

THE FOLLOWING SPECIFICATION IS TO BE USED FOR INTERFACING WITH ARCHITECTURAL MILLWORK AND/OR TRIM COMPONENTS. QUARTZ SURFACE IS FABRICATED LIKE GRANITE. EDGE BUILDUPS AND RADIUSSES ARE NOT GENERALLY RECOMMENDED AND ARE VERY COSTLY.

ADDITIONAL QUARTZ SURFACE MATERIALS MAY ALSO BE LOCATED IN DIVISION 9 AND DIVISION 10.

SECTION 04731 QUARTZ SURFACE FABRICATIONS

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 horizontal and trim quartz surface product types:

DELETE BELOW FOR REQUIREMENTS.

1. Countertops with or without undermount bowls
2. Reception areas/nurses stations
3. Vanity tops
4. Tabletops
5. Bar tops
6. Seats
7. Cold cafeteria surfaces
8. Hot cafeteria surfaces
9. Windowsills
10. Interior steps

- B. Related Sections include the following:

1. Division 1 Section "LEED Requirements" for additional LEED requirements.
2. Division 5 Section "Metal Fabrications" for Blocking.

USE ABOVE AND DELETE BELOW FOR NONCOMBUSTIBLE PROJECTS THAT WILL NOT ALLOW WOOD BLOCKING. USE BELOW FOR ALL OTHER PROJECTS.

3. Division 6 Section "Rough Carpentry" for Blocking.
4. Division 6 Section "Solid Surface Fabrications."
5. Division 9 Section "Solid Surface Wall Cladding."
6. Division 9 Section "Quartz Surface Wall Cladding."
7. Division 10 Section "Quartz Surface Toilet Partitions."
8. Division 15 Section "Plumbing Fixtures."
9. Division 16 Section "Wiring Devices."

KEEP BELOW IF ALTERNATES ARE SPECIFIED IN DIVISION 1. IF THE PROJECT REQUIRES

ALTERNATES, INSERT WORK REQUIRED FOR THE ALTERNATES BELOW AND COORDINATE WITH THE DRAWINGS.

C. Alternates:

1. Refer to Division 1 Section "Alternates" for description of work in this Section affected by alternates.

1.3 SUBMITTALS

A. Product data:

1. For each type of product indicated.

B. Shop drawings:

1. Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices and other components.
 - a. Show the following:
 - 1) Full-size details, edge details, attachments, etc.
 - 2) Locations and sizes of furring, blocking, including concealed blocking and reinforcement specified in other Sections.
 - 3) Locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacle and other items installed in quartz surface.
 - 4) Seam locations.

SAMPLES MAY BE PROVIDED IF COLOR HAS NOT BEEN SPECIFIED.

IF COLOR IS SPECIFIED, CONSIDER DELETING THIS PARAGRAPH.

C. Samples:

1. For each type of product indicated:
 - a. Submit minimum 6-inch by 6-inch sample in specified color.
 - b. Cut sample and seam together for representation of seaming techniques.
 - c. Indicate full range of color and pattern variation.
2. Approved samples will be retained as a standard for work.

D. Product data:

1. Indicate product description, fabrication information and compliance with specified performance requirements.

E. LEED Submittals:

MAINTAIN BELOW IF RECYCLED CONTENT IS REQUIRED FOR LEED CREDIT MR 5.1.

1. Credits MR 5.1:

- a. Product data indicating that materials are regionally manufactured and within 500 miles of the project site.

F. Product certificates:

1. For each type of product, signed by product manufacturer.

FEW MANUFACTURERS PROVIDE THIS TYPE OF CERTIFICATION COMPLIANCE. USE OF PARAGRAPH BELOW MAY LIMIT MANUFACTURER COMPETITION.

DUPONT MAINTAINS A DATABASE OF CERTIFICATION NUMBERS FOR FABRICATORS/INSTALLERS.

- G. Fabricator/installer qualifications:
 - 1. Provide copy of certification number.
- H. Manufacturer certificates:
 - 1. Signed by manufacturers certifying that they comply with requirements.

NSF/ANSI STANDARD 51: THERE ARE THREE CATEGORIES FOR NSF 51...FOOD CONTACT, SPLASH AND DRIP ZONE, ALL OTHER. FOR ANY APPLICATIONS WHERE FOOD MAY BE DROPPED ONTO A SERVING SURFACE, FOOD CONTACT LISTING SHOULD BE A PROJECT REQUIREMENT FOR THE SURFACING MATERIAL.

DELETE BELOW IF NO FOOD CONTACT IS REQUIRED FOR PROJECT.

- I. NSF/ANSI standards:
 - 1. Refer to www.nsf.org for the latest compliance to NSF/ANSI Standard 51 for food zone — all food types.
- J. Maintenance data:
 - 1. Submit manufacturer's care and maintenance data.
 - a. Maintenance kit for finishes shall be submitted.
 - 2. Include in project closeout documents.

1.4 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Shop that 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:
 - 1. Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer.
- C. Applicable standards:
 - 1. Standards of the following, as referenced herein:
 - a. American National Standards Institute (ANSI)
 - b. American Society for Testing and Materials (ASTM)
 - c. National Electrical Manufacturers Association (NEMA)
 - d. NSF International
 - 2. Fire test response characteristics:
 - a. Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E 84) or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - b. Flame Spread Index: 25 or less.
 - c. Smoke Developed Index: 450 or less.
- D. Allowable tolerances:
 - 1. Variation in component size: $\pm 1/8$ " (3 mm) over a 10' length.
 - 2. Location of openings: $\pm 1/8$ " (3 mm) from indicated location.
 - 3. Maximum $1/8$ " (3 mm) clearance between quartz surfaces and each wall.

DELETE BELOW IF COMPLEXITY OF PROJECT DOES NOT REQUIRE COORDINATION DRAWINGS.

- E. Coordination drawings:
 - 1. Shall be prepared indicating:
 - a. Plumbing work.

- b. Electrical work.
 - c. Miscellaneous steel for the general work.
 - d. Indicate location of all walls (rated and non-rated), blocking locations and recessed wall items, etc.
2. Content:
- a. Project-specific information, drawn accurately to scale.
 - b. Do not base coordination 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 designer for resolution of such conflicts.
 - 1) Minor dimension changes and difficult installations will not be considered changes to the contract.
3. Drawings shall:
- a. Be produced in 1/2" scale for all fabricated items.
4. Drawings must be complete and submitted to the architect within 60 days after award of 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 so as to eliminate or reduce conflicts that may arise during the installation of their work.
- F. Job mock-up:
- 1. Prior to fabrication of architectural millwork, erect sample unit to further verify selections made under sample submittals and to demonstrate the quality of materials and execution.

IT IS RECOMMENDED THAT THE DESIGNER INDICATE THOSE LOCATIONS REQUIRED FOR MOCK-UPS. MOCK-UP SHOULD INCLUDE EDGING, BOWLS, SEAMS, ETC. WHEN POSSIBLE, THESE SHOULD BE INCORPORATED INTO THE FINAL PROJECT TO SAVE COST. PROVIDE ELEVATION NUMBER FOR MOCK-UP, IF DESIRED, OR DELETE THE PARAGRAPH BELOW.

- 2. Mock-up shall be _____.
- 3. Build the mock-up to comply with the contract documents and install in a location as directed by the architect.
- 4. Notify the architect two weeks in advance of the date of when the mock-up will be delivered.
- 5. Should mock-up not be approved, re-fabricate and reinstall until approval is secured.
 - a. Remove rejected units from project site.
- 6. After approval, the mock-up may become a part of the project.
- 7. This mock-up, once approved, shall serve as a standard for judging quality of all completed units of work.

KEEP PARAGRAPH BELOW IF SIZE OR COMPLEXITY OF PROJECT REQUIRES PRE-INSTALLATION MEETING.

- G. Pre-installation conference:
- 1. Conduct conference at project site to comply with requirements in Division 1.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver no components to project site until areas are ready for installation.
- B. Store components indoors prior to installation.
- C. Handle materials to prevent damage to finished surfaces.
 - 1. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.6 WARRANTY

- A. Provide manufacturer's 10-year warranty against defects in materials.
 - 1. Warranty shall provide material to repair or replace defective materials.
 - 2. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.

1.7 MAINTENANCE

- A. Provide maintenance requirements as specified by the manufacturer.

PART 2 — PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the requirements, provide the following product:
 - 1. Zodiac® quartz surfaces from DuPont (basis of design)
 - 2. Insert manufacturer's name.
 - 3. Insert manufacturer's name.

2.2 MATERIALS

RETAIN BELOW FOR PERFORMANCE SPECIFICATION

- A. Material:
 - 1. Homogeneous quartz surfaces material.
 - 2. Material shall have minimum physical and performance properties specified.

3 cm (1 1/8") PRODUCT IS TYPICALLY FOR HORIZONTAL INSTALLATION AND 2 cm (3/4") PRODUCT FOR VERTICAL INSTALLATION.

SEE MANUFACTURER'S PRODUCT DATA OF PANEL SIZE LIMITATIONS.

THE THICKER THE MATERIAL, THE MORE THE COST IN BOTH PRODUCT AND LABOR.

- B. Thickness:
 - 1. 2 cm (3/4").
 - 2. 3 cm (1 1/8").

IF NOT DETAILED ON THE PROJECT, SELECT EDGE TREATMENT HERE.

DELETE BELOW IF NOT REQUIRED FOR PROJECT.

- C. Edge treatment:
 - 1.
 - 2.
 - 3.

4. As indicated.

D. Seam width:

1. <1/8" unless otherwise specified.

DELETE BELOW IF NO SINKS ON PROJECT.

E. Sink mounting:

1. Undermount.
2. Drop in.

**DELETE BELOW IF NOT ON PROJECT.
DETAIL HEIGHT ON DRAWINGS.**

F. Backsplash:

1. Applied.

**DELETE BELOW IF NOT ON PROJECT.
DETAIL HEIGHT ON DRAWINGS.**

G. Endsplash:

1. Applied.

H. Performance characteristics: Zodiac® physical properties data sheet:

Property Procedure	Typical Result	Test
Flexural Strength	>5,300 psi	ASTM D 790
Flexural Modulus	5.3–5.7E ⁶ psi	ASTM D 790
Flexural Elongation	>0.1%	ASTM D 790
Compression Strength (Dry)	~27,000 psi	ASTM C 170
Compression Strength (Wet)	~24,000 psi	ASTM C 170
Hardness	7	Mohs' Hardness Scale
Thermal Expansion	1.45 x 10 ⁻⁵ in./in./°C	ASTM D 696
Gloss (60° Gardner)	45–50	ANSI Z 124
Colorfastness	Passes	ANSI Z 124.6.5.1
Wear and Cleanability	Passes	ANSI Z 124.6.5.3
Stain Resistance	Passes	ANSI Z 124.6 (stain 5.2, chemical 5.5, cigarette 5.4 resistances)
Fungal and Bacterial Resistance	No growth	ASTM G 21 & G 22
High Temperature Resistance (356°F)	None to slight effect	NEMA LD 3.3.6*
Boiling Water Resistance	None to slight effect	NEMA LD 3.3.5*
Freeze-Thaw Cycling	Unaffected	ASTM C 1026
Point Impact	Passes	ANSI Z 124.6.4.2
Ball Impact	164 inches	NEMA LD 3.3.8*
Slip Resistance	Above 0.80 for textured models	ASTM C 1028
Static Coefficient of Friction (as received)	0.89/0.61 (wet/dry)	ASTM C 1028
Static Coefficient of Friction (with renovator)	0.87/0.65 (wet/dry)	ASTM C 1028
Abrasion Resistance	139	ASTM C 501
Specific Gravity	2.44	ASTM D 792

Density	~2400 kg/m ³	
Water Absorption	0.12%	ASTM C 373
Long- and Short-Term	<0.04%	ASTM D 570
Moisture Expansion	<0.01% on average	ASTM C 370
Toxicity	Passes, LC50=68–128	Pittsburgh Protocol
Flammability	For all colors tested	ASTM E 84, UL 723 and NFPA 255
	(Class I and Class A)	
Flame Spread Index	FSI <10 for 3 cm and <15 for 2 cm	
Smoke Developed Index	SDI <50 for 3 cm and <100 for 2 cm	
Nominal Thickness	2 cm and 3 cm	
Nominal Weight	10 lb./ft. ² (2 cm)	
	15 lb./ft. ² (3 cm)	

* NEMA results based on the NEMA LD 3-2000

2.3 ACCESSORY PRODUCTS

A. Joint adhesive:

1. DuPont-approved adhesive to create color-matched seam.

RETAIN BELOW FOR UNDERMOUNT SINKS AND BOWLS

B. Sink/bowl mounting hardware:

1. Manufacturer's approved bowl clips, brass inserts and fasteners for attachment of undermount sinks/bowls.

2.4 FACTORY FABRICATION

WEIGHT OF PRODUCT IS APPROXIMATELY 10–15 PSF AND IS TYPICALLY FIELD ASSEMBLED.

A. Shop assembly

1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
2. Form joints between components using manufacturer's standard joint adhesive joints.
 - a. Reinforce as required.
3. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.
4. Rout and finish component edges with clean, sharp returns.
 - a. Rout cutouts, radii and contours to template.
 - b. Smooth edges.

MOST MANUFACTURERS HAVE MULTIPLE TIERS FOR PRICING QUARTZ MATERIALS.

SPECIFYING PRODUCT TO BE SELECTED FROM THE MANUFACTURER'S FULL RANGE OF COLORS IS UNACCEPTABLE AND WILL RESULT IN HIGHER COST AND CONTRACTUAL CONFLICTS.

2.5 FINISHES

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

1. Color:

- a.
- b.
- c.

PART 3 — EXECUTION

3.1 INSTALLATION

- A. Install components plumb and level, in accordance with approved shop drawings and product installation details.
 - 1. Tops:
 - a. Flat and true to within 1/8" (3 mm) of a flat surface over a 10' length.
 - b. Allow a minimum of 1/16" to a maximum of 1/8" (3 mm) clearance between surface and each wall.
- B. Form field joints using manufacturer's recommended adhesive, with joint widths no greater than 1/8" (3 mm) in finished work.
 - 1. Keep components and hands clean when making joints.

DELETE BELOW IF NOT ON PROJECT.

SELECT EITHER OR BOTH MOUNTINGS FOR THE PROJECT IF REQUIRED.

- C. Sinks:
 - 1. Adhere undermount sinks/bowls to countertops using manufacturer's recommended adhesive and mounting hardware.
 - 2. Adhere drop-in sinks/bowls to countertops using manufacturer-recommended adhesives and color-matched silicone sealant.
- D. Provide backsplashes and endsplashes as indicated on the drawings.
 - 1. Adhere to countertops using manufacturer's standard color-matched silicone sealant.
- E. Keep components and hands clean during installation.
 - 1. Remove adhesives, sealants and other stains.
 - 2. Components shall be clean on date of substantial completion.

DELETE BELOW IF NOT ON PROJECT.

- F. Connections:
 - 1. Make plumbing connections in accordance with Division 15.
 - 2. Make electrical connections in accordance with Division 16.

3.2 CLEANING AND PROTECTION

- A. Keep components clean during installation.
 - 1. Remove adhesives, sealants and other stains.
- B. Protect surfaces from damage until date of substantial completion.
 - 1. Replace damaged work.

DELETE SCHEDULE BELOW IF NOT REQUIRED FOR PROJECT OR IF SCHEDULE ON DRAWINGS IS COMPLETE.

COORDINATE WITH THE INFORMATION IN PART 2.

3.3 SCHEDULE

A. Reception areas:

1. Surfaces of material adhesively joined with exposed seams.

	Color
a. Vertical Thickness _____	_____
b. Horizontal Thickness _____	_____
c. Seam Width _____	_____
d. Edge Details _____	_____

B. Nurses station:

1. Surfaces of material adhesively joined with exposed seams.

	Color
a. Vertical Thickness _____	_____
b. Horizontal Thickness _____	_____
c. Seam Width _____	_____
d. Edge Details _____	_____
e. Backsplash _____	_____
f. Sidesplash _____	_____
g. Sink _____	_____

C. Seats:

1. Surfaces of material adhesively joined with exposed seams.

	Color
a. Vertical Thickness _____	_____
b. Horizontal Thickness _____	_____
c. Seam Width _____	_____
d. Edge Details _____	_____

D. Countertops:

1. Surfaces of material adhesively joined with exposed seams.

	Color
a. Vertical Thickness _____	_____
b. Horizontal Thickness _____	_____
c. Seam Width _____	_____
d. Edge Details _____	_____
e. Backsplash _____	_____
f. Sidesplash _____	_____

E. Bar tops:

1. Surfaces of material adhesively joined with exposed seams.

	Color
a. Vertical Thickness _____	_____
b. Horizontal Thickness _____	_____
c. Seam Width _____	_____
d. Edge Details _____	_____
e. Backsplash _____	_____
f. Sidesplash _____	_____
g. Sink _____	_____

THESE ARE SPECIFIC RECOMMENDATIONS

**REGARDING HOT APPLICATIONS
MADE FROM ZODIAQ®. THEY MAY NOT APPLY
TO OTHER MATERIALS.**

**CONFIRM INSTALLATION REQUIREMENTS
WITH MANUFACTURER.**

F. Cafeteria surfaces — hot:

1. Adhesively joined with exposed seams.
2. Provide expansion joints in countertop as detailed on the drawings.
3. Make cutouts to templates furnished by the manufacturer.
4. Reinforce edges and cutouts as recommended by the manufacturer.
5. Provide insulation between material and adjacent hot water pans and food warmers.
6. Thermally isolate hot applications from cold.
7. Provide venting of cabinets as required.

	Color
a. Vertical Thickness _____	_____
b. Horizontal Thickness _____	_____
c. Seam Width _____	_____
d. Edge Details _____	_____
e. Backsplash _____	_____
f. Sidesplash _____	_____
g. Sink _____	_____

**THESE ARE SPECIFIC RECOMMENDATIONS
REGARDING COLD APPLICATIONS MADE FROM
ZODIAQ®. THEY MAY NOT APPLY TO OTHER
MATERIALS.**

**CONFIRM INSTALLATION REQUIREMENTS
WITH MANUFACTURER.**

G. Cafeteria surfaces — cold:

1. Adhesively joined with exposed seams.
2. Provide expansion joints in countertop as detailed on the drawings.
3. Make cutouts to templates furnished by the manufacturer.
4. Reinforce edges and cutouts as recommended by the manufacturer.
5. Provide insulation between material and adjacent cold surfaces.
6. Thermally isolate hot applications from cold.

	Color
a. Vertical Thickness _____	_____
b. Horizontal Thickness _____	_____
c. Seam Width _____	_____
d. Edge Details _____	_____
e. Backsplash _____	_____
f. Sidesplash _____	_____
g. Sink _____	_____

H. Countertops with undermount stainless steel sinks:

1. Adhesively joined with exposed seams.

	Color
a. Vertical Thickness _____	_____
b. Horizontal Thickness _____	_____
c. Seam Width _____	_____
d. Edge Details _____	_____

- e. Backsplash _____
- f. Sidesplash _____
- g. Sink _____

I. Countertops with seamed undermount porcelain sinks:

1. Adhesively joined with exposed seams.

- | | |
|-------------------------------|-------|
| | Color |
| a. Vertical Thickness _____ | _____ |
| b. Horizontal Thickness _____ | _____ |
| c. Seam Width _____ | _____ |
| d. Edge Details _____ | _____ |
| e. Backsplash _____ | _____ |
| f. Sidesplash _____ | _____ |
| g. Sink _____ | _____ |

**UNDERMOUNT LAVATORIES OF CHINA OR
STAINLESS STEEL MAY BE USED.**

J. Countertops with traditional undermount lavatories:

1. Adhesively joined with exposed seams.

- | | |
|-------------------------------|-------|
| | Color |
| a. Vertical Thickness _____ | _____ |
| b. Horizontal Thickness _____ | _____ |
| c. Seam Width _____ | _____ |
| d. Edge Details _____ | _____ |
| e. Backsplash _____ | _____ |
| f. Sidesplash _____ | _____ |
| g. Sink _____ | _____ |

K. Vanity tops and undermount lavatories:

1. Surfaces of material adhesively joined with exposed seams.

- | | |
|-------------------------------|-------|
| | Color |
| a. Vertical Thickness _____ | _____ |
| b. Horizontal Thickness _____ | _____ |
| c. Seam Width _____ | _____ |
| d. Edge Details _____ | _____ |
| e. Backsplash _____ | _____ |
| f. Sidesplash _____ | _____ |
| g. Sink _____ | _____ |

L. Vanity tops and drop-in lavatories:

1. Surfaces of material adhesively joined with exposed seams.

- | | |
|-------------------------------|-------|
| | Color |
| a. Vertical Thickness _____ | _____ |
| b. Horizontal Thickness _____ | _____ |
| c. Seam Width _____ | _____ |
| d. Edge Details _____ | _____ |
| e. Backsplash _____ | _____ |
| f. Sidesplash _____ | _____ |
| g. Sink _____ | _____ |

M. Windowsills:

1. Surfaces of material adhesively joined with exposed seams.

- | | |
|-------------------------------|-------|
| | Color |
| a. Vertical Thickness _____ | _____ |
| b. Horizontal Thickness _____ | _____ |

c. Seam Width _____
d. Edge Details _____

N. Interior Steps:

1. Surfaces of material adhesively joined with exposed seams.

Color

a. Vertical Thickness _____
b. Horizontal Thickness _____
c. Seam Width _____
d. Edge Details _____