

*SPEC NOTE: This Section is based on Corian® Quartz Product (formerly known as Zodiac®) manufactured by DuPont. Technical information and a listing of the DuPont registered Corian® Quartz fabricator/installers can be provided by local Corian® Quartz distributor. The local distributor can be obtained by calling DuPont at 1- 800-4-CORIAN (1-800-426-7426). Qualified construction and design professional may copy this document for the purpose of creating construction specifications or purchase orders for products and materials manufactured by E. I. du Pont de Nemours and Company.*

1 General

1.1 SUMMARY

- .1 Section Includes: Provide simulated stone fabrications including but not limited to following:
  - .1 window sills.
  - .2 lavatory or laboratory tops with seamed bowls.
  - .3 lavatory or laboratory tops with undermount bowls.
  - .4 counter tops for nurses stations - reception areas.
  - .5 vanity tops.
  - .6 cafeteria surfaces hot and cold.
  - .7 millwork counter tops with sinks.
  - .8 wireless charging unit.
- .2 Related Sections: Following description of work is included for reference only and shall not be presumed complete:
  - .1 Provision of general LEED® requirements: Section 01 33 29, General LEED® Requirements.
  - .2 Provision of general LEED® Product requirements: Section 01 60 13, LEED® Product Requirements.
  - .3 Waste management and disposal requirements: Section 01 74 19, Waste Management and Disposal.
  - .4 Provision of indoor air quality requirements: Section 01 81 19, Indoor Air Quality Requirements.
  - .5 Provision of finish carpentry and architectural woodwork: Section 06 40 00, Architectural Woodwork.

- .6 Provision of elastomeric joint sealants: Section 07 92 00, Joint Sealants.
- .7 Provision of tile work: Section 09 30 00, Tiling.
- .8 Provision of wall coverings: Section 09 72 00, Wall Coverings.
- .9 Provision of plumbing and plumbing fixtures: [Division 22, Plumbing] [Mechanical].

1.2 REFERENCES

.1 Abbreviations and Acronyms:

- .1 LEED®: Leadership in Energy and Environmental Design; [www.cagbc.org](http://www.cagbc.org).
- .2 MDF: Medium Density Fibreboard.
- .3 SCAQMD: South Coast Air Quality Management District; [www.aqmd.gov](http://www.aqmd.gov).
- .4 VOC: Volatile Organic Compound.

.2 Definitions:

- .1 Solid Quartz Surface: Quartz surface materials generally consist of natural quartz particles, reacted monomers and resins, pigments and various performance-enhancing additives manufactured as slabs of various specific calipers. Quartz surface materials are solid, non-porous and homogeneous and exhibit strength, hardness and durability.

.3 Reference Standards:

- .1 ANSI/NEMA LD 3-05 - High-Pressure Decorative Laminates (HPDL)
- .2 ANSI/NPA A208.2-09 - Medium Density Fiberboard (MDF) For Interior Applications
- .3 ASTM C170/C170M-15a - Standard Test Method for Compressive Strength of Dimension Stone
- .4 ASTM C370-12 - Standard Test Method for Moisture Expansion of Fired Whiteware Products
- .5 ASTM C373-14a - Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fires Whiteware products, Ceramic Tiles, and Glass Tiles
- .6 ASTM C501-84(09) - Standard Test Method for relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser
- .7 ASTM C920-14a - Standard Specification for Elastomeric Joint Sealants

- .8 ASTM C1026-13 - Standard Test Method for Measuring the Resistance of Ceramic and Glass Tile to Freeze-Thaw Cycling
- .9 ASTM C1028-06 - Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method
- .10 ASTM D570-98(10)e1 - Standard Test Method for Water Absorption of Plastics
- .11 ASTM D696-08e1 - Standard Test Method for Coefficient of linear Thermal Expansion of Plastics Between -30°C and 30°C with a Vitreous Silica Dilatometer
- .12 ASTM D790-10 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- .13 ASTM D792-13 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
- .14 ASTM E84-14 - Standard Test Method for Surface Burning Characteristics of Building Materials
- .15 ASTM G21-13 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
- .16 ASTM G22-76(96) - Standard Practice for Determining Resistance of Plastics to Bacteria
- .17 CSA B45.5-11/  
IAPMO Z124-2011 - Plastic Plumbing Fixtures
- .18 CSA O115-M82 - Hardwood and Decorative Plywood
- .19 NFPA 101-15 - Life Safety Code and Handbook
- .20 NSF/ANSI 51-07 - Food Equipment Materials
- .21 SCAQMD Rule 1168 - Adhesive and Sealant Applications (amended January 2005)
- .22 CAN/ULC-S102-07 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies
- .23 UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials

### 1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Preinstallation Meetings: Arrange preinstallation meeting 1 week prior to commencing work with all parties associated with trade as designated in Contract Documents or as requested by Consultant. Presided over by Contractor, include Consultant who may attend, Subcontractor performing work of this trade, Owner's representative, testing company's representative and consultants of applicable discipline. Review Contract Documents for work included under this trade and determine complete understanding of requirements and responsibilities relative to work included, storage and handling of materials, materials to be used, installation of materials, sequence and quality control, Project staffing, restrictions on areas of work and other matters affecting construction, to permit compliance with intent of work of this Section.

### 1.4 SUBMITTALS

- .1 Product Data:
  - .1 Submit manufacturer's Product data.
  - .2 Submit manufacturer's Product data with resistance to list of chemicals.
- .2 Shop Drawings: Submit Shop Drawings for work of this Section in accordance with Section 01 30 00. Indicate plans, sections, dimensions, component sizes, edge details, thermosetting requirements, fabrication details, attachment provisions, sizes of furring, blocking, including concealed blocking and coordination requirements with adjacent work. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacles and other items installed in solid surface.
- .3 Coordination Drawings: Submit coordination drawings indicating plumbing and miscellaneous steel work indicating locations of wall rated or non-rated, blocking requirements, locations and recessed wall items and similar items.
- .4 Samples: Submit samples in accordance with Section 01 30 00. Submit minimum 102 mm x 102 mm (4" x 4") samples. Cut sample and seam together for representation of inconspicuous seam. Indicate full range of colour and pattern variation. Approved samples will be retained as standards for work.

*SPEC NOTE: NSF/ANSI 51, Food Zone, Splash Zone and Non-Food Zone, application where food may be dropped onto serving surfaces. Delete following if no food contact if no food contact is required for Project. Delete following on flammability if there is no requirement for fire performance.*

- .5 Test and Evaluation Reports: Submit flammability test reports [and food preparation zone certifications/listing confirming compliance with NSF/ANSI 51. Refer to [www.nsf.org](http://www.nsf.org) for the latest compliance to NSF/ANSI 51 for Food Zone — all food types.]

## 1.5 CLOSEOUT SUBMITTALS

### .1 Operation and Maintenance Data:

- .1 Submit manufacturer's care and maintenance data, including cleaning instructions. Include in Project closeout documents.
- .2 Provide a care and maintenance kit. Review maintenance procedures and warranty details with Owner upon completion.

## 1.6 QUALITY ASSURANCE

### .1 Qualifications:

- .1 Installers: Provide work of this Section executed by competent installers with minimum 5 years' experience in the application of Products, systems and assemblies specified and with approval and training of the Product manufacturers.

### .2 Mock-Ups:

- .1 Prior to final approval of Shop Drawings, erect 1 full size mock-up of each component at Project site demonstrating quality of materials and execution for Consultant review.
- .2 Should mock-up not be approved, rework or remake until approval is secured. Remove rejected units from Project site.
- .3 Approved mock-up will be used as standard for acceptance of subsequent work.
- .4 Approved mock-ups may remain as part of finished work.

## 1.7 DELIVERY, STORAGE AND HANDLING

### .1 Delivery and Acceptance Requirements: Deliver no components to Project site until areas are ready for installation.

### .2 Storage and Handling Requirements:

- .1 Store components indoors prior to installation.
- .2 Handle materials to prevent damage to finished surfaces.

## 1.8 WARRANTY

### .1 Manufacturer Warranty: Provide manufacturer's standard warranty for material only for period of 10 years against defects and/or deficiencies in accordance with General Conditions of the Contract. Promptly correct any defects or deficiencies which become apparent within warranty period, to satisfaction of Consultant and at no expense to Owner.

2 Products

2.1 MANUFACTURERS

- .1 Manufacturer List: Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications:
  - .1 Corian® Quartz by DuPont (formerly known as DuPont™ Zodiaq® Quartz Surface) ; [www.corianquartz.com](http://www.corianquartz.com). Contact: Roger Ali, DuPont, [roger.ali@dupont.com](mailto:roger.ali@dupont.com), 416-997-1858
  - .2 Silestone Quartz; [www.silestone.com](http://www.silestone.com)
- .2 Substitution Limitations: This Specification is based on DuPont's Products. Comparable Products from manufacturers listed herein will be accepted provided they meet requirements of this Specification.

2.2 MATERIALS

- .1 Description:
  - .1 Sustainability Characteristics: Provide Products meeting following LEED® performance criteria:

*SPEC NOTE: Use following in connection with LEED® Credit MR 4. It may be necessary to split following paragraph due to different Products within a particular Section having different recycling amounts (ie. In Section 09 21 16, gypsum board is 40% and steel is 25%). Edit accordingly.*

- .1 MRc4: Provide Product with a combined minimum pre-consumer and post-consumer recycled content of [xx%].

*SPEC NOTE: Use following paragraph if amount of recycled content is unknown, but desired for LEED® credit.*

- .2 MRc4: Provide Product with maximum pre-consumer and post-consumer recycled content available.

*SPEC NOTE: Use following in connection with LEED® Credit MR 5.*

- .3 MRc5: Provide Product with regional content.

*SPEC NOTE: Use following in connection with LEED® Credit EQ 4.1.*

- .4 EQc4.1: Provide adhesives and sealants with VOC quantities lower than stated in SCAQMD Rule 1168. Ensure VOC quantities for sealants do not exceed 250 g/L under any circumstances.

*SPEC NOTE: See Technical Bulletin K-28294 Corian® Quartz® Performance Properties.*

.2 Performance/Design Criteria:

	Property	Requirement min or max	Test	Procedure
.1	Flexural Strength	>5,300 psi	ASTM D790	
.2	Flexural Modulus	5.3 – 5.7 x 10 <sup>6</sup> psi	ASTM D790	
.3	Flexural Elongation	>0.1%	ASTM D790	
.4	Compression Strength (Dry)	27,300 psi	ASTM C170/C170M	
.5	Compression Strength (Wet)	24,400 psi	ASTM C170/C170M	
.6	Hardness	7	Mohs' Hardness Scale	
.7	Thermal Expansion	1.45 x 10 <sup>-5</sup> m/m/°C	ASTM D696	
.8	Gloss (60° Gardner)	45–50	ANSI Z124	
.9	Colourfastness	No effect	NEMA LD 3.3.3*	
.10	Wear and Cleanability	Passes	CSA B45.5/IAPMO Z124	
.11	Stain Resistance	Passes	CSA B45.5/IAPMO Z124	
.12	Fungal Resistance	No growth	ASTM G21	
.13	Bacterial Resistance	No growth	ASTM G22	
.14	High Temperature Resistance	None to slight effect	NEMA LD 3.3.6*	
.15	Boiling Water Resistance	None to slight effect	NEMA LD 3.3.5*	
.16	Freeze-Thaw Cycling	Unaffected	ASTM C1026	
.17	Point Impact	Passes	ANSI Z124.6.4.2.1	
.18	Ball Impact Resistance: Slabs No fracture – 1/2 lb ball – 2 & 3 cm	164 in. (No Failure at height)	NEMA LD 3.3.8*	

.19	Static Coefficient of Friction (as received)	0.89/0.61 (Dry/Wet)	ASTM C1028
.20	Abrasion Resistance	139	ASTM C501
.21	Density	2.4 g/cm <sup>3</sup>	ASTM D792
.22	Water Absorption	0.12%	ASTM C373
.23	Long- and Short-Term	<0.04%	ASTM D570
.24	Moisture Expansion	<0.01% on average	ASTM C370
.25	Flammability	Class A	NFPA 101
.26	Flame Spread Value	FSV 0 for 3 cm, FSV 5 for 2 cm	CAN/ULC-S102
.27	Smoke Developed Value	SDV 10 for 3 cm, SDV 40 for 2 cm	CAN/ULC-S102

\* NEMA results based on the NEMA LD 3

*SPEC NOTE: Industry standard is to use 2 cm (3/4") or 3 cm (1-1/4") thick Products. Contact manufacturer's rep. for panel size limitations.*

.3 Solid Quartz Material:

.1 Generally consisting of natural quartz particles, reacted monomers and resins, pigments and various performance-enhancing additives manufactured as slabs of various specific calipers. Quartz surface materials are solid, non-porous and homogeneous and exhibit strength, hardness and durability; meeting following criteria:

.1 Flammability: Flame Spread Value (FSV):  $\leq 5$  and Smoke Development Value (SDV):  $\leq 40$  when tested to CAN/ULC-S102 for 2 cm (3/4") and FSV: 0 and SDV:  $\leq 10$  when tested to CAN/ULC-S102 for 3 cm (1-1/4").

*SPEC NOTE: Verify compliance with this requirement when used in food preparation and local authority requirement.*

.2 Food Equipment Material Compliance: Food Zone to NSF/ANSI 51.

.2 Ensure material has minimum physical and performance properties specified under "Performance/Design Criteria".

.3 Adhesive for Bonding to Other Products: One component silicone to ASTM C920.



- .4 Sealant: A standard mildew-resistant, FDA/UL [and NSF/ANSI 51 compliant in Food Zone area,] recognized silicone colour matched sealant or clear silicone sealants.

*SPEC NOTE: Retain following paragraph for undermount sinks and bowls.*

- .5 Sink/Bowl Mounting Hardware: Manufacturer's approved bowl clips, brass inserts and fasteners for attachment of undermount sinks/bowls.

*SPEC NOTE: Check whether cut outs are near a heat source; if not delete following 2 paragraphs.*

- .6 Heat Reflecting Tape: Manufacturer's standard aluminum foil tape, with required thickness, for use with cutouts near heat sources.
- .7 Insulating Nomex<sup>®</sup> Fabric: Manufacturer's standard for use with conductive tape in insulating solid surface material from adjacent heat source.

## 2.3 COMPONENTS

- .1 Window Sills: 2 cm (3/4") thick solid quartz material, adhesively joined with recommended seam widths not greater than 3 mm (1/8") in finished work, edge details as indicated on Drawings. Colour selected later by Consultant from manufacturer's full colour range.
- .2 Perimeter Frame: Solid quartz material must be supported on a strong perimeter frame. Structural support is required to support the weight of solid quartz material and any external loads. Local Codes may dictate which support material may be used. Typical support materials include cabinetry, wood, plywood and steel. Support material should be moisture resistant. Particleboard is not an acceptable support material.
- .3 Supporting Seams: Solid quartz material seams require structural support. The structural support needs to be flush with the supporting substructure. Local Codes may dictate which support material may be used. Typical support materials include cabinetry, wood, plywood and steel. Underlayment support material should be moisture resistant. Particleboard is not an acceptable support material.

*SPEC NOTE: Refer to Technical Bulletins Z-2006-002 Z-1, Manufacturing and Installation Requirements for DuPont<sup>™</sup> Zodiaq<sup>®</sup> Quartz Surfaces, Z-2007-001 Commercial Food Service Bulletin, K-25296 – Sinks and Lavatories, K-27499 – DuPont<sup>™</sup> Corian<sup>®</sup> Lavatory positioning for ADA Compliance and K-27500 – Integrating an Undermount DuPont<sup>™</sup> Corian<sup>®</sup> Sink or Bowl to a DuPont<sup>™</sup> Zodiaq<sup>®</sup> Countertop or Vanity Top.*

*SPEC NOTE: Select desired colour from manufacturer's latest catalogue or indicate colour(s) will be selected later by Consultant (Verify if any cost implication due to variation in colours).*

- .4 Lavatory Tops with Hard Seamed Bowls: [2 cm (3/4")] [3cm (1-1/4")] thick countertop of quartz surfacing material, cast to desired profiles and sizes having edge details as indicated on Drawings conforming to CSA B45.5/IAPMO Z124, complete with seamed "S" undermount bowl. Provide countertops complete with backsplashes of size shown on

Drawings. Ensure bowl[s] is/are [ ] model and [ ] colour. Select desired colour from manufacturer’s latest catalogue or indicate colour(s) will be selected later by Consultant. (Verify if any cost implication due to variation in colours.)

- .5 Lavatory Tops with Undermount Bowls: [2 cm (3/4")] [3cm (1-1/4")] thick countertop of solid quartz surfacing material, cast to desired profiles and sizes having edge details as indicated on Drawings conforming to CSA B45.5/IAPMO Z124, complete with [1] undermount bowl. Provide countertops complete with backsplashes of size shown on Drawings. Use undermount hardware according to manufacturer's instructions. Ensure bowl[s] is/are [ ] model and [ ] colour.

*SPEC NOTE: Refer to Technical Bulletin K-28989 DuPont™ Corian® Charging Unit – Individual: Zodiac® Installation*

- .6 Wireless Charging Unit: A complete, self-contained system with a dual-mode transmitter that is compliant with PMA and WPC Qi standards.

- .1 Acceptable Product: “DuPont™ Zodiac® Charging Unit – Individual” by DuPont.

- .7 Fabrication:

- .1 Fabricate components in shop to greatest extent practical to sizes and shapes indicated, in accordance with approved Shop Drawings and solid quartz manufacturer requirements. Provide factory cutouts for plumbing fittings and bath accessories as indicated on Drawings.
  - .2 Fabricate joints between components using manufacturer’s standard joint adhesive. Ensure joints are as inconspicuous in appearance as possible and without voids.
  - .3 Provide holes and cutouts for plumbing and bath accessories as indicated on Drawings.
  - .4 Rout and finish component edges to a smooth, uniform finish. Rout cutouts, then sand edges smooth. Repair or reject defective or inaccurate work.

*SPEC NOTE: Select desired finish or where more than 1 finish is required, ensure locations of different finishes are identified on Drawings.*

- .5 Finish: Ensure surfaces have uniform finish:

*SPEC NOTE: Following is standard finish.*

- .1 Gloss rating >45 is typical.
  - .6 Fabrication Tolerances:
    - .1 Variation in Component Size: +/-3 mm (+/-1/8").
    - .2 Location of Openings: +/-3 mm (+/-1/8") from indicated location.

3 Execution

3.1 EXAMINATION

.1 Verification of Conditions:

- .1 Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work. Proceed with installation only after unsatisfactory conditions have been corrected.
- .2 Verify actual site dimensions and location of adjacent materials prior to commencing work.
- .3 Examine cabinets upon which counter tops are to be installed. Verify cabinets are level to within 3 mm in 3 m (1/8" in 10' - 0").
- .4 Notify Consultant in writing of any conditions which would be detrimental to installation.

.2 Evaluation and Assessment: Commencement of work implies acceptance of previously completed work.

3.2 INSTALLATION

- .1 Install components plumb, level, rigid, scribed to adjacent finishes in accordance with reviewed Shop Drawings and Product installation details.
- .2 Fabricate field joints using manufacturer's recommended adhesive. Keep components and hands clean when making joints. Reinforce field joints as specified herein. Cut and finish component edges with clean, sharp returns.
- .3 Route radii and contours to template. Anchor securely to base component or other supports. Align adjacent components and form seams to comply with manufacturer's written recommendations using adhesive in colour to match work. Carefully dress joints smooth, remove surface scratches and clean entire surface.
- .4 Install countertops with no more than 3 mm (1/8") sag, bow or other variation from a straight line.
- .5 Adhere undermount/submount/bevel mount sinks/bowls to countertops using manufacturer's recommended adhesive and mounting hardware.

- .6 Adhere topmount sinks/bowls to countertops using manufacturer recommended adhesives and colour-matched silicone sealant. [Secure seam mount bowls and sinks to counter tops using colour matched joint adhesive.]
- .7 Seal between wall and components with joint sealant as specified herein and in Section 07 92 00, as applicable.
- .8 Provide backsplashes and endsplashes as indicated on Drawings. Adhere to countertops using a standard colour-coordinated silicone sealant. Adhere applied sidesplashes to countertops using a standard colour-coordinated silicone sealant.
- .9 Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Ensure components are clean on date of Substantial Performance of the Work.
- .10 Coordinate connections of plumbing fixtures with [Division 22] [Mechanical]. Make plumbing connections to sinks in accordance with [Division 22] [Mechanical].

### 3.3 REPAIR

- .1 Replace areas of severely damaged surfaces in accordance with manufacturer's recommendations.

### 3.4 SITE QUALITY CONTROL

- .1 Non-Conforming Work: Replace damaged work which cannot be satisfactorily repaired, restored or cleaned, to satisfaction of Consultant at no cost to Owner.

### 3.5 CLEANING

- .1 Remove excess adhesive and sealant from visible surfaces.
- .2 Clean surfaces in accordance with manufacturer's "Care and Maintenance Instructions".

### 3.6 PROTECTION

- .1 Provide protective coverings to prevent physical damage or staining following installation for duration of Project.
- .2 Protect surfaces from damage until date of Substantial Performance of the Work.

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