SECTION 12 36 53-2
LABORATORY WORKSURFACES
DURCON A WILSONART COMPANY
(Durcon Solid Phenolic Compact – Chemical Resistance)

Part 1 – GENERAL

Specifier Note: The following specification contains design options and must be edited to meet project requirements. To edit in MS Word, download the PDF, right-click the file icon, hover over Open With, then select Word.

1.1 Summary

Section includes:

Solid Phenolic Compact-Chemical Resistance (SPC-CR) Laboratory Worksurfaces suitable for use on laboratory grade casework and as shelving, backsplashes, wall cladding, drawer fronts, cabinet doors, partitions and other structural components.

Related Sections:

1. Division 01: Administrative, procedural, and temporary work requirements.
2. Section [06 4100 - Architectural Wood Cabinets] [__ ____ - _____] - Base cabinets.
3. Section [12 3100 - Manufactured Wood Casework] [__ ____ - _____] - Base cabinets.
4. Section [12 3200 - Manufactured Metal Casework] [__ ____ - _____] - Base cabinets.
5. Section [12 3400 - Manufactured Plastic Casework] [__ ____ - _____] - Base cabinets.
6. Section [12 3500 - Specialty Casework] [__ ____ - _____] - Base cabinets.

1.2 References

A. Scientific Equipment and Furniture Association (SEFA):
1. SEFA 3 Worksurfaces

B. ASTM International (ASTM):

1. EN 438-2:10 - Standard Test Method for Resistance to Surface Wear.
2. EN 438-2:21 - Standard Test Method for Resistance to Impact.
3. EN 438-2:25 - Standard Test Method for Resistance to Scratch.
4. EN 438-2:16 - Standard Test Method for Resistance to Dry Heat.
5. EN 12721 - Standard Test Method for Resistance to Wet Heat
6. EN 438-2:12 - Standard Test Method for Resistance to Boiling Water Immersion.
7. EN 438-2:17 - Standard Test Method for Dimensional Stability in Elevated Temperature.
8. EN 438-2:27 – Light Fastness.
9. EN 438-2:24 - Standard Test Method for Resistance to Crazing.
10. ASTM 638-08/EN ISO 178 - Standard Test Method for Modulus of Elasticity
11. EN ISO 178/ASTM 790-07 - Standard Test Method for Flexural Strength
12. ASTM 638-08 / EN ISO 527-2 - Standard Test Method for Tensile Strength
13. EN ISO 1183/ASTM 792-08 - Standard Test Method for Density
14. ASTM E-84 - Standard Test Method for Surface Burning Characteristics

C. UL/GREENGUARD Environmental Institute:
1. Indoor Air Quality Certification Program.

D. International Organization for Standardization (ISO) 9001 - Quality Management Systems.

1.3 Submittals

A. Submittals for Review:
1. Shop Drawings:
   a. Submit plan, section, elevation and perspective drawings necessary to describe and convey layout, profiles, and product components, including edge conditions, joints, fitting and fixture locations, anchorage, accessories, and finish colors.
   b. Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on Shop Drawings.
   c. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.
2. Product Data: Manufacturer's data sheets on each product to be used, including:
   a. Preparation instructions and recommendations.
   b. Storage and handling requirements and recommendations.
   c. Installation methods.
3. Samples:
   a. Selection samples: For each finish product specified, submit complete set of color chips representing manufacturer's full range of standard colors.
   b. Verification samples: For each finish product specified, submit samples representing actual product color; supplied product color and gloss may vary slightly from supplied samples.

B. Quality Control Submittals:
1. Test Reports: Certified test reports or recognized evaluation reports showing compliance with specified performance characteristics and physical properties.

C. Sustainable Design Submittals:
1. Regional Materials: Certify products extracted, processed, and manufactured within 500 mile radius of Project site.
2. Low-Emitting Materials: Certify volatile organic compound (VOC) content.

D. Closeout Submittals:
1. Maintenance Data:
   a. Provide maintenance, cleaning, and life cycle information.
   b. Include recommended cleaning materials and procedures, and list of materials detrimental to Solid Phenolic Compact.

1.4 Quality Assurance

A. Manufacturer Qualifications:
1. Primary products furnished by single manufacturer with minimum 10 years [documented] experience in work of this Section.
2. Products manufactured in ISO 9001 certified facility.

B. Installer Qualifications: Minimum 5 years [documented] experience in work of this Section.

C. Mockup:
1. Construct worksurface mockup, 6 feet wide x full depth.
2. Include worksurface, and trim.] [_____.]
3. Locate [where directed.] [_____.]
4. Approved mockup may [not] remain as part of the Work.

1.5 Delivery, Storage and Handling

A. A Delivery:
1. Use pallets larger than sheets during transportation.
2. Package materials to prevent damage during shipping and handling.
3. Worksurfaces are very heavy and care should be taken when handling to protect employees and the decorative surface of the product.
4. Large panels should be transported by pallet/fork-truck or rolling table. Vacuum lifts are also recommended for handling large (thick) panels.
5. Additional tips include:
    a. Place padding (slip-sheet or protective cardboard strips) between panels when stacking
    b. Carry thinner types vertically to limit flex and possible breakage

B. Storage:
1. Avoid prolonged exposure to direct sunlight.
2. Store in an environment where the temperature is within the range of 64°F to 77°F (18°C to 25°C). Avoid storing in excessive heat/humidity.
3. Store in an environment where the humidity is within the range of 40% to 60% Relative Humidity.
4. Store panels in manufacturer's unopened packaging until ready for installation.
5. Store panels using protective dividers to avoid damage to surfaces.
6. For horizontal storage, store panels on pallets of equal or greater size than panels with protective layer between pallet and panel and on top of uppermost panel.
7. Do not store panels vertically.
8. All materials should be acclimated for a minimum of 72 hours before fabrication/installation.
9. Material should not be stored near exterior doors that may result in exposure to rain or temperature/humidity variations.

C. Handling:
1. If protective film is provided, do not remove until panel has been installed.
2. Handle sheets individually to prevent damage from two panels sliding against another.
3. It is acceptable to use a gripping system, such as a suction pad, to lift panels.
4. Remove stickers immediately after installation.
5. Do not use worksurfaces as a workbench, ladder or seating area.

1.6 Coordination and Project Conditions

A. Do not install products under environmental conditions outside manufacturer's limits.
B. Avoid direct exposure of products to sunlight.
C. Do not use worksurfaces as bench, ladder, or seating.

Part 2 - Products

2.1 Manufacturers

A. Contract Documents are based on products by Durcon A Wilsonart Company, 206 Allison Drive, Taylor, TX 76574, 512-595-8000, www.durcon.com.

B. Substitutions: [Under provisions of Division 01.] [Not permitted.]

2.2 Materials

A. Solid Phenolic Compact (SPC) Laboratory Worksurfaces:

Chemical Resistant SPC is a self-supporting flat panel based on thermosetting resins, homogeneously reinforced with cellulose fibers and manufactured under high pressure. The panels have a pigmented resin core with a decorative surface that is electron-beam cured.

**** OR ****

Standard Grade SPC is a self-supporting flat panel based on thermosetting resins, homogeneously reinforced with cellulose fibers and manufactured under high pressure. The panels have a pigmented resin core consisting of solid phenolic impregnated kraft papers capped with a decorative surface and a clear protective overcoat.

B. Basis of Design: Drawings and specifications are based on Durcon SPC-CR worksurfaces.

C. Manufacturer: Wilsonart LLC

D. Fabricated by: Durcon A Wilsonart Company - 206 Allison Drive, Taylor, TX 76574

2.3 Material Properties

A. Worksurfaces shall be constructed of Solid Phenolic Composite Chemical Resistant panels with black core

B. Thickness shall be as specified on drawings and shall be [1/2" (13mm)] [5/8" (16mm)] [3/4" (19mm)] [1" (25mm)] [Custom ____" (____mm)].

Specifier Note: Chemical Resistant SPC with integral EB cured decorative top sheets are available in lab standard Carbon Black, Steel Grey, Glacier White, Durcon Graphite and Durcon Gray. Chemical Resistant SPC without EB curing and Standard Grade SPC are available in the manufacturer's published color range.

C. Colors: [Carbon Black, Steel Grey, Glacier White, Durcon Graphite, Durcon Gray].

D. Finish: Matte sheen

E. Physical Properties:

Test	Test Method	Unit	Chemical Resistant SPC
Resistance to Surface Wear	EN 438-2:10	Revolutions (Initial Point)	≥400
Resistance to Impact	EN 438-2:21	Indention Diameter (mm)	0.0
		Cracks or Scoring	No
Resistance to Scratch	EN 438-2:25	Rating (Based on Load)	5

Resistance to Dry Heat (160°C/320°F)	EN 438-2:16	Appearance (Rating)		5
Resistance to Wet Heat (100°C/212°F)	EN 12721	Appearance (Rating)		5
Resistance to Boiling Water	EN 438-2:12	Appearance (Rating)		5
Dimensional Stability in Elevated Temperature	EN 438-2:17	Percentage	Longitudinal (parallel)	0.1
			Transversal (perpendicular)	0.1
Light Fastness	EN 438-2:27	Rating (Blue Wool Scale)		>6
Resistance to Crazing	EN 438-2:24	Appearance (Rating)		5
Porosity	N/A	Appearance		Nonporous Surface and Edges
Modulus of Elasticity	ASTM 638-08/EN ISO 178	MPa		≥1200
Flexural Strength	ASTM 790-07 / EN ISO 178	MPa		≥210
Tensile Strength	ASTM 638-08 / EN ISO 527-2	MPa		≥230
Density	ASTM 792-08 / EN ISO 1183	lbs/ft^3		≥83.65
Fire Resistance	ASTM E84	Class		B

F. SPC-CR Carbon Black Chemical Resistance (in accordance with chemical resistance test per SEFA 3).

CHEMICAL	METHOD	RATING
Amyl Acetone	A	0
Ethyl Acetate	A	0
Acetic Acid 98%	B	0
Acetone	A	0
Acid Dichromate 5%	B	1
Butyl Alcohol	A	0
Ethyl Alcohol	A	0
Methyl Alcohol	A	0
Ammonium Hydroxide, 28%	B	1
Benzene	A	0
Carbon Tetrachloride	A	0
Chloroform	A	0
Chromic Acid 60%	B	1
Cresol	A	1

Dichloro Acetic Acid	A	1
Dimethylformamide	A	0
Dioxane	A	0
Ethyl Ether	A	0
Formaldehyde 37%	A	0
Formic Acid 90%	B	1
Furfural	A	0
Gasoline	A	0
Hydrochloric Acid 37%	B	0
Hydrofluoric Acid 48%	B	1
Hydrogen Peroxide 28%	B	0
Tincture of Iodine	B	1
Methyl Ethyl Ketone	A	1
Methylene Chloride	A	0
Mono Chlorobenzene	A	1
Napthalene	A	0
Nitric Acid 20%	B	0
Nitric Acid 30%	B	0
Nitric Acid 70%	B	0
Phenol 90%	A	1
Phosphoric Acid 85%	B	0
Silver Nitrate, Saturated	B	0
Sodium Hydroxide 10%	B	0
Sodium Hydroxide 20%	B	0
Sodium Hydroxide 40%	B	0
Sodium Hydroxide Flake	B	0
Sodium Sulfide, Saturated	B	0
Sulfuric Acid 25%	B	0
Sulfuric Acid 85%	B	0
Sulfuric Acid 96%	B	0
Sulfuric Acid 85%, and Nitric Acid 70%, equal parts	B	0
Toluene	A	0
Trichlorethylene	A	0
Xylene	A	0
Zinc Chloride, Saturated	B	0

2.4 Accessories

A. Laboratory Shelving: Provide Solid Phenolic Compact laboratory shelving as indicated. Shelving shall be

[Chemical Resistant SPC] [Standard Grade SPC] in [1/2" (13mm)] [5/8" (16mm)] [3/4" (19mm)] [1" (25mm)] [Custom ____" (____mm)] thickness.

B. Pegboards (Drying Racks): Provide Solid Phenolic Compact pegboards as indicated. Pegboards shall be [Chemical Resistant SPC] [Standard Grade SPC] in [3/4" (19mm)] [1" (25mm)] thickness.

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C. Reagent Racks: Provide Solid Phenolic Compact reagent racks as indicated. Reagent racks shall be [Chemical Resistant SPC] [Standard Grade SPC] in [3/4" (19mm)] [1" (25mm)] thickness.

D. Window Sills: Provide Solid Phenolic Compact window sills as indicated. Window sills shall be Chemical Resistant SPC] [Standard Grade SPC] in [3/4" (19mm)] [1" (25mm)] thickness.

E. Installation Materials: Provide joint adhesive as required to suit project conditions.

2.5 Fabrication

A. Fabricated tops and accessories in accordance with manufacturer's recommendations, approved Shop Drawings, and SEFA.

B. Solid Phenolic Compact Worksurfaces:

1. Thickness:
   a. [1/2" (13mm)] [5/8" (16mm)] [3/4" (19mm)] [1" (25mm)]
   b. Check each sheet at factory for required thickness.
   c. Maximum variation in thickness: plus or minus 1/16 inch (1.6 mm) from corner to corner.
2. Warpage:
   a. Inspect tops for warpage prior to fabrication by placing on true flat surface.
   b. Maximum allowable warpage: 1/16 inch (1.5 mm) in 36 inch (900 mm) span or 3/16 inch (4.5 mm) in 96 inch (2400 mm) span.
3. Fabrication:
   a. Shop fabricate in longest practical lengths.
   b. Bond joints with highly chemical resistant cement with properties and color similar to base material.
   c. Provide 1/8 inch (3 mm) drip groove at underside of exposed edges, set back 1/2 inch (13 mm) from face.
   d. Finish exposed edges.
4. Edge treatment:
   a. [Standard 1/8 inch (2 mm) chamfered edge.]
   b. [Standard 1/8 inch (2 mm) chamfered edge with drip groove.]
5. Fabricate tops:
   a. [flat] [with 1/4 inch (6 mm) raised epoxy resin marine edge]
   b. [Flat with 1/4 inch (6 mm) raised epoxy resin marine edge at sink locations].
6. Corner treatment: exposed corners shall be eased slightly for safety.
7. Back and end splashes:
   a. Supplied loose for field installation.
   b. Same material and thickness as worksurfaces.
   c. [4] inches ([100] mm) high unless otherwise indicated.
   d. Back and end splashes: Furnish loose end splashes where worksurfaces abut adjacent construction and locations indicated on Drawings.
8. Joints:
   [As indicated on Drawings.] [Maximum 1/8 inch (2 mm), bonded with epoxy grout.]
9. Make joints between two benches level.

10. Locate joints away from sinks and over or near supports.
11. Sink cutouts: [As indicated on Drawings.] [Routed for drop-in sink.] [Routed for undermount sink.] [Sink cutout with cover.]
12. Allowable tolerances:
    a. Square: Plus or minus 1/64 inch (0.4 mm) for each 12 inches (300 mm) of length.
    b. Location of cutouts and drilled openings: Plus or minus 1/8 inch (3 mm) of design dimension.
    c. Size of cutouts and drilled openings: Plus 1/8 inch (3 mm) or minus 0 inches (0 mm).

C. Epoxy Resin Sinks (as applicable to the project):
1. Mold sinks from thermosetting epoxy resin.
2. Mold interior corners to radius. Slope sink base to drain outlet.
3. Provide 1-1/2 inch (38 mm) outlet with open ended standpipe; standpipe overflow 2 inches (50 mm) shorter than depth of sink.
4. Unless otherwise indicated, fabricate sinks of drop-in design supported by upper flange from worksurface.
5. Color: To match adjacent worksurface.

Part 3 – Execution

3.1 EXAMINATION

A. Do not begin installation until cabinets have been installed.

B. Confirm that surfaces to receive tops are plumb and level, with maximum deflection of 1/4 inch (6 mm) in 20 feet (6 m).

3.2 PREPARATION

A. Prior to installation, it is recommended to store the SPC-CR worksurfaces for approximately 3 days in the premises with the following environmental conditions.
1. Temperature approximately 75°F (24°C).
2. Relative humidity from 45%-55%.

When installation SPC-CR worksurfaces, remove the protective films last. For optimal results, we recommend that identical ventilation is assured on both sides.

Note: Before any installation, always ensure that the two sides of the worksurface are clean and no abrasive particles are present.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved Shop Drawings.

B. Install tops plumb and level.

C. Adhere to adjacent surfaces in accordance with manufacturer's recommendations.

D. Fasten tops to supporting construction with adhesives appropriate for use with adjoining construction and as recommended by manufacturer.

E. Form field joints using manufacturer's recommended adhesive. Form joints to be inconspicuous and nonporous.

F. Install [laboratory shelving] [pegboards] [reagent racks] using fasteners and adhesive appropriate for use with adjoining construction and as recommended by manufacturer.

3.4 PROTECTION

A. Protect installed products until completion of Project.

B. Touch up, repair, or replace damaged products.

End of Section