

## SECTION 12485

### FOOT GRILLES, MATS, AND FRAMES

#### PART GENERAL

##### SECTION INCLUDES

Roll-up Mats.

Recessed Grating System.

Modular Rubber Tile Mats.

Rubber Mats.

Carpet Mats.

Cocoa Mats.

Vinyl Link Mats.

##### RELATED SECTIONS

Section 03300 - Cast-In-Place Concrete.

Section 06100 - Rough Carpentry.

##### REFERENCES

ASTM D 256 - Standard Test Method for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.

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.

ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.

ASTM D 648 - Standard Test Method for Deflection Temperature of Plastics Under Flexural Load.

ASTM D 696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C and 30 degrees C.

ASTM D 785 - Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials.

ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

ASTM D 792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.

ASTM D 1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

ASTM D 1822 - Standard Test Method for Tensile-Impact Energy to Break Plastic and Electrical Insulating Materials.

ASTM D 2240 - Standard Test Method for Rubber Property--Durometer Hardness.

ASTM D 3884 - Standard Test Method for Abrasion Resistance of Textile Fabrics (Rotary Platform, Double-Head Method).

ASTM E 648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.

NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

UL 94V - Tests for Flammability of Plastic Materials for Parts in Devices and Appliances; Underwriters Laboratories Inc.

## SUBMITTALS

Submit under provisions of Section 01300.

Product Data: Manufacturer's product literature for products specified in this section.

Shop Drawings: Indicate locations and dimension of recessed areas to receive products specified in this section.

Selection Samples: For each specified product requiring color or finish selection, two sets of samples representing manufacturer's full range of available selections.

Verification Samples: For each color or finish selected, two sets of samples indicating match to selected color or finish.

Quality Assurance Submittals:

Test Reports: Certified reports from independent testing laboratory

supporting compliance of products to specified flammability requirements.

Manufacturer's Instructions:

Printed installation instructions for each specified product.

Manufacturer's Safety Data Sheets (M.S.D.S.) for each adhesive.

Closeout Submittals: Manufacturer's recommendations for cleaning and maintaining products specified in this section.

## QUALITY ASSURANCE

Qualifications:

Manufacturer: Minimum five (5) years documented experience producing products specified in this section.

Installer: Minimum five (5) years documented experience installing products specified in this section, and approved by product manufacturer.

## DELIVERY, STORAGE, AND HANDLING

Storage and Protection:

Store products of this section in manufacturer's unopened packaging until installation.

Maintain dry, heated storage area for products of this section until installation of products.

## PROJECT/SITE CONDITIONS

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 PRODUCTS

### MANUFACTURERS

Acceptable Manufacturer: Pawling Corporation, Standard Products Division; Borden Lane, P.O. Box 200; Wassaic NY 12592; ASD. Tel. (800) 431-3456 (U.S. and Canada) or (914) 373-9300, Fax. (800) 451-2200 (U.S. and Canada) or (914) 373-8712, E-mail address sales@pawling.com

Requests for substitutions will be considered in accordance with provisions of Section 01600.

Substitutions: Not permitted.

Supply all products specified in this section from a single manufacturer.

## MATERIALS

Aluminum Metal: Alloy 6063-T6 conforming to ASTM B 221 and FS QQ-AA-200/9C.

Aluminum Metal: Alloy 6105-T5 conforming to ASTM B 221.

Bronze Metal: Alloy 385 conforming to ASTM B 455.

Rigid Polyvinyl Chloride (PVC): Having the following physical characteristics:

Cell classification, in accordance with ASTM D 1784: 16354.

Specific gravity, when tested in accordance with ASTM D 792: 1.33.

Tensile strength, when tested in accordance with ASTM D 638: 6,500 pounds per square inch.

Modulus of elasticity, when tested in accordance with ASTM D 638: 400,000 pounds per square inch, average.

Tensile impact, when tested in accordance with ASTM D 1822: 75 foot-pounds per square inch.

Flexural strength, when tested in accordance with ASTM D 790: 12,500 pounds per square inch.

Flexural modulus, when tested in accordance with ASTM D 790: 400,000 pounds per square inch.

Izod impact, 1/8 inch, when tested in accordance with ASTM D 256: Minimum 20.

Izod impact, 1/4 inch, when tested in accordance with ASTM D 256: Minimum 15.

Hardness, Shore D, when tested in accordance with ASTM D 2240: 79.

Hardness, Rockwell R, when tested in accordance with ASTM D 785: 108.

Deflection temperature, when tested in accordance with ASTM D 648: 162 degrees F.

Coefficient of thermal expansion, when tested in accordance with ASTM D 696: 0.00004 inch per inch per degree F.

Flammability, when tested in accordance with UL 94V: 0.

Flexible Vinyl: Having the following physical characteristics:

Specific gravity, when tested in accordance with ASTM D 792: 1.48, plus or minus 0.03.

Ultimate elongation: 325 percent.

Tensile strength, when tested in accordance with ASTM D 638: 1,200 pounds per square inch.

Hardness, Shore A, when tested in accordance with ASTM D 2240: 80, plus or minus 3.

Brittle point: Minus 20 degrees C.

Rubber: Having the following physical characteristics:

Specific Gravity, when tested in accordance with ASTM D 792: 1.47, plus or minus 0.03.  
Tensile Strength, when tested in accordance with ASTM D 412: 650 psi  
Elongation, when tested in accordance with ASTM D 412: 550 %  
Durometer Shore A, when tested in accordance with ASTM D 224: 55, plus or minus 5.  
Tear Resistance, when tested in accordance with ASTM D 624: 75 pounds per inch.  
Temperature Stability Range: minus 30 degrees F to 120 degrees F.  
Shrinkage, after 7 days at 212 degrees F, when tested in accordance with ASTM D 1414: 2%  
Dielectric Strength, in accordance with MIL-M-155562: 37,000 volts.  
Conductivity: Non-Conductive.  
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.

Rubber: Having the following physical characteristics:

Specific Gravity, when tested in accordance with ASTM D 792: 1.16, plus or minus 0.03.  
Tensile Strength, when tested in accordance with ASTM D 412: 1750 psi  
Elongation, when tested in accordance with ASTM D 412: 550%  
Durometer Shore A, when tested in accordance with ASTM D 224: 70, plus or minus 5.  
Tear Resistance, when tested in accordance with ASTM D 624: 235 pounds per inch.  
Compression Set, after 22 hours at 158 degrees F: 3%  
Brittleness, after 3 minutes at minus 40 degrees F: No cracks.  
Ozone Resistance, after 70 hours at 50 parts per hundred million ozone content, when tested in accordance with ASTM D 1149: No Trace.  
Flammability: Factory Mutual V-SS-302, and Department of Commerce FF 1-70.

Nylon Carpeting:

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.  
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.

Nylon Carpeting:

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.  
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.

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.

**Polypropylene Carpeting:**

Tufted olefin fibers, 17-240 Dtex per filament, minimum 48 ounces per square yard weight, with UV stabilizers and pigments added before fiber extrusion

Double needle vee-loop construction; rubber tile backed.

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

**Polypropylene Carpeting:**

Tufted olefin fibers, 17-240 Dtex per filament, minimum 48 ounces per square yard weight, with UV stabilizers and pigments added before fiber extrusion

Double needle vee-loop construction; rubber tile backed.

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.

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

**Polypropylene Carpeting:**

Tufted olefin fibers, 17-240 Dtex per filament, minimum 48 ounces per square yard weight, with UV stabilizers and pigments added before fiber extrusion

Double needle vee-loop construction; rubber tile backed.

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.

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

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

## ROLL-UP MATS

**Roll-up Mats: Rol-Dek Model EM-800.**

Rails: Hinged aluminum, extruded profile, perforated; assembled at 1-7/8 inches on center.

Rails: Hinged aluminum, extruded profile, non-perforated; assembled at 1-7/8 inches on center.

Resilient pads: Continuous extruded vinyl support cushion secured to each rail to reduce noise and movement.

Tread inserts: Corrugated aluminum; extruded 1 inch wide, spaced 1-1/2 inches on center, crowned profile with four 1/8 inch flat corrugations per tread.

Tread inserts: Aluminum with abrasive insert; 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.

Tread inserts: Standard grade nylon carpet 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.

Tread inserts: Long wear nylon carpet 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.

Tread inserts: Bristle filament carpet 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.

Tread inserts: Corrugated vinyl; co-extruded vinyl, 1 inch wide inserts, spaced 1-1/2 inches on center crowned profile with four 1/8 inch flat corrugations per tread; flexible slip-resistant surface over rigid shrink resistant base.

Overall depth: 7/16 inch.

Colors: Selected from full range of manufacturer's standard colors.

Colors:

Rails: \_\_\_\_\_.

Tread Inserts: \_\_\_\_\_.

Colors: Specified in SCHEDULES Article of this section.

Roll-up Mats: Rol-Dek Model EM-600.

Rails: Aluminum, extruded profile, assembled at 1-7/8 inches on center.

Hinges: Extruded vinyl, non-perforated continuous hinge and support cushion, positively secured between aluminum rails.

Hinges: Extruded vinyl, perforated continuous hinge and support cushion, positively secured between aluminum rails; slotted perforations for drainage.

Tread inserts: Corrugated aluminum; extruded 1 inch wide, spaced 1-1/2 inches on center, crowned profile with four 1/8 inch flat corrugations per tread.

Tread inserts: Aluminum with abrasive insert; 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.

Tread inserts: Standard grade nylon carpet 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.

Tread inserts: Long wear nylon carpet 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.

Tread inserts: Bristle filament carpet 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.

Tread inserts: Corrugated vinyl; co-extruded vinyl, 1 inch wide inserts, spaced 1-1/2 inches on center crowned profile with four 1/8 inch flat corrugations per tread; flexible slip-resistant surface over rigid shrink resistant base.

Overall depth: 5/8 inch.

Colors: Selected from full range of manufacturer's standard colors.

Colors:

Rails: \_\_\_\_\_.

Tread Inserts: \_\_\_\_\_.

Colors: Specified in SCHEDULES Article of this section.

Mat Edging: Manufacturer's standard vinyl edging as follows:

Profile: Bevel.

Profile: Square.

Color: Selected from full range of manufacturer's standard colors.

Color: \_\_\_\_\_.

Colors: Specified in SCHEDULES Article of this section.

Mat Frame:

Material: Aluminum extrusion.

Profile: \_\_\_\_\_.

Finish: Selected from full range of manufacturer's standard colors.

Finish: \_\_\_\_\_.

Finish: Specified in SCHEDULES Article of this section.

## RECESSED GRATING SYSTEM

Recessed Grating System: Drain-Well II.

Rails: Aluminum, extruded profile.

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.

Rails: Solid bronze profile.

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.  
Overall depth: 13/16 inch.

Grating Frame: Manufacturer's standard mill-finish extruded aluminum profile.

Grating Frame: Manufacturer's standard bronze profile.

Recessed Grating System: Drain-Well III.

Grid: 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 aircraft industry fasteners; snap-fit assembly not permitted.

Grid: 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.

Rails: Closed tubular design, mill finish aluminum.

Resilient Pads: Dual durometer vinyl coextrusions, 1.3 inch wide, continuous, attached to supports on underside of rail to reduce movement and noise.

Tread inserts: Corrugated aluminum; extruded 1 inch wide, spaced 1-1/2 inches on center, crowned profile with four 1/8 inch flat corrugations per tread.

Tread inserts: Aluminum with abrasive insert; 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.

Tread inserts: Standard grade nylon carpet 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.

Tread inserts: Long wear nylon carpet 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.

Tread inserts: Bristle filament carpet 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.

Tread inserts: Corrugated vinyl; co-extruded vinyl, 1 inch wide inserts, spaced 1-1/2 inches on center crowned profile with four 1/8 inch flat corrugations per tread; flexible slip-resistant surface over rigid shrink resistant base.

Color: Selected from full range of manufacturer's standard colors.

Color: \_\_\_\_\_.  
Color: Specified in SCHEDULES Article of this section.

Grating Frame: Manufacturer's standard mill-finish extruded aluminum profile.

## MATS

Modular Rubber Tile Mats: Con-Dor patented system.

Product Description: Modular tile with beveled edges, 12 inches square by 5/8 inch thick, molded of weather-resistant SBR rubber, with concealed interlocking system, interconnecting grooves for water run-off, and projections on underside of tile for air circulation and water evaporation; minimum static coefficient of friction 1.04 dry, 1.20 wet.

Product Description: Modular tile with beveled edges, 12 inches square by 5/8 inch thick, molded of weather-resistant SBR rubber, with concealed interlocking system, interconnecting grooves for water run-off, and projections on underside of tile for air circulation and water evaporation; nominal weight 3.4 pounds each tile; minimum static coefficient of friction 1.04 dry, 1.20 wet.

Surface: Low-profile ribs spaced 0.60 inch on center; rib profile 0.093 inches deep, tapered from 0.325 inch at base to 0.228 inch at top.

Surface: Cube pattern of 7/16 inch square by 1/16 inch high cubes spaced 3/4 inch on center each way.

Surface: Flat-top pyramid pattern of 3/8 inch square by 1/16 inch high truncated pyramids spaced 1/2 inch on center each way.

Color: Selected from full range of manufacturer's standard colors.

Color: \_\_\_\_\_.  
Color: Specified in SCHEDULES Article of this section.

Rubber Mats: Hi-Rib Mat.

Product Description: Molded of weather-resistant SBR rubber, overall thickness 7/16 inch, having 1/4 inch deep vee-shaped corrugations spaced 9/16 inch on center on one side, and alternating 3/16 inch deep and 3/32 inch deep alternating corrugations on reverse side; nominal weight 2.2 pounds per square foot; minimum static coefficient of friction 0.97 dry, 1.02 wet.

Color: Selected from full range of manufacturer's standard colors.

Color: \_\_\_\_\_.  
Color: Specified in SCHEDULES Article of this section.

Carpet Mats: Coral Plus Mat.

Product Description: Nylon carpet mat; nominal weight 0.75 pounds per square foot; minimum static coefficient of friction 0.63 dry, 1.12 wet.

Nosings: Supply continuous nosing for cut edges of carpet.

Color: Selected from full range of manufacturer's standard colors.

Color: \_\_\_\_\_.

Color: Specified in SCHEDULES Article of this section.

Carpet Mats: Berber Mat.

Product Description: Polypropylene carpet mat; nominal weight 0.75 pounds per square foot; minimum static coefficient of friction 0.53 dry, 0.96 wet.

Roll Dimensions: 6 feet 6 inches wide by maximum 50 feet length.

Nosings: Supply continuous nosing for cut edges of carpet.

Color: Selected from full range of manufacturer's standard colors.

Color: \_\_\_\_\_.

Color: Specified in SCHEDULES Article of this section.

Carpet Mats: Protector Mat.

Product Description: Polypropylene carpet mat; nominal weight 0.75 pounds per square foot; minimum static coefficient of friction 0.53 dry, 0.96 wet.

Roll Dimensions: 6 feet 6 inches wide by maximum 50 feet length.

Nosings: Supply continuous nosing for cut edges of carpet.

Color: Selected from full range of manufacturer's standard colors.

Color: \_\_\_\_\_.

Color: Specified in SCHEDULES Article of this section.

Cocoa Mats:

Product Description: Natural cocoa fiber yarn carpet mat with solid vinyl backing, carpet fiber weight loss maximum 3.12 percent when wear-tested in accordance with Taber Abraser method; minimum static coefficient of friction 0.75 dry, 1.09 wet.

Flammability: Department of Commerce FF-1-70 and FF-2-70; flame spread 75, smoke developed 230, when tested in accordance with ASTM E 84.

Thickness: 5/8 inch; nominal weight 1.5 pounds per square foot.

Thickness: 3/4 inch; nominal weight 2.0 pounds per square foot.

Thickness: 1 inch; nominal weight 2.5 pounds per square foot.

Nosings: Supply continuous nosing for cut edges of carpet.

Color: Selected from full range of manufacturer's standard colors.

Color: \_\_\_\_\_.

Color: Specified in SCHEDULES Article of this section.

Vinyl Link Mats: Parco-Link Mat.

Product Description: Polyvinyl chloride link mat, consisting of PVC links 1/2 inch wide by 2 inches long by 7/16 inch thick with 10 wiping blades 1/16 inch deep on each side, and framework of 0.105 inch galvanized HDMB spring wire; maximum aperture between links 1/8 inch by 1/2 inch; nominal weight 2.5 pounds per square foot; minimum static coefficient of friction 0.67 dry, 0.89 wet.

Flammability: Critical radiant flux 0.45 - 0.54 watts per square centimeter when tested in accordance with ASTM E 648 and NFPA 253

Radiant Panel Test; Class 1 rating.

Nosings: Square profile 2 inches wide by 7/16 inch deep at perimeter of mat; approach nosing reinforced with concealed spring steel bar.

Nosings: Beveled profile 2 inches wide by 7/16 inch deep at perimeter of mat.

Color: Selected from full range of manufacturer's standard colors.

Color: \_\_\_\_\_.

Color: Specified in SCHEDULES Article of this section.

## PART EXECUTION

### EXAMINATION

Verification of Conditions: Recesses to receive products of this section are correct size, are within square tolerances and level tolerances.

### PREPARATION

Surface Preparation: Remove debris from recesses to receive frames; sweep recessed clean.

### INSTALLATION

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

### SCHEDULES

Location: \_\_\_\_\_.

Product: \_\_\_\_\_.

Color: \_\_\_\_\_.

Size: Indicated on drawings.

END OF SECTION