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The purpose of this product specification is to assist specifying Polarstone® Surfaces. Refer to www.polarstoneus.com for additional product and fabrication information. Polarstone® Surfaces are fabricated and installed like natural stone; publications such as the Marble Institute of America’s Dimension Stone Design Manual can also be sourced for information.

Specifiers should review Sections and edit to fit the needs of the project and local building code(s). User input required in areas are enclosed within brackets, []. The Specifier needs to coordinate numbers and titles with sections for their project.

This product guide specification is written in accordance with the Construction Specifications Institute (CSI) current versions Masterformat®, SectionFormat™ and PageFormat™.

PART 1 – GENERAL

1.1 SUMMARY

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 THIS SECTION INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING HORIZONTAL AND TRIM QUARTZ SURFACING PRODUCT TYPES:

- A. Countertops
- B. Countertops with under-mount sinks and lavatory bowls
- C. Countertops with drop-in sinks and lavatory bowls
- D. Reception areas
- E. Nurses stations
- F. Vanity tops
- G. Tabletops
- H. Bar tops
- I. [_____]
- J. Other interior counter or surfacing applications as shown on drawing

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1.3 RELATED REQUIREMENTS

- A. Section 06 61 13 – Simulated Stone Fabrications
- B. Section 11 42 16 – Food Preparation Surfaces
- C. Section 12 36 61 – Simulated Stone Countertops
- D. Section 12 36 61.19 – Quartz Agglomerate Countertops

1.4 REFERENCES

- A. IAPMO IGC 340-217 Quartz Surfacing Standard
- B. ASTM 97 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
- C. ASTM C880 Standard Test Method for Flexural Strength of Dimension Stone
- D. ASTM C170 Standard Test Method for Compressive Strength of Dimension Stone.
- E. ASTM C531 Standard Test Method for Coefficient of Thermal Expansion
- F. F. ASTM D2583 Standard Test Method for Indentation Hardness by Means of a Barcol Impressor
- G. ASTM C501 – Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser
- H. ASTM C648 Standard Test Method for Breaking Strength of Ceramic Tile
- I. ASTM D256 Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
- J. ANSI Z124 (SUPERSEDED BY IAPMO Z124-2011 – Plastic Plumbing Fixtures) Standard Test Method for testing Stain Resistance, Wear, Cleanability, Color Fastness, Chemical Resistance
- K. ISO 4287 Dimension Geometrical Product Specifications (GPS) — Surface Texture (Roughness)
- L. NEMA LD 3 – High-Pressure Decorative Laminates.
 - i. NEMA LD 3-3.3 – Light Resistance
 - ii. NEMA LD 3-3.5 – Boiling Water Resistance
 - iii. NEMA LD 3-3.6 – High-Temperature Resistance
 - iv. NEMA LD 3-3.8 – Ball Impact Resistance



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- M. UL Environment/GREENGUARD - UL 2818 – Standard for Chemical Emissions for Building Materials, Finishes and Furnishings.
- N. UL Environment/GREENGUARD - UL 2818 – Gold Standard for Chemical Emissions for Building Materials, Finishes, and Furnishings.

1.5 SUBMITTALS

- A. Submit product data for each type of product indicated.
 - i. Submit manufacturer’s product data on material characteristics, performance properties, fabrication instructions, installation instructions, and maintenance instructions.

- B. Shop drawings:
 - i. Provide complete detailed and dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - a. Show the following:
 - 1) Full-size details, edge details, attachments, color, finish, etc.
 - 2) Locations and sizes of furring, blocking, and reinforcement specified in other Sections.
 - 3) Fabrication details for brackets.
 - 4) Locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacle, and other items installed in quartz surface.
 - 5) Locations and sizes of cutouts for sink installation and lavatory installation.
 - 6) Type of sealant
 - 7) Type of adhesive
 - 8) Seam locations

- C. Samples:
 - i. For each type of product indicated:
 - a. Submit minimum 2-inch-by-2-inch sample in specified color. For viewing pattern or veining, submit minimum appropriately sized samples.
 - b. Cut sample and seam together for representation of seaming techniques.
 - c. Indicate the full range of color and pattern variation.
 - d. Approved samples will be retained as a standard for work.



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- D. Product data:
 - ii. Indicate product description, fabrication information, and compliance with specified performance requirements.
- E. LEED Submittals: Provide LEED Submittals as required.
- F. Fabricator/installer qualifications:
 - i. Provide confirmation of certified training for fabricator/installer.
- G. Product Certificates: Provide product certificates signed by the manufacturer or authorized agency.
- H. Care and Maintenance
 - i. Submit manufacturer's care and maintenance instructions and data
 - ii. Include in project closeout documents.

1.6 QUALITY ASSURANCE

- A. Qualifications:
 - i. Shop employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.
- B. Fabricator/installer qualifications:
 - i. Work of this section shall be by a certified fabricator/installer, certified in writing the manufacturer or designated representative.
- C. Allowable tolerances:
 - i. Variation in component size: $\pm 1/8$ inch (3 mm) over a 10-foot length.
 - ii. Location of openings: $\pm 1/8$ inch (3 mm) from the indicated location.
 - iii. Minimum of $1/16$ inch and a maximum of $1/8$ inch (3 mm) clearance between quartz surfaces and each wall to allow for thermal expansion.
- D. Drawings:
 - i. Shall be prepared indicating:



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- a. Plumbing work
 - b. Electrical work
 - c. Miscellaneous steel for the general work
 - d. Indicate the location of all walls (rated and non-rated), blocking locations and recessed wall items, etc.
- ii. Content:
- a. Project-specific information, drawn accurately to scale.
 - b. Do not base drawings on reproductions of the contract documents or standard printed data.
 - c. Indicate dimensions shown on the contract drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements.
 - d. Provide alternate sketches to the designer for the resolution of such conflicts.
 - 1) Minor dimension changes and difficult installations will not be considered changes to the contract.
- iii. Drawings shall:
- a. Be produced on a 1/2-inch scale for all fabricated items.
- iv. Drawings must be complete and submitted to the architect within 60 days after the award of the contract for record only.
- a. No review or approval will be forthcoming.
 - b. Coordination drawings are required for the benefit of contractor's fabricators/installers as an aid to coordination of their work to eliminate or reduce conflicts that may arise during the installation of their work.
- E. Job mock-up:
- i. Prior to fabrication of architectural millwork, erect a sample unit to further verify selections made under sample submittals and to demonstrate the quality of materials and execution.
 - ii. 2. Mock-up shall be [_____].
 - iii. Build the mock-up to comply with the contract documents and install it in a location as directed by the architect.
 - iv. Notify the architect two weeks in advance of the date when the mock-up will be delivered.



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- v. Should mock-up not be approved, re-fabricate, and reinstall until approval is secured.
- vi. Remove rejected units from the project site.
- vii. Mock-up, once approved, may become a part of the project, and serve as a standard for judging the quality of all completed units of work.
- viii. Pre-installation conference:
 - a. Conduct a conference at the project site to comply with the requirements in Division 1.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver no components to the project site until areas are ready for installation.
- B. Store components indoors in a clean and dry area prior to installation.
- C. Handle materials to prevent damage to finished surfaces.
- D. Follow the manufacturer's safe handling and storage recommendations.
- E. Provide protective coverings to prevent physical damage or staining following installation for the duration of the project.

1.8 WARRANTY

- A. Provide manufacturer's limited lifetime warranty.
- B. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.



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PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Contract Documents are based on Polarstone Surfaces products distributed by Polarstone Surfaces.

- i. HQ Address: 533 Airport Blvd. Suite 400, Burlingame, CA 94010
- ii. Phone: 650-685-2438
- iii. Website: www.polarstoneus.com

B. Substitutions: Not permitted.

2.2 MATERIALS

A. Material:

- i. Polarstone Surfaces are composed of ~80 to 90% quartz/natural minerals (depending on color) plus pigments and resin.
- ii. Material shall have minimum physical and performance properties as specified.

B. Thickness:

- i. 2 cm (nominal 3/4 inch).
- ii. 3 cm (nominal 1-1/8 inch).
- iii. 1.5 cm (nominal 5/8 inch).

C. Edge treatment:

- i. Exposed Edge
 - a.
 - b.
 - c.
 - d. As indicated.
- ii. Appliance Edge
 - a. Finished.
 - b. Not Finished.

D. Seam width:

- i. 1/16 inch nominal unless otherwise specified.



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E. Sink mounting:

- i. Undermount.
- ii. Drop in/top mount.

F. Backsplash:

- i. Applied.

G. End splash:

- i. Applied.

H. Overhang and Support Requirements:

- i. Overhang cannot exceed 1/3 total countertop depth and must be a minimum of 24 inches in length. 2. 2 cm material requires support every 24 inches, and 3 cm requires support every 36 inches.
- ii. Install support strips where necessary to meet span requirements.
- iii. Outer perimeter support (4-sided box) is acceptable when the depth is 26 inches or less.
- iv. Overhangs require at least 2/3 of width to be supported, no more than 1/3 is the overhang.
- v. No cutouts or holes are allowed in the overhangs.
- vi. Summary Table below for Overhang support requirements

Material Thickness	Minimum allowable before additional support required	Additional support requirements in addition to a 3/4 inch plywood or metal frame
2 cm	<12 inches	12-18 inches - Corbels >18 inches - Columns or Legs
3 cm	<15 inches	15-24 inches -Corbels >24 inches - Columns or Legs



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I. Polarstone® Surfaces Performance Properties (TYPICAL RESULTS):

1. Flexural Strength	> 16,000 psi (Dry); >18,000 (Wet)	ASTM C880
2. Breaking Strength	4250 LBF	ASTM 648
3. Compression Strength (Dry)	21,500 psi	ASTM C170
4. Compression Strength (Wet)	19,600 psi	ASTM C170
5. Barcol Hardness	88	ASTM D2583
6. Thermal Expansion	2.35 x 10 ⁻⁵ inch/inch F°	ASTM C531
7. Impact Resistance	42-63 J/M	ASTM D256
8. Colorfastness	Passes	ANSI Z124
9. Gloss (60° Gardner)	minimum 40	ANSI Z124
10. Wear and Cleanability	Pass	CSA B45.5-11/IAPMO Z124-2011
11. Stain Resistance	Pass	CSA B45.5-11/IAPMO Z124-2011
12. Surface Roughness	0.37-0.57 μM	ISO 4287
13. Boiling Water Resistance	None to slight effect	NEMA LD 3-3.5
14. Point Impact	Pass	ANSI Z124.6.4.2
15. Static Coefficient of Friction	0.73 (Dry), 0.63 (Wet)	ASTM C1028
16. Abrasion Resistance	95 minimum	ASTM C501
17. Density	2.2-2.4 g/cm ³	ASTM C697
18. Water Absorption	< 0.04%	ASTM C97
19. Moderate Chemical Resistance	PASS	ANSI Z124
20. Nominal Weight per square foot for 2cm thickness	is 10 pounds	
21. Nominal Weight per square foot for 3cm thickness	is 15 pounds	

2.3 MATERIALS ACCESSORY PRODUCTS

A. Mounting Adhesives:

- i. 100 percent Silicone Sealant.

B. Seam Adhesive:

- i. Joint Adhesive to create color-coordinated seams as recommended.

C. Sink/bowl mounting hardware:

- i. Manufacturer’s approved sink setters, bowl clips, and fasteners for attachment of top-mount and under-mount sinks/bowls.



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2.4 FABRICATION

A. Fabricate components to the greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.

B. Form joints between components using standard joint adhesive.

- i. Reinforce as required.
- ii. Avoid specifying stress risers in corners and cutouts.
- iii. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.
- iv. Rout and finish component edges with clean, sharp returns.
- v. Rout cutouts, radii, and contours to template.

C. Smooth edges.

2.5 FINISHES

A. Select from the manufacturer's standard color chart.

- i. Color:
 - a. [_____]
 - b. [_____]



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PART 3 – EXECUTION

3.1 INSTALLATION

A. General

- i. Install countertop materials in accordance with manufacturer's instructions.
- ii. Additional weight from attached sink or lavatory will affect maneuverability of tops during transportation and installation.
- iii. Carefully plan work to avoid damaging finished tops during transportation and installation.

B. Install components plumb and level, in accordance with approved shop drawings and product installation.

- i. Tops:
 - a. Flat and true to within 1/8 inch (3 mm) of a flat surface over a 10-foot length.
 - b. Allow a minimum of 1/16 inch to a maximum of 1/8 inch (3 mm) clearance between surface and each wall.
 - c. Form field joints using manufacturer's recommended adhesive, with joint widths no greater than 1/8 inch (3 mm) in finished work.
 - d. Keep components and hands clean when making joints.

C. Sinks/Lavatory Bowls:

- i. Adhere undermount sinks/lavatory bowls to countertops using manufacturer's recommended adhesive and mounting hardware.
- ii. Adhere drop-in sinks/bowls to countertops using silicone sealant and manufacturer-recommended adhesives.

D. Provide backsplashes and end splashes as indicated on the drawings.

- i. Adhere to countertops using silicone sealant.
 - a. Keep components and hands clean when working with silicone sealant.

3.2 CONNECTIONS:

- A. Plumbing connections in accordance with Division 22.
- B. Electrical connections in accordance with Division 26.



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3.3 CLEANING AND PROTECTION

- A. Keep components and hands clean during installation.
- B. Remove adhesives, sealants, and other stains in accordance with manufacturer's instructions.
 - i. Clean exposed surfaces in accordance with manufacturer's instructions.
 - ii. Components shall be clean on the date of substantial completion.
 - a. Protect surfaces from damage until the date of substantial completion.
 - iii. Replace or repair damaged work in a satisfactory manner.

3.04 SCHEDULE

A. Countertops:

- 1. Location: [_____]
- 2. Quartz surface is adhesively joined as specified.
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]
 - d. Edge Details: [_____]
 - e. Backsplash: [_____]
 - f. Sidesplash: [_____]

B. Countertops with undermount sinks:

- 1. Location: [_____]
- 2. Quartz surface is adhesively joined as specified.
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]
 - d. Edge Details: [_____]
 - e. Backsplash: [_____]
 - f. Sidesplash: [_____]
 - g. Sink: [_____]

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C. Countertops with undermount lavatory bowls:

1. Location: [_____]
2. Quartz surface is adhesively joined as specified.
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]
 - d. Edge Details: [_____]
 - e. Backsplash: [_____]
 - f. Sidesplash: [_____]
 - g. Sink: [_____]

D. Reception Areas:

1. Location: [_____]
2. Quartz surface is adhesively joined as specified.
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]
 - d. Edge Details: [_____]

E. Nurses Station:

1. Location: [_____]
2. Quartz surface is adhesively joined as specified.
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]
 - d. Edge Details: [_____]
 - e. Backsplash: [_____]
 - f. Sidesplash: [_____]

F. Tabletops:

1. Location: [_____]
2. Quartz surface is adhesively joined as specified.
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]
 - d. Edge Details: [_____]
 - e. Backsplash: [_____]



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f. Sidesplash: [_____]

G. Bartops:

1. Location: [_____]
2. Quartz surface is adhesively joined as specified.
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]
 - d. Edge Details: [_____]
 - e. Backsplash: [_____]
 - f. Sidesplash: [_____]
 - g. Sink: [_____]

H. Cafeteria Surfaces – cold:

1. Refer to manufacturer’s food service design recommendations.
2. Quartz surface is intended to be a decorative material.
 - a. All equipment should be independently supported by the substructure, not the quartz surface.
3. Quartz surface is adhesively joined with exposed seams.
4. Provide expansion joints in countertop as detailed on the drawings.
5. Make cutouts to templates furnished by the equipment manufacturer.
6. Reinforce edges and cutouts as recommended by the quartz surface manufacturer.
7. Provide insulation between material and adjacent cold surfaces.
8. Thermally isolate hot applications from cold.
9. Location: [_____]
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]
 - d. Edge Details: [_____]
 - e. Backsplash: [_____]
 - f. Sidesplash: [_____]
10. Quartz surface is adhesively joined as specified.
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]



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- d. Edge Details: [_____]
- e. Backsplash: [_____]
- f. Sidesplash: [_____]
- g. Sink: [_____]

J. Vanity tops and undermount lavatory bowls:

- 1. Location: [_____]
- 2. Follow manufacturer's recommendations to obtain a smooth transition between adhesively joined top and lavatory bowl.
- 3. Quartz surface is adhesively joined as specified.
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]
 - d. Edge Details: [_____]
 - e. Backsplash: [_____]
 - f. Sidesplash: [_____]
 - g. Sink: [_____]

K. Vanity tops and drop-in lavatory bowls:

- 1. Location: [_____]
- 2. Quartz surface is adhesively joined as specified.
 - a. Color: [_____]
 - b. Vertical Thickness: [_____]
 - c. Horizontal Thickness: [_____]
 - d. Edge Details: [_____]
 - e. Backsplash: [_____]
 - f. Sidesplash: [_____]
 - g. Sink: [_____]

END OF SECTION