

SECTION 09776

SELF-SUPPORTING SANITARY WALL AND CEILING PANELS

******* Parkland Plastics, Inc. is the foremost manufacturer in the United States of plastic sheets with 100 percent recycled content. They produce a broad range of waterproof, sanitary wall coverings and wall and ceiling panels for a variety of interior applications.**

This guide can be used to prepare a specification for incorporating DURO-THERM self-supporting wall and ceiling panels into a competitively bid construction project. DURO-THERM panels are waterproof, resistant to fungi and bacteria, durable, and recyclable. They are composed of polyethylene sheets laminated to fluted polypropylene backers. Since they are self-supporting, the panels can be installed directly to wall studs and ceiling purlins with adhesive and optional mechanical fasteners.

The specification section is organized by placing information in three standard parts:

- PART 1 - GENERAL** Describes administrative and procedural requirements.
- PART 2 - PRODUCTS** Describes materials, products, and accessories to be incorporated into the construction project.
- PART 3 - EXECUTION** Describes how the products will be installed at the construction site.

Throughout this product guide specification, references are made to other specification sections that might be contained in the project manual. These references are presented as examples and coordination reminders. For each project, these references will need to be revised to reflect actual sections being used.

Within the specification text, Imperial dimensions are presented first in brackets followed by System International Metric (SI) equivalents also in brackets. Depending on project requirements, either the Imperial or the SI metric equivalents will need to be deleted.

The specifier will need to edit this product specification for a specific project to reflect the options and applications being used. The guide section has been written so that most editing can be accomplished by deleting unnecessary requirements and options. Options are indicated by []. Notes to assist the specifier in selecting options and editing the specification guide are printed in bold and indicated with ***. For final editing, all brackets and notes will need to be deleted from the guide.**

PART 1 - GENERAL**1.1 SUMMARY**

******* Edit the following paragraph to reflect Project applications of DURO-THERM panels. *******

A. Section includes: Self-supporting, waterproof, sanitary, laminated [wall] [and] [ceiling] panels [adhesive applied to [wall studs] [gypsum board partitions] [concrete walls] [concrete unit masonry] [roof purlins] [roof joists] [_____]] [installed in suspended ceiling grid] [_____] of [kitchen] [food processing] [laundry] [toilet] [locker] [custodial] [animal containment] [_____] rooms including adhesive, fasteners, and moldings.

B. Related sections:

******* List other specification sections dealing with work directly related to this section such as the following. *******

1. [Section 03300 - Cast-in-Place Concrete] [Section 03400 - Precast Concrete]: Concrete walls to receive sanitary wall panels.
2. Section 06100 - Rough Carpentry: Wood [studs] [and] [ceiling framing] to receive sanitary panels.
3. Section 09100 - Metal Support Assemblies: [Metal stud framing] [Ceiling suspension system] to receive sanitary panels.
4. Section 09260 - Gypsum Board Assemblies: Gypsum board [partitions] [and] [ceilings] to receive sanitary panels.
5. Section 09780 - Sanitary Base and Rails: Extruded, mineral reinforced, polyethylene base and rails to be installed in conjunction with sanitary panels.

1.2 REFERENCES

******* List by number and full title reference standards referred to in remainder of the specification section. Delete non-applicable references. *******

- A. American Society for Testing and Materials (ASTM) Publications:
1. ASTM C518 - Steady-State Thermal Transmission Properties by Means of Heat Flow Meter Apparatus.
 2. ASTM D570 - Water Absorption of Plastics.

3. ASTM D648 - Deflection Temperature of Plastics Under Flexural Load in Edgewise Position.
4. ASTM D695 - Compressive Properties of Rigid Plastics.
5. ASTM D696 - Coefficient of Linear Expansion of Plastics Between -30° C and 30° C with Fibrous Silica Dilatometer.
6. ASTM D2240 - Rubber Property Durometer Hardness.
7. ASTM D3029 - Impact Resistance of Flat Rigid Plastic Specimens by Means of Tup (Falling Weight).
8. ASTM E84 - Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Provide in accordance with Section 01330 - Submittal Procedures:

1. Product data for self-supporting sanitary panels and accessories showing compliance with specified requirements.
2. Shop drawings: Indicate panel layout, dimensions, moldings, and installation details.
3. Samples:
 - a. Sanitary panel in selected type, finish, and color: [5 by 7 inches] [127 by 178 mm] minimum size.
 - b. [2 inches] [51 mm] minimum lengths of moldings.
4. Manufacturer's installation and maintenance instructions.

1.4 QUALITY ASSURANCE

A. Sanitary wall panels shall comply with:

1. United States Department of Agriculture (USDA) requirements for food preparation facilities, incidental contact.
2. Food and Drug Administration (FDA) 1999 Food Code 6-101.11.
3. State of California Proposition 65.
4. Canadian Food Inspection Agency (CFIA) requirements.

1.5 DELIVERY, STORING, AND HANDLING

******* DURO-THERM panels expand and contract with temperature changes. Do not install**

panels in facility subjected to extreme temperature changes and avoid these conditions during delivery and storage. *****

- A. During delivery and storage keep sanitary panels flat on smooth dry surface. Avoid extreme temperature changes. Do not lean panels against wall to avoid panels taking curved set.
- B. Do not install sanitary panels until building is enclosed, painting is complete, and temperature and humidity are similar to conditions of completed, occupied building.
- C. Prior to installation, store materials for 24 hours minimum in area of installation to achieve temperature stability.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Parkland Plastics, Inc., P.O. Box 339, 104 Yoder Drive, Middlebury, Indiana 46540; 800-835-4110; www.parklandplastics.com.
- B. Requests to use equivalent products of other manufacturers shall be submitted in accordance with Section 01630 - Product Substitution Procedures.

2.2 SELF-SUPPORT SANITARY PANELS

******* Parkland Plastics, Inc, manufacturers the following two DURO-THERM panels. They vary in thickness.**

DURO-THERM: [15/32 inch] [11.9 mm] thick composite panel.

DURO-THERM LITE: [5/16 inch] [7.9 mm] thick composite panel.

Edit the following paragraph to reflect selected panel. *****

- A. Type: Self-supporting, waterproof, laminated, sanitary wall and ceiling panels; [DURO-THERM] [DURO-THERM LITE] Panels as manufactured by Parkland Plastics, Inc.
- B. Construction: Composite panel with face sheet laminated to backer.

******* DURO-THERM face sheets are fabricated from recycled polyethylene and polypropylene resins. These two incompatible resins are mixed with calcium carbonate and extruded to form a chemically inert sheet. The calcium carbonate minimizes thermal linear expansion and eliminates the need for reinforcement such as glass fibers. Most other manufacturers of sanitary wall and ceiling panels use fiberglass reinforcement which results in a product which cannot be recycled and which presents problems when sheets are field cut. *******

1. Face sheet: Polyethylene and polypropylene resins mixed with calcium carbonate and extruded to form chemically inert, mineral reinforced sheet. Sheets with fiberglass reinforcement are not acceptable.
 2. Backer: Cellular type with vertical flutes fabricated from polypropylene.
- C. Recycled content: 90 percent minimum.
- D. Recyclable content: 100 percent.

******* Available surfaces finishes are matte, smooth, and cracked-ice texture which is also referred to as pebbled texture. *******

- E. Face sheet finish: [Matte] [Smooth] [Cracked ice].

******* There are three DURO-THERM sheet colors. Not all colors are available for all finishes of DURO-THERM panels. Refer to Parkland Plastics product literature for color options for selected panel. *******

- F. Color: [Pewter white] [Bright white] [Almond] [Selected by Architect from manufacturer's full range].

******* DURO-THERM panels are 48 inches (1219 mm) wide. Available lengths are 96, 120, 144 inches (2438, 3048, and 3658 mm). Panels are easily cut in field to required sizes. Factory cut lay-in ceiling panels are provided for 24 by 24 inches (610 by 610 mm) or 24 by 48 inches (610 by 1219 mm) suspension grids. *******

- G. Sizes:

1. Panels: [48 inches wide by [96] [120] [144] inches high.] [1219 mm wide by [2438] [3048] [3658] mm long.]
2. Lay-in ceiling panels: [23-3/4 by 23-3/4 inches] [23-3/4 by 47-3/4 inches] [603 by 603 mm] [603 by 1213 mm].

******* Edit the following paragraph to reflect if either DURO-THERM or DURO-THERM LITE panels are being specified. *******

- H. Panel thickness: [[5/16] [15/32] inch.] [[7.9] [11.9] mm.]
- I. Performance characteristics:
 - 1. Resistant to fungi and bacteria growth, cleaning agents, acids, and other chemicals.
 - 2. No yellowing or color change with corrosive environments.
- J. Fire spread tested in accordance with ASTM E84: Class C.
- K. Physical properties:
 - 1. Thermal insulation R-value tested in accordance with ASTM C518: 3 minimum.
 - 2. Water absorption tested in accordance with ASTM D570: 0.055 percent maximum after 7 days.
 - 3. Coefficient of linear thermal expansion tested in accordance with ASTM D696: 5.84 X 10⁵ inch per inch per degree C.
 - 4. Hardness tested in accordance with ASTM D2240: 76 Shore D minimum.
 - 5. Compressive strength tested in accordance with ASTM D695: [11,840 pounds per square inch] [832 kilograms per square centimeter] minimum.
 - 6. Impact resistance tested in accordance with ASTM D3029: [32 inch pounds] [3.7 kilogram meters] minimum.
 - 7. Heat deflection temperature tested in accordance with ASTM D648: [174 degrees F at 66 pounds per square inch.] [79 degrees C at 4.6 kilograms per square centimeter.]

2.3 ACCESSORIES

- A. Adhesive: Cartridge type adhesive as recommended by sanitary wall panel manufacturer.

******* Optional nylon rivets can be used in addition to adhesive to mechanically fasten panels for extra secure installation. Include the following paragraph if rivets are used. *******

- B. Fasteners: Nylon rivets. Provide one-piece rivets for wood and metal framing and two-piece expansion rivets for concrete. Metal rivets are not acceptable.
- C. Moldings: Extruded polyvinyl chloride (PVC) channel type moldings with flanges to fit beneath panels.
 - 1. Types: Shapes for panel division, inside and outside corners, and edge caps.
 - 2. Color: Match sanitary panel color.
 - 3. Provide moldings in maximum possible lengths.
- D. Sealant: Silicone type as specified in Section 07900 - Joint Sealers and approved by panel manufacturer for this application.

PART 3 - EXECUTION

******* DURO-THERM panels are recommended for interior installation only. *******

3.1 PREPARATION

******* DURO-THERM panels can be installed as full height wall panels or as a wainscot. A solid polyethylene base and wall protection rail can be used in conjunction with DURO-THERM panels. Edit and include the following paragraph for this application. *******

- A. Coordinate wall panel installation with provision of [base] [wall protection rails] specified in Section 09780 - Sanitary Base and Rails.

******* Include the following paragraph if DURO-THERM lay-in ceiling panels are used. *******

- B. Coordinate ceiling panel installation with provision of suspended metal ceiling grid specified in Section 09100 - Metal Support Assemblies.
- C. Verify that wall, roof, and ceiling framing surfaces and other substrates to receive sanitary panels are rigid, flat, clean, dry, and free from grease, dirt, coatings, and defects detrimental to installation. Ensure there are no protruding nails or screws.
- D. Verify that plumbing, mechanical, and electrical services within walls and above ceilings have been installed, tested, and approved.

******* Include the following paragraph if panels are applied to concrete and masonry walls. *******

- E. Ensure that [concrete] [masonry mortar] is completely cured. Apply leveling coat as required for uneven substrate and to provide flat, uniform surface for wall panels.

3.2 INSTALLATION

- A. Install sanitary wall and ceiling panels in accordance with manufacturer's instructions and approved shop drawings at locations indicated on Drawings.

******* DURO-THERM panels can be easily field cut since they do not contain fiberglass or other irritants. *******

- B. Cutting: Cut panels by scoring and snapping, with sheet metal shears, or sawing with fine toothed blade.
- C. Penetrations and openings: Drill round openings. For rectangular cutouts, first drill hole at each corner to relieve stress. Prior to installation, position panel in place and verify cutout location and size are accurate.
- D. Adhesive: Apply adhesive bead down each stud, joist, purlin, or other framing member to receive panels. For solid surfaces apply adhesive in grid pattern.
- E. Place panels in position and then remove to allow solvent to dissipate. Re-position panels. Ensure panels are not tightly fitted. Allow [1/4 inch] [6 mm] gap at top and bottom of vertical panel and [1/8 inch] [3 mm] gap at vertical joints between panels and adjacent construction.

******* Include the following paragraph if mechanical fasteners are used. *******

- F. Fasten panels with nylon rivets. Space at 16 inches maximum on each framing member.
- G. Moldings: Apply moldings in conjunction with panels.
 - 1. Provide moldings for panel joints, perimeter edges, and corners. Neatly cut molding to required lengths. Ensure moldings are straight and correctly aligned.
 - 2. Allow [1/8 inch] [3 mm] space in molding channels for panel expansion.

******* For watertight installation, sealant should be applied in all molding channels. *******

3. Apply continuous bead of sealant in all molding channels.
- H. Immediately remove excess adhesive and sealant from panels and moldings. Adhesive and sealant should not be visible in completed system.
- I. Protect installed panels from subsequent construction activities.

END OF SECTION