

## SECTION 10265 - IMPACT-RESISTANT WALL PROTECTION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Wall guards / crash rail.
  - 2. Impact-resistant handrails.
  - 3. Corner guards.
  - 4. Impact-resistant wall coverings.
- B. Related Sections include the following:
  - 1. Division 8 Section "Door Hardware" for metal armor, kick, mop, and push plates.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance of Handrails: Provide handrails capable of withstanding the following structural loads without exceeding the allowable design working stress of materials for handrails, anchors, and connections:
  - 1. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
  - 2. Uniform load of 50 lbf/ft. (730 N/m) applied in any direction.

#### 1.4 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, impact strength, fire-test-response characteristics, dimensions of individual components and profiles, and finishes for each impact-resistant wall-protection unit.
- B. Shop Drawings: For each impact-resistant wall-protection unit showing locations and extent. Include sections, details, and attachments to other work.
  - 1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

- C. Samples for Initial Selection: For each type of impact-resistant wall-protection unit indicated.
  - 1. Include similar Samples of accent strips and accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below. Include Samples of accent strips to verify color selected.
  - 1. Wall and Corner Guards: 12 inches long. Include examples of joinery, corners, end caps, top caps, and field splices.
  - 2. Handrails: 12 inches long. Include examples of joinery, corners, and field splices.
  - 3. Impact-Resistant Wall Covering: 6 by 6 inches square.
  - 4. Door-Surface Protection: 6 by 6 inches square.
  - 5. Door-Edge and Frame Protectors: 12 inches long.
- E. Qualification Data: For Installer.
- F. Material Test Reports: For each impact-resistant plastic material.
- G. Material Certificates: For each impact-resistant plastic material, signed by manufacturer.
- H. Maintenance Data: For each impact-resistant wall-protection unit to include in maintenance manuals.
  - 1. Include recommended methods and frequency of maintenance for maintaining optimum condition of plastic covers under anticipated traffic and use conditions. Include precautions against using cleaning materials and methods that may be detrimental to plastic finishes and performance.
- I. Warranty: Special warranty specified in this Section.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.
- C. Source Limitations: Obtain impact-resistant wall-protection units through one source from a single manufacturer.
- D. Product Options: Drawings indicate size, profiles, and dimensional requirements of impact-resistant wall-protection units and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
  - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

- E. Forest Certification: Provide products with wood rails produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria."
- F. Fire-Test-Response Characteristics: Provide impact-resistant, plastic wall-protection units with surface-burning characteristics as determined by testing identical products per ASTM E 84, NFPA 255, or UL 723 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
- G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store impact-resistant wall-protection units in original undamaged packages and containers inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.
  - 1. Maintain room temperature within storage area at not less than 70 deg F (21 deg C) during the period plastic materials are stored.
  - 2. Keep plastic sheet material out of direct sunlight.
  - 3. Store plastic wall-protection components for a minimum of 72 hours, or until plastic material attains a minimum room temperature of 70 deg F (21 deg C).
    - a. Store corner-guard covers in a vertical position.
    - b. Store wall-guard and handrail covers in a horizontal position.

## 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install impact-resistant wall-protection units until building is enclosed and weatherproof, wet work is complete and dry, and HVAC system is operating and maintaining temperature at 70 deg F (21 deg C) for not less than 72 hours before beginning installation and for the remainder of the construction period.
- B. Field Measurements: Verify actual locations of walls, columns, and other construction contiguous with impact-resistant wall-protection units by field measurements before fabrication and indicate measurements on Shop Drawings.

## 1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of impact-resistant wall-protection units that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures.

- b. Deterioration of plastic and other materials beyond normal use.
- 2. Warranty Period: Five (5) years from date of Substantial Completion.

## 1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Wall-Guard and Handrail Covers: Full-size plastic covers of maximum length equal to 2 percent of each type, color, and texture of units installed, but no fewer than two, 8-foot-long units.
  - 2. Corner-Guard Covers: Full-size plastic covers of maximum length equal to 2 percent of each type, color, and texture of units installed, but no fewer than two, 4-foot long units.
- B. Include mounting and accessory components. Replacement materials shall be from same production run as installed units.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Basis-of-Design Product: The design for each impact-resistant wall-protection unit is based on the product named on the drawings. No substitutes are allowed unless approved by the Architect.

### 2.2 MATERIALS

- A. Extruded Rigid Plastic: ASTM D 1784, Class 1, textured, chemical- and stain-resistant, high-impact-resistant PVC or acrylic-modified vinyl plastic with integral color throughout; thickness as indicated.
  - 1. Impact Resistance: Minimum 25.4 ft-lbf/in. (1356 J/m) of notch when tested according to ASTM D 256, Test Method A.
  - 2. Chemical and Stain Resistance: Tested according to ASTM D 543.
  - 3. Self-extinguishing when tested according to ASTM D 635.
  - 4. Flame-Spread Index: 25 or less.
  - 5. Smoke-Developed Index: 450 or less.
- B. Plastic Sheet Wall Covering Material: ASTM D 1784, Class 1, textured, chemical- and stain-resistant, semirigid, high-impact-resistant PVC or acrylic-modified vinyl plastic sheet with integral color throughout; thickness as indicated.

1. Impact Resistance: Minimum 25.4 ft-lbf/in. (1356 J/m) of notch when tested according to ASTM D 256, Test Method A.
  2. Chemical and Stain Resistance: Tested according to ASTM D 543.
  3. Self-extinguishing when tested according to ASTM D 635.
  4. Flame-Spread Index: 25 or less.
  5. Smoke-Developed Index: 450 or less.
- C. Polycarbonate Plastic Sheet: ASTM D 6098, S-PC01, Class 1 or 2, abrasion resistant; with a minimum impact-resistance rating of 15 ft-lbf/in. (800 J/m) of notch when tested according to ASTM D 256, Test Method A.
- D. Aluminum Extrusions: Alloy and temper recommended by manufacturer for type of use and finish indicated but with not less than strength and durability properties specified in ASTM B 221 (ASTM B 221M) for Alloy 6063-T5.
- E. Stainless-Steel Sheet: ASTM A 240/A 240M.
- F. Brass: ASTM B 249/B 249M for extruded shapes and ASTM B 36/B 36 M for sheet.
- G. Solid Wood: Clear hardwood lumber of species indicated, free of appearance defects, and selected for compatible grain and color.
- H. Medium-Density Fiberboard: ANSI A208.2, Grade MD.
- I. Particleboard: ANSI A208.1, Grade M-2.
- J. Oriented Strand Board: APA PS2, Exposure 1 or 2, Sheathing grade.
- K. Fasteners: Aluminum, nonmagnetic stainless-steel, or other noncorrosive metal screws, bolts, and other fasteners compatible with items being fastened. Use security-type fasteners where exposed to view.
- L. Adhesive: Type recommended by manufacturer for use with material being adhered to substrate indicated.
1. Use adhesives and sealants that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    - a. Gypsum Board and Panel Adhesives: 50 g/L.
    - b. Multipurpose Construction Adhesives: 70 g/L.
    - c. Contact Adhesive: 250 g/L.
- M. Sealants: Use silicone sealant at sterile areas.

## 2.3 PRODUCTS

- A. As scheduled and indicated on the drawings.

## 2.4 FABRICATION

- A. Fabricate impact-resistant wall-protection units to comply with requirements indicated for design, dimensions, and member sizes, including thicknesses of components.
- B. Preform curved semirigid, impact-resistant sheet wall covering in factory for radius and sheet thickness as follows:
  - 1. Sheet Thickness of 0.040 Inch: 24-inch radius.
  - 2. Sheet Thickness of 0.060 Inch: 36-inch radius.
- C. Assemble components in factory to greatest extent possible to minimize field assembly. Disassemble only as necessary for shipping and handling.
- D. Fabricate components with tight seams and joints with exposed edges rolled. Provide surfaces free of wrinkles, chips, dents, uneven coloration, and other imperfections. Fabricate members and fittings to produce flush, smooth, and rigid hairline joints.

## 2.5 METAL FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
  - 1. Remove tool and die marks and stretch lines or blend into finish.
  - 2. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- B. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
- C. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and wall areas, with Installer present, for compliance with requirements for installation tolerances, fire rating, and other conditions affecting performance of work.
  - 1. Examine walls to which impact-resistant wall protection will be attached for blocking, grounds, and other solid backing that have been installed in the locations required for secure attachment of support fasteners.
  - 2. For impact-resistant wall-protection units attached with adhesive or foam tape, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 3. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Complete finishing operations, including painting, before installing impact-resistant wall-protection system components.
- B. Before installation, clean substrate to remove dust, debris, and loose particles.

### 3.3 INSTALLATION

- A. General: Install impact-resistant wall-protection units level, plumb, and true to line without distortions. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.
  - 1. Install impact-resistant wall-protection units in locations and at mounting heights indicated on Drawings.
  - 2. Provide splices, mounting hardware, anchors, and other accessories required for a complete installation.
    - a. Provide anchoring devices to withstand imposed loads.
    - b. Where splices occur in horizontal runs of more than 20 feet, splice aluminum retainers and plastic covers at different locations along the run, but no closer than 12 inches.
    - c. Adjust end and top caps as required to ensure tight seams.
- B. Wood Handrails: Miter corners and ends for returns.
- C. Impact-Resistant Wall Covering: Provide top and edge moldings, corners, and divider bars as required for a complete installation.

### 3.4 CLEANING

- A. Immediately after completion of installation, clean plastic covers and accessories using a standard, ammonia-based, household cleaning agent.
- B. Remove excess adhesive using methods and materials recommended in writing by manufacturer.

END OF SECTION 10265