

SECTION XXXX
Laboratory grade Solid Phenolic Panels
for durable Lab Designs

1. PART – GENERAL

1.01. SECTION INCLUDES

- A. Solid composite work surfaces.

1.02. RELATED SECTIONS

- A. Documents affecting work in this section includes but is not limited to the General Conditions, Supplementary Conditions and Sections in Division 1 – General Requirements of these Specifications.
- B. 06200 - Finish Carpentry.
- C. 10500 - Lockers.
- D. 10670 - Shelving.
- E. 12300 - Laboratory Casework and Fixtures.
- F. 15400 - Sinks Field Inserted in Countertops.

1.03. REFERENCES

- A. SEFA 3-2010 Recommended Practices for Laboratory Work Surfaces

1.04. SUBMITTALS

- A. Submit in accordance with Section 01300.
- B. Submit four samples 4”x 6” of each color and thickness of material used.

1.05. DELIVERY, STORAGE AND HANDLING

- A. Deliver and store materials in the manufacturer’s original protective packaging. Store materials in an enclosed shelter providing protection from damage and exposure to the elements.

1.06. COORDINATION

- A. Field Measurements: Secure field measurements before preparation of shop drawings and fabrication where possible, for proper and adequate fabrication and installation of the work.
- B. Coordination: Furnish anchorage and top connection devices or material as specified.

1.07. WARRANTY

- A. Worktops to be warranted for an extended period of 10 years. The warranty has to include the here specified physical and chemical properties. The factory authorized fabricator, product installer and panel manufacturer must sign the Warranty documents and submit a copy to the Contractor.

2. PART – PRODUCTS

2.01. MANUFACTURERS

- A. These specifications are based on raw material panels manufactured by FunderMax, and provided by FunderMax GmbH, located at IZ NOE-Sued StraÙe 3 Objekt 1, 2351 Wiener Neudorf, Austria. Approved fabricators that provide products that comply with this specification section as judged and approved by the architect may be acquired from the above.
- B. All panel products specified in this section shall be provided by a single manufacturer.

2.02. 2.02 MATERIALS

- A. Basis of design: FunderMax Max Resistance² with double sided and double-cured polyurethane acrylic surface finish
- B. Thickness: As specified on drawings or by Architect.

C. Color:

0082 Deep Black; 0741 Birch Grey; 0074 Pastel Grey; 0075 Dark Grey; 0606 Arctic White; 0085 White; 0851 Winter White; 0706 Glacier Blue; 0592 Kiwi Green; 0558 White Punto; 0559 Pastel Grey Punto; 3361 Arctic Punto

2.03. FABRICATION

- A. Drip grooves shall be provided on the underside at all exposed edges unless otherwise noted on Laboratory Furnishings Drawings.
- B. All exposed edges to be sanded to a smooth finish and, except as indicated below, shall be rounded or chamfered at front top edge and at vertical corners.
- C. Fix work surface panels with blind fastenings into the back or underside of the panel. Use #10, type A sheet metal screws sized to stop at least 1/8" short of the finished face. Pre-drill panel with an 11/64" diameter high speed drills bit aligned with 7/32" clearance holes in the supporting structure.
- D. Form tight-fitting butt joints in the work surface using two part epoxy adhesive, or mechanical fasteners positioned to be concealed after installation.
- E. Curbs shall be bonded to the top of the work surface to form a square joint.
- F. Cutouts for drop-in sinks shall be routed to form openings with 3/8" minimum depth supporting flanges and such that the rim of the sink when installed is at the same level as the work surface top. Epoxy sinks shall be set in beds of epoxy adhesive. Stainless steel and polypropylene sinks shall be set in beds of silicone sealant.
- G. Cutouts for under-mounted sinks shall be routed to form smooth edged openings with the top edge radiused. The bottom edge of the sink opening shall be finished smooth with the edge broken to prevent sharpness. Corners of sink cutouts shall be radiused

not less than 1/8". Under-mounted sinks shall be supported by brackets blind-fixed to the underside of the work surface.

2.04. SOURCE QUALITY CONTROL

A. Panels shall be of material specifically designed for laboratory work surfaces.

Fabricated work surfaces shall comply with all current codes and regulations. Tops and shelves shall have uniform thickness of max. +/- 0.03" and flatness of maximum 0.04" for 3 foot span.

B. Panels to be U.L. Greenguard and FSC certified and labeled for quality consistency.

An Environmental Product Declaration (EPD) is provided by the manufacturer.

C. Chemical Resistance: Evaluation of chemical resistance is based on SEFA 3-2010

Laboratory Work Surfaces (Scientific Equipment and Furniture Association) standard

list of 49 chemicals / concentrations, their required methods of testing (24 hour surface test) and exceed the acceptable results as a means of establishing an acceptable level of performance for all exposed and semi-exposed surfaces.

The chemical resistance performance should be as follows:

No.	Chemical	Method	Rating
1	Acetate, Amyl	A	0
2	Acetate, Ethyl	A	0
3	Acetic Acid, 98%	B	0
4	Acetone	A	0
5	Acid Dichromate, 5%	B	1
6	Alcohol, Butyl	A	0
7	Alcohol, Ethyl	A	0
8	Alcohol, Methyl	A	0
9	Ammonium Hydroxide, 28%	B	0
10	Benzene	A	0
11	Carbon Tetrachloride	A	0
12	Chloroform	A	1
13	Chromic Acid, 60%	B	0
14	Cresol	A	1

15	Dichloroacetic Acid	A	2
16	Dimethylformamide	A	0
17	Dioxane	A	0
18	Ethyl Ether	A	0
19	Formaldehyde, 37%	A	0
20	Formic Acid, 90%	B	1
21	Furfural	A	1
22	Gasoline	A	0
23	Hydrochloric Acid, 37%	B	0
24	Hydrofluoric Acid, 48%	B	1
25	Hydrogen Peroxide, 3%	B	0
25	Hydrogen Peroxide, 30%	B	2
26	Iodine, Tincture of	B	1
27	Methyl Ethyl Ketone	A	0
28	Methylene Chloride	A	0
29	Monochlorobenzene	A	0
30	Naphthalene	A	0
31	Nitric Acid, 20%	B	0
32	Nitric Acid, 30%	B	0
33	Nitric Acid, 70%	B	0
34	Phenol, 90%	A	1
35	Phosphoric Acid, 85%	B	0
36	Silver Nitrate, Saturated	B	0
37	Sodium Hydroxide, 10%	B	0
38	Sodium Hydroxide, 20%	B	0
39	Sodium Hydroxide, 40%	B	0
40	Sodium Hydroxide, Flake	B	0
41	Sodium Sulfide, Saturated	B	0
42	Sulfuric Acid, 33%	B	0
43	Sulfuric Acid 77%	B	0
44	Sulfuric Acid, 96%	B	1
45	Sulfuric Acid, (77%) and Nitric Acid (70%), equal parts	B	2
46	Toluene	A	0
47	Trichloroethylene	A	0
48	Xylene	A	0
49	Zinc Chloride, Saturated	B	0

D. Performance requirements:

- (1) Density DIN 52350/ISO 1183: $\geq 1,35 \text{ g/cm}^3 / \geq 84 \text{ lbs/ft}^3$

- (2) Modulus of elasticity EN ISO 178: ≥ 9000 MPa / $\geq 1,305,340$ psi
- (3) Flexural strength EN ISO 178: ≥ 80 MPa / $\geq 11,603$ psi
- (4) Tensile strength EN ISO 527-2: ≥ 60 MPa / $\geq 8,702$ psi
- (5) Resistance to scratching EN 438-2, point 25: 4-6 N (6N = 1.35 lbf)
- (6) Resistance to impact EN 438-2, point 21: ≤ 8 mm / $\leq 1/3$ "
- (7) Resistance to stress abrasion EN 438-2, point 10: ≥ 450 U (rotations)
- (8) Dimensional stability measured at elevated temperatures with moisture change
EN 438-2, point 17: $\leq 0,05\%$ length; $\leq 0,15\%$ width
- (9) Resistance to boiling water EN 438-2, point 12: 0,3%
- (10) Co-efficiency of thermal expansion DIN 52328: 20×10^{-6}
- (11) Resistance to dry heat EN 438-2, point 16: 5 no visible changes, no blisters or cracks
- (12) Resistance to staining EN 438-2, point 26 (group 1-3): 5 no visible changes, no blisters or cracks
- (13) Light fastness EN 438-2, point 27: 4 or 5
- (14) Non-porous and non-microporous surface and edges
- (15) Surface will not support bacteria growth
- (16) Will not support oxidation of material surface
- (17) Both sides decorative and chemical resistant
- (18) Double hardened acrylic surface finish
- (19) Min. thickness of the acrylic finish: $\geq 0,1$ mm / 0.004"
- (20) Environmental Standards: FSC / PEFC certification available, Environmental Product declaration (EPD) is available; Manufacturer recycles waste and cutoffs to produce green electricity.

3. PART – EXECUTION

3.01. INSTALLATION

- A. Install worktops as per shop drawings on frames or base cabinets provided per specification.

3.02. PROTECTION

- A. After installation, the General Contractor shall protect the worktops from damage. The tops shall be kept free from paint, plaster, cement scratches, or any other destructive forces.

- END OF SECTION -