



SECTION 12485

FOOT GRILLES, MATS, AND FRAMES

GENERAL

1.1 SECTION INCLUDES

- A. Recessed Grating System.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete.
- B. Section 06100 - Rough Carpentry.

1.3 REFERENCES

- A. ASTM D 256 - Standard Test Method for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
- B. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
- C. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.
- D. ASTM D 648 - Standard Test Method for Deflection Temperature of Plastics Under Flexural Load.
- E. ASTM D 696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C and 30 degrees C.
- F. ASTM D 785 - Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials.
- G. ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- H. ASTM D 792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
- I. ASTM D 1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
- J. ASTM D 1822 - Standard Test Method for Tensile-Impact Energy to Break Plastic and Electrical Insulating Materials.
- K. ASTM D 2240 - Standard Test Method for Rubber Property--Durometer Hardness.
- L. ASTM D 3884 - Standard Test Method for Abrasion Resistance of Textile Fabrics (Rotary Platform, Double-Head Method).

- M. ASTM E 648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
- N. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
- O. UL 94V - Tests for Flammability of Plastic Materials for Parts in Devices and Appliances; Underwriters Laboratories Inc.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's product literature for products specified in this section.
- C. Shop Drawings: Indicate locations and dimension of recessed areas to receive products specified in this section.
- D. Selection Samples: For each specified product requiring color or finish selection, two sets of samples representing manufacturer's full range of available selections.
- E. Verification Samples: For each color or finish selected, two sets of samples indicating match to selected color or finish.
- F. Quality Assurance Submittals:
 - 1. Test Reports: Certified reports from independent testing laboratory supporting compliance of products to specified flammability requirements.
 - 2. Manufacturer's Instructions:
 - a. Printed installation instructions for each specified product.
 - b. Manufacturer's Safety Data Sheets (M.S.D.S.) for each adhesive.
- G. Closeout Submittals: Manufacturer's recommendations for cleaning and maintaining products specified in this section.

1.5 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer: Minimum five (5) years documented experience producing products specified in this section.
 - 2. Installer: Minimum five (5) years documented experience installing products specified in this section, and approved by product manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Storage and Protection:
 - 1. Store products of this section in manufacturer's unopened packaging until installation.
 - 2. Maintain dry, heated storage area for products of this section until installation of products.
 - 3. Do not store outside.

1.7 PROJECT/SITE CONDITIONS

- A. Field Measurements: Obtain field measurements of recessed areas to receive products of this section prior to order placement; include information on squareness and levelness of recess.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Provide **AL-TRACK 300** by **Amarco Products.**, PO Box 4085, 5 Powder Horn Drive, Warren, NJ, 07059; telephone 866-688-MATS (866-688-6287) or 732-302-1122; fax 1-877-MAT-ORDERS (877-628-6733) or 732-302-1120 ; www.amarcoproducts.com
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- C. Substitutions: Not permitted.
- D. Supply all products specified in this section from a single manufacturer.

2.2 MATERIALS

- A. Aluminum Metal: Alloy 6063-T6 conforming to ASTM B 221 and FS QQ-AA-200/9C.
- B. Aluminum Metal: Alloy 6105-T5 conforming to ASTM B 221.
- C. Bronze Metal: Alloy 385 conforming to ASTM B 455.
- D. Aluminum Metal: Alloy 6063-T5 conforming to ASTM B 221.
- E. Rigid Polyvinyl Chloride (PVC): Having the following physical characteristics:
 - 1. Cell classification, in accordance with ASTM D 1784: 16354.
 - 2. Specific gravity, when tested in accordance with ASTM D 792: 1.33.
 - 3. Tensile strength, when tested in accordance with ASTM D 638: 6,500 pounds per square inch.
 - 4. Modulus of elasticity, when tested in accordance with ASTM D 638: 400,000 pounds per square inch, average.
 - 5. Tensile impact, when tested in accordance with ASTM D 1822: 75 foot-pounds per square inch.
 - 6. Flexural strength, when tested in accordance with ASTM D 790: 12,500 pounds per square inch.
 - 7. Flexural modulus, when tested in accordance with ASTM D 790: 400,000 pounds per square inch.
 - 8. Izod impact, 1/8 inch, when tested in accordance with ASTM D 256: Minimum 20.
 - 9. Izod impact, 1/4 inch, when tested in accordance with ASTM D 256: Minimum 15.
 - 10. Hardness, Shore D, when tested in accordance with ASTM D 2240: 79.
 - 11. Hardness, Rockwell R, when tested in accordance with ASTM D 785: 108.
 - 12. Deflection temperature, when tested in accordance with ASTM D 648: 162 degrees F.
 - 13. Coefficient of thermal expansion, when tested in accordance with ASTM D 696: 0.00004 inch per inch per degree F.
 - 14. Flammability, when tested in accordance with UL 94V: 0.
- F. Nylon Carpeting:
 - 1. 100 percent solution dyed nylon fiber face with 1/4 inch finish pile height, 30 oz/sq yd, with yarn unitary fusion bonded to prevent fraying, delamination, and moisture penetration
 - 2. Flammability: Critical radiant flux 1.00 watts per square centimeter when tested in accordance with ASTM E 648 and NFPA 253 Radiant Panel Test; Class 1 rating.

- G. Nylon Carpeting:
1. Tufted cut pile 5/32 inch high, polyamide nylon 80 Dtex tetralobal fibers, 35 ounces per square yard weight, with 100 mil vinyl back coating.
 2. Carpet fiber weight loss maximum 1.3 percent when wear-tested in accordance with Taber Abraser method, ASTM D 3884, for 3000 cycles with H-10 wheel and 1000 gram weight.
 3. Flammability: Critical radiant flux 1.00 watts per square centimeter when tested in accordance with ASTM E 648 and NFPA 253 Radiant Panel Test; Class 1 rating.
- H. Polypropylene Bristle Filament Carpeting:
1. Tufted olefin fibers, 17-240 Dtex per filament, minimum 48 ounces per square yard weight, with UV stabilizers and pigments added before fiber extrusion
 2. Double needle vee-loop construction; rubber tile backed.
 3. Flammability: Department of Commerce FF-1-70 and FF-2-70.
- I. Rubber: Having the following physical characteristics:
1. Specific Gravity, when tested in accordance with ASTM D 792: 1.47, plus or minus 0.03.
 2. Tensile Strength, when tested in accordance with ASTM D 412: 650 psi
 3. Elongation, when tested in accordance with ASTM D 412: 550 %
 4. Durometer Shore A, when tested in accordance with ASTM D 224: 55, plus or minus 5.
 5. Tear Resistance, when tested in accordance with ASTM D 624: 75 pounds per inch.
 6. Temperature Stability Range: minus 30 degrees F to 120 degrees F.
 7. Shrinkage, after 7 days at 212 degrees F, when tested in accordance with ASTM D 1414: 2%
 8. Dielectric Strength, in accordance with MIL-M-155562: 37,000 volts.
 9. Conductivity: Non-Conductive.
 10. Flammability: Critical radiant flux 0.577 watts per square centimeter when tested in accordance with ASTM E 648 and NFPA 253 Radiant Panel Test; Class 1 rating.
- J. Rubber: Having the following physical characteristics:
1. Specific Gravity, when tested in accordance with ASTM D 792: 1.16, plus or minus 0.03.
 2. Tensile Strength, when tested in accordance with ASTM D 412: 1750 psi
 3. Elongation, when tested in accordance with ASTM D 412: 550%
 4. Durometer Shore A, when tested in accordance with ASTM D 224: 70, plus or minus 5.
 5. Tear Resistance, when tested in accordance with ASTM D 624: 235 pounds per inch.
 6. Compression Set, after 22 hours at 158 degrees F: 3%
 7. Brittleness, after 3 minutes at minus 40 degrees F: No cracks.
 8. Ozone Resistance, after 70 hours at 50 parts per hundred million ozone content, when tested in accordance with ASTM D 1149: No Trace.
 9. Flammability: Factory Mutual V-SS-302, and Department of Commerce FF 1-70.
- K. Polypropylene Carpeting:
1. Non-woven needle-punched, 100 percent solution dyed olefin fibers from Asota, 17-240 Dtex per filament, minimum 52 ounces per square yard weight, with UV stabilizers and pigments added before fiber extrusion.
 2. Double needle vee-loop construction; rubber tile backed.
 3. Carpet fiber weight loss maximum 2.7 percent when wear-tested in

accordance with Taber Abraser method, ASTM D 3884, for 3000 cycles with H-10 wheel and 1000 gram weight.

4. Flammability: Department of Commerce FF-1-70 and FF-2-70.

L. Polypropylene Carpeting:

1. Non-woven needle-punched, 100 percent solution dyed olefin fibers from Asota, 17-240 Dtex per filament, minimum 52 ounces per square yard weight, with UV stabilizers and pigments added before fiber extrusion.
2. Double needle vee-loop construction; rubber tile backed.
3. Carpet fiber weight loss maximum 3.8 percent when wear-tested in accordance with Taber Abraser method, ASTM D 3884, for 3000 cycles with H-10 wheel and 1000 gram weight.
4. Flammability: Department of Commerce FF-1-70 and FF-2-70.

M. Carpeting Adhesive: Non-flammable, and containing no toxic solvents; type recommended by manufacturer of products specified in this section.

- 1.

2.3 RECESSED GRATING SYSTEM

A. Recessed Grating System: **AL-TRACK 300 Model AT-300.**

1. Rails: Aluminum, extruded profile.
2. Treads: Aluminum, extruded profile, mill-finish, 0.80 inch wide, with six (6) 0.031 inch wide shallow radiused corrugations for slip resistance; spaced across rails at 3/16 inch apart.
3. Grating Frame: Manufacturer's standard mill-finish extruded aluminum profile.
4. Rails: Solid bronze profile.
5. Treads: Solid bronze profile, 0.80 inch wide, with six (6) 0.031 inch wide shallow radiused corrugations for slip resistance; spaced across rails at 3/16 inch apart.
6. Overall depth: 13/16 inch.
7. Grating Frame: Manufacturer's standard bronze profile.

B. Recessed Grating System: **AL-TRACK.**

1. Grid: AT-300; aluminum, extruded profile, mill-finish, with supports spaced 12 inches on center for maximum deflection of 0.080 inch with 1000 pound uniform load, assembled with vibration resistant aircraft industry fasteners; snap-fit assembly not permitted.
2. Grid: AT-400; aluminum, extruded profile, mill-finish, with supports spaced 6 inches on center for maximum deflection of 0.058 inch with 1000 pound uniform load, assembled with aircraft industry fasteners; snap-fit assembly not permitted.
3. Rails: Closed tubular design, mill finish aluminum.
4. Resilient Pads: Dual durometer vinyl coextrusions, 1.3 inch wide, continuous, attached to supports on underside of rail to reduce movement and noise.
5. Tread inserts: Corrugated aluminum (CA); extruded 1 inch wide, spaced 1-1/2 inches on center, crowned profile with four 1/8 inch flat corrugations per tread.
6. Tread inserts: Aluminum with abrasive insert (AA); extruded 1 inch wide, spaced 1-1/2 inches on center, crowned profile with 13/16 inch abrasive mineral grit surface for slip resistance; minimum static coefficient of friction 1.14 dry, 1.20 wet.
7. Tread inserts: Standard grade nylon carpet (SNC); inserts 1 inch wide, spaced 1-1/2 inches on center; 100 percent solution dyed nylon fiber face with 1/4 inch finish pile height, 30 oz/sq yd, with yarn unitary fusion bonded to prevent fraying, delamination, and moisture penetration; positively locked into rails.

8. Tread inserts: Maxi-Tuft Long Wear nylon carpet (MLW); inserts 1 inch wide, spaced 1-1/2 inches on center; tufted, 5/32 inch pile, 100 percent polyamide nylon fibers with 100 mil vinyl backing; 35 oz/sq yd pile weight with 80 Dtex tetralobal fiber design, tufted at 78,000 fibers per square meter; minimum static coefficient of friction, 0.49 dry, 0.77 wet; treads positively secured into rails.
9. Tread inserts: Bristle filament carpet (BF); inserts 1 inch wide, spaced 1-1/2 inches on center; 600 denier tufted polypropylene olefin stiff bristle carpet fibers tufted to rigid vinyl backing; minimum static coefficient of friction 0.49 dry, 0.77 wet.
10. Tread inserts: Corrugated vinyl (RCV); rigid vinyl, 1 inch wide inserts, spaced 1-1/2 inches on center crowned profile with four 1/8 inch flat grooved corrugations per tread; flexible slip-resistant surface over rigid shrink resistant base.
11. Color: Selected from full range of manufacturer's standard colors.
12. Color: _____.
13. Color: Specified in SCHEDULES Article of this section.
14. Grating Frame: Aluminum extrusion; finish: _____.
- 15.

PART 3 EXECUTION

3.1 PREPARATION

- A. Verification of Conditions: Recesses to receive products of this section are correct size, are within square tolerances and level tolerances.
- B. Surface Preparation: Remove debris from recesses to receive frames; sweep recesses clean.

3.2 INSTALLATION

- A. Install specified products in accordance with shop drawings and manufacturer's printed installation instructions.

3.3 SCHEDULES

- A. Location: _____.
1. Product: _____.
2. Color: _____.
3. Size: Indicated on drawings.

END OF SECTION

DISCLAIMER:

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