criteria in Table 1.



Table 1. Carpet Material Performance Criteria

Performance Characteristic	Performance Criteria
Flammability	Pass the methaenamine pill test per CPSC, Part 1630.
Flame Spread	Pass critical radiant flux limits, Class I; NBS minimum of 0.455 watts/sq cm per NFPA 258/ASTM E648.
Smoke Density	Pass the smoke density test with a specific optical density (corrected) of no greater than 450, tested in accordance with NFPA.
Dry Breaking Strength	Not less than 110 lbs per ASTM D2646.
Wear	Must not exceed 10% of the pile face fiber, by weight, for 10 years.
Edge Ravel	Properly installed, with no edge ravel for 10 years under normal use.
Static Resistance	Per NFPA 99 in healthcare facilities
Static Generation	Less than 3.5 kV for 10 years, per AARCC-134.
Tuft Bind	Greater than 15 lbs for 10 years, per ASTM D-1335.
Backing Integrity	No de-lamination for 10 years.
Color Fastness	No change in color from exposure to light, per AATCC 16E. No color change due to atmospheric contamination, including ozone and/or oxides of nitrogen per AATCC164 and AATCC 129. No stain by crocking for 10 years, per AATCC165.
Microbial Growth Resistance	Must meet AATCC174, Parts I, II, and III standards for inhibiting bacteria and fungus. Lifetime warranted.
Soil and Stain Resistance	No apparent stains for 10 years, per AATCC 6, AATCC 123 and AATCC 175.



E. Construction

Carpet construction must conform to the standards in Table 2.

Table 2. Carpet Construction Standards

Construction Feature	Construction Standard
Face Construction	Tufted, textured loop pile or tip-sheared loop, woven or Symtex
Face Fiber	100% nylon, type 6 or type 6.6
Dyeing Method	Solution dyed or Lee's Duracolor. Each type, pattern, style and color must be on one dye lot with roll sequence integrity.
Primary Backing	Woven polypropylene
Secondary Backing	Powerbond RS, iLoc MB, Unibond, Thermobond, Unitary, Unitary/Action-Bac, Surelock, or equivalent
Gauge	1/8, 1/10, 1/12, 1/13, or 5/64, per ASTM D5793
Density	Minimum 6,000 ounces per cubic yard, per ASTM D 418
Weight Density	Minimum 188,000, per ASTM D418
Pile Height	0.187" average maximum
Pile Thickness	0.150" averages minimum
Yarn Weight	Minimum 26 oz/sq yd, per ASTM D5848
Total Weight	Minimum 60 oz/sq yd
Roll Goods	Available in 12" and 6' widths
Indoor Air Quality Certification	Registration per CRI Green Label Program

F. Mounting

- Tackless—use slab rubber or virgin urethane.
- Direct glue down—use waterproof, strippable adhesive.
- Carpet tiles must be free-laid.
- Terminations—rubber or vinyl terminations or reducers. Do not use anodized aluminum.



G. Extra Materials

Provide 2% of each type of carpet used on the project. The extra material must be in full-width rolls or tiles, and be packaged properly for storage.

H. Quality Control

The carpet installer must be an experienced installer with at least five years experience installing carpet of this quality.

I. Warranty

The carpet manufacturer must provide a signed, written warranty agreeing to replace carpet that does not comply with requirements or that fails within the specified warranty period. The warranty does not include deterioration or failure of carpet due to unusual traffic, substrate failure, vandalism, or abuse. The warranty must cover the following performance criteria for the specified time periods:

- Wear, tuft-bind, edge ravel, zippering, de-lamination, dimensional stability, and soil and stain resistance—10 years minimum
- U/V protection—10 years
- Color fastness (color change due to atmospheric contamination)—5 years
- Microbial growth resistance (where specified) and static resistance—lifetime
- Spike-proof products (where specified)—5 years minimum.



J. Carpet Types

Table 3 is a guide for carpet type by location.

Table 3. Carpet Type by Location

Location	Carpet Type
Master's quarters	Can be residential. Tackless, free lay, or rugs are acceptable. Commercial carpet is not usually selected for these premises.
Dean's quarters	Can be residential. Tackless, free lay, or rugs are acceptable. Commercial carpet is not usually selected for these premises.
Office spaces	Tufted or textured loop is recommended, especially if the floor is concrete. Minimum weight should be 26 oz, with an enhancer backing. Recommended tweed pattern, not solid colors.
Waiting areas with light traffic	May use carpet without an enhancer backing if weight is 30 oz.
Residential	Velvet, cut pile, sculptured, or shag installed as tackless installations. Commercial carpet is not typically specified for residential.
Bedrooms	Shag
Family rooms	Sculptured
Living rooms, hallways, and other	Velvet, cut pile
Libraries, seminar, some offices, reading rooms, dining halls	Carpet tiles. Rigid polymer backing. Minimum weight: 20 oz.

End of Section



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Paint

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A. Summary

This section contains general design criteria for paint.

B. Submittals

The contractor must submit product data, the manufacturer's application instructions, and two 6"x6" samples, in the color and surface finish, for each paint type specified on the project.

C. Product Standards

Products must conform to the following standards:

- ASTM D16 – Static Definitions of Terms Relating to Paint, Varnish, Lacquer and Related Products.
- ASTM D2016 – Standard Test Method for Moisture Content of Wood



D. Manufacturers

Subject to compliance with the design requirements, provide products by one of the following manufacturers.

1. Interior Paint

- California Premium 100% acrylic latex
- Benjamin Moore "Regal" latex
- Sherwin Williams "Super Paint" latex

2. Exterior Paint

- Best grade, first-line standard products by California Paints, Benjamin Moore, and Sherwin Williams

3. High-Performance Coatings

- Polymyx or an approved equivalent

4. Metals

- Tnemec, or an approved equivalent

E. Exterior Paint Systems

Exterior paint systems must conform to the standards in Table 1.

Table 1. Exterior Paint Systems

Surface	Paint Type and Application
Concrete, Stucco, and Masonry	Acrylic latex, 2 coats
Concrete Masonry Units	Block filler; acrylic latex, 2 coats
Wood for Opaque Finish	Alkyd primer; alkyd enamel, 2 coats
Wood for Semi-Transparent Finish	Semi-transparent stain, 2 coats
Ferrous Metal	Zinc chromate primer; alkyd enamel, 2 coats
Ferrous Metal (High-Performance)	Zinc rich primer, epoxy, 1 coat; catalyzed urethane, 1 coat
Galvanized Metal	Galvanized metal primer; alkyd enamel, 2 coats
Galvanized Metal (High-Performance)	Epoxy primer; catalyzed urethane, 1 coat



E. Interior Paint Systems

Interior paint systems must conform to the standards in Table 2.

Table 2. Interior Paint Systems

Surface	Paint Type and Application
Drywall and Plaster	Latex primer; acrylic latex (eggshell), 2 coats
Drywall and Plaster (High-Performance)	Latex primer; polychromatic vinyl copolymer; polomyx or approved equivalent
Drywall and Plaster (Heavy Duty)	Latex primer; water-based epoxy, 2 coats
Wood for Opaque Finish	Alkyd enamel undercoat; alkyd enamel, 2 coats
Wood for Transparent Finish	Oil stain; sanding sealer; alkyd varnish, 2 coats
Ferrous Metal	Alkyd metal primer; alkyd enamel, 2 coats
Ferrous Metal (High-Performance)	Epoxy primer; catalyzed urethane, 2 coats

F. Extra Materials

Provide a 1-gal container of each color and surface finish to Yale University.

G. Quality Control

The product manufacturer must be a company specializing in manufacturing quality paint and finish products, with at least five years experience. The product applicator must be a company specializing in commercial painting and finishing, with at least five years experience.

End of Section