

SECTION 10261

HANDRAILS

PART GENERAL

SECTION INCLUDES

Handrails.

Mounting hardware, accessories, and trim.

RELATED SECTIONS

Section 05520 - Handrails and Railings: Metal stair railings for fire stairs.

Section 06114 - Wood Blocking and Curbing: Blocking and handrail support.

Section 06200 - Finish Carpentry: Wood handrails for monumental stairs.

Section 09210 - Gypsum Plaster: Stud spacing and bracing.

Section 09260 - Gypsum Board Assemblies: Stud spacing and bracing.

REFERENCES

ANSI/CABO A117.1 - American National Standard for Buildings and Facilities; Providing Accessible and Usable Buildings and Facilities; Council of American Building Officials.

ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.

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

ASTM D 543 - Standard Test Methods for Resistance of Plastics to Chemical Reagents.

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 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 Plastics and Electrical Insulating Materials.

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

ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

CAN/ULC S102.2 - Standard Method of Test for Surface Burning Characteristics of Building Materials.

SAE J-1545 - Recommended Practice; Society of Automotive Engineers.

UL 94 - Tests for Flammability of Plastic Materials for Parts in Devices and Appliances.

SUBMITTALS

Submit under provisions of Section 01300.

Product Data: Manufacturer's complete and current product data for each product required, including complete installation

requirements.

Shop Drawings: Show locations of each item and installation details. Provide elevations of non-standard conditions.

Selection Samples: Color charts consisting of actual product pieces, demonstrating full range of available colors, for initial color selection.

Verification Samples: 12 inch long assemblies, including one end cap, in color specified.

QUALITY ASSURANCE

Provide test reports showing compliance with the performance specified for:

- Fire-related properties.

- Accessibility and safety properties.

- Impact strength.

PART PRODUCTS

MANUFACTURERS

Provide Pro-Tek Handrails as manufactured by 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

Substitutions: Not permitted.

MATERIALS

Vinyl: Provide handrail covers extruded or molded of fire retardant, high impact polyvinyl chloride (PVC) with tributyl tin stabilizer as an antimicrobial agent, and an embossed matte finish.

- Minimum thickness: 0.080 inch.

- Vinyl Properties:

 - Vinyl cell classification in accordance with ASTM D 1784: 16354.

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

 - Tensile strength at yield, tested in accordance with ASTM D 638: 6500 psi, minimum.

 - Modulus of elasticity, tested in accordance with ASTM D

638: 400,000 psi.

Tensile impact energy, tested in accordance with ASTM D 1822: 75 ft lb/sq inch.

Flexural strength, tested in accordance with ASTM D 790: 12,500 psi.

Modulus of rupture, tested in accordance with ASTM D 790: 400,000 psi.

Izod impact strength, tested in accordance with ASTM D 256: 23.0 ft lb/inch of notch, minimum, 1/8 inch notch.

Izod impact strength, tested in accordance with ASTM D 256: 15.0 ft lb/inch of notch, minimum, 1/4 inch notch.

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

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

Deflection temperature at 264 psi, tested in accordance with ASTM D 648: 162 degrees F (72 degrees C).

Flammability, tested in accordance with ASTM D 635: Self-extinguishing.

Flammability, tested in accordance with UL 94: V-O.

Extruded Vinyl Component Properties:

Surface burning characteristics, tested in accordance with ASTM E 84: Flame spread 5, smoke developed 180; maximum.

Surface burning characteristics, tested in accordance with CAN/ULC S102.2: Flame spread 10, smoke developed 250-330; maximum.

Izod impact strength, tested in accordance with ASTM D 256: 25.3 ft lb/inch of notch, average.

Charpy impact strength, tested in accordance with ASTM D 256: 26 ft lb/inch of notch, average.

Chemical and stain resistance, tested in accordance with ASTM D 543, 7 day immersion in standard reagents:

Results available upon request.

Color match when tested in accordance with SAE J-1545:

Accurate to within 1.0 or less Delta E by CIE LAB 10 degree standard observer color difference and equation.

Combustion toxicity: Registered in accordance with New York State Uniform Fire Prevention and Building Code.

Aluminum for Handrail Retainers: Alloy 6063-T5, in accordance with ASTM B 221 or FS QQ-A-200; anodized finish complying with AAMA 611, Class II minimum.

Wood: Kiln dried solid maple or oak for handrails.

HANDRAILS

Handrails - Performance Requirements: Pull out and live load capacity complying with State of California requirements, as administered by the Office of Statewide Health Planning and Development (OSHPD), and ANSI A117.1 requirements.

BR-400C: Provide 6-1/4 inch high wood, aluminum and vinyl handrail and bumper system with 1-1/2 inch diameter oak or maple gripping area, 4 inch high vinyl covered bumper, contrasting color vinyl transition strip, and 1-1/2 inch standoff from wall.

Wood stain: As selected from manufacturer's standards.

Wood stain: _____.

Vinyl Colors: As selected from manufacturer's standards.

Vinyl Colors: _____.

BR-400V: Provide 6-1/4 inch high aluminum and vinyl handrail and bumper system with 1-1/2 inch diameter vinyl covered gripping area, 4 inch high vinyl covered bumper, contrasting color vinyl transition strip, and 1-1/2 inch standoff from wall.

Colors: As selected from manufacturer's standards.

Colors: _____.

BR-500: Provide 5-1/2 inch aluminum and vinyl handrail and guardrail system with 1-1/2 inch gripping area, contoured back, locking vinyl cover, and 3 inch projection from wall.

Color: As selected from manufacturer's standards.

Color: _____.

BR-501: Provide 5-1/2 inch aluminum and vinyl handrail and guardrail system with contrasting color insert, contoured back, locking vinyl cover, 1-1/2 inch gripping area, and 3 inch projection from wall.

Color: As selected from manufacturer's standards.

Color: _____.

Accent stripe color: As scheduled on drawings for different areas.

Accent stripe color: As selected from manufacturer's standards.

Accent stripe color: _____.

BR-1100: Provide 5-1/2 inch aluminum and vinyl handrail and guardrail system with 1-1/2 inch gripping area and 3 inch projection from wall.

Color: As selected from manufacturer's standards.

Color: _____.

BR-1101: Provide 5-1/2 inch aluminum and vinyl handrail and guardrail system with contrasting color stripe, 1-1/2 inch gripping area, and 3 inch projection from wall.

Color: As selected from manufacturer's standards.

Color: _____.

Accent stripe color: As scheduled on drawings for different areas.

Accent stripe color: As selected from manufacturer's standards.

Accent stripe color: _____.

BR-300: Provide 7 inch aluminum and vinyl handrail and guardrail system with ergonomic 1-9/16 inch gripping surface, thumb groove, and 3-1/8 inch projection from wall.

Color: As selected from manufacturer's standards.

Color: _____.

BR-800: Provide 5-1/4 inch angled aluminum and vinyl handrail and guardrail system with 1-1/2 inch diameter gripping area and 3-3/4 inch projection from wall.

Color: As selected from manufacturer's standards.

Color: _____.

BR-1200: Provide 1-1/2 inch diameter aluminum handrail system with vinyl cover, modified polymer brackets, and 3 inch overall projection from wall.

Color: As selected from manufacturer's standards.

Color: _____.

BR-2400: Provide two 1-1/2 inch diameter BR-1200 aluminum and vinyl handrails on special brackets, with 3 inch overall projection from wall.

Color: As selected from manufacturer's standards.

Color: _____.

BR-900 Uni-Rail: Provide 9 inch combination wall protection and handrail system, combining 1-1/2 inch diameter vinyl-covered aluminum handrail with aluminum and vinyl wall guard system, projecting 3-5/8 inch from finished wall surface.

Color: As selected from manufacturer's standards.

Color: _____.

BR-1500: Provide 1-1/2 inch diameter wood handrail, with aniline stain and two coats of conversion varnish.

Color: As selected from manufacturer's standards.

Color: _____.

BR-5500: Provide 5-1/2 inch deep wood handrail and crash rail combination, with aniline stain and two coats of conversion varnish.

Color: As selected from manufacturer's standards.

Color: _____.

ACCESSORIES

Provide appropriate returns, corners, and mounting brackets as required to properly finish handrail system and to support it in conformance with Uniform Federal Accessibility Standards.

PART EXECUTION

EXAMINATION

Verify that wall surfaces are properly prepared to receive installation of handrails. Verify that required blocking and bracing is in place for stud walls before beginning installation.

INSTALLATION

Install handrail systems in full compliance with manufacturer's installation instructions.

Aluminum and Vinyl Handrails: Attach appropriate mounting brackets at 32 inches on center, at splices, and as near each return, outside corner, and inside corner as possible.

Mount system so top of handrail is at 32 inches, unless otherwise indicated on drawings.

Wood Handrails: Attach appropriate mounting brackets at 32 inches on center, and within 6 inches of each return and outside corner. Cut and assemble wood accessories using a minimum 120 tooth finishing saw blade and hardware as furnished by manufacturer.

Mount system so top of handrail is at 32 inches, unless otherwise indicated on drawings.

Touch up any nicks with finishing pens supplied with handrail system.

ADJUSTING AND CLEANING

Verify that handrail is level and is rigidly secured to substrate;

make any adjustments required.

Clean areas of installation and handrail components, using materials and methods recommended by manufacturer. Remove from project site packaging and debris caused by installation.

END OF SECTION