

SECTION 096618

RESILIENT QUARTZ TILE FLOORING

CSI 3-PART LONG-FORM GUIDE SPECIFICATION
USE FOR CONTRACT DOCUMENT (CD) SPECIFICATION ISSUES
EDIT TO SUIT PROJECT

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section consists of resilient quartz tile flooring and accessories including, but not limited to, adhesive and finish top coatings.
1. Knight Quartz Tile
 2. Accessories
 - a. Adhesives
 - b. Trowels
 - c. Cleaning products
 - d. Finish systems
- B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. A list of those Documents and Sections include, but is not limited to the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and DIVISION 01 General Requirements, Specification Sections, apply to this Section.
 2. SECTION 033000, CAST-IN-PLACE CONCRETE: For proper concrete design, underslab vapor barrier and finished concrete surface required to accept quartz-based flooring.
 3. SECTION 035416, HYDRAULIC CEMENT UNDERLAYMENT: For leveling of existing concrete slabs.
 4. SECTION 061000, ROUGH CARPENTRY: For proper wood-based panel underlayment required to accept quartz-based flooring.
 5. SECTION 079200, JOINT SEALANTS: For exposed movement joints.
 6. SECTION 079513, EXPANSION JOINT COVER ASSEMBLIES: For expansion joint assembly penetrating through tile flooring.
 7. SECTION 096513, RESILIENT BASE AND ACCESSORIES: For wall base, expansion joint trim, and transition strips between quartz flooring and other flooring surfaces.

1.2 REFERENCES

NOTE: Edit Definitions and References below to suit project.

- A. Abbreviations and Acronyms per SECTION 011000, SECTION 014000, and as follows:

1. AHJ. Authority Having Jurisdiction from local, state and federal regulatory agencies.
2. Per. In accordance with
3. RH. Relative humidity.
4. SCOF. Static Coefficient Of Friction

B. Definitions per SECTION 011000, SECTION 014000, and as follows:

1. **HAP**. Hazardous Air Pollutant
2. **Quartz**. A very hard abundant mineral composed of sand or silicon dioxide (SiO₂) with a hardness of 7 on the Mohs' scale.
3. **VOC**. Volatile Organic Compounds are chemical compounds that have a high vapor pressure and low water solubility.

C. Referenced Standards per SECTION 014000 and as follows:

NOTE: Add the following language in Division 01 (modify to suit project):
“Each Reference Standard listed throughout this Specification shall be the latest issue accepted by the AHJ, and as of the document bid issue date.”

1. ANSI. American National Standards Institute; www.ansi.org
2. APA. American Plywood Association; www.apawood.org
 - a. APA Form L335, Installation and Preparation of Plywood Underlayment for Resilient Flooring
3. ASHRAE. American Society of Heating, Refrigerating, and Air-Conditioning Engineers; www.ashrae.org
 - a. ANSI / ASHRAE 55, Thermal Environmental Conditions for Human Occupancy
4. ASTM. ASTM International; www.astm.org
 - a. ASTM C1028, Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method
 - b. ASTM D5116, Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products
 - c. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials
 - d. ASTM E648, Test Method for Critical Radiant Flux (Radiant Panel) of Floor Covering Systems using a Radiant Heat Energy Source.
 - e. ASTM E662, NBS Smoke Chamber Test Method
 - f. ASTM F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring
 - g. ASTM F970, Standard Test Method for Static Load Limit
 - h. ASTM F1066, Standard Specification for Vinyl Composition Floor Tile.
 - i. ASTM F1265, Standard Test Method for Resistance to Impact for Resilient Floor Tile
 - j. ASTM F1304, Standard Test Method for Deflection of Resilient Floor Tile
 - k. ASTM F1482, Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring

- l. ASTM F1514, Standard Test Method for Measuring Heat Stability of Resilient Vinyl Flooring by Color Change
 - m. ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
 - n. ASTM F1914, Standard Test Method for Short- Term Indentation and Residual Indentation of Resilient Floor Covering
 - o. ASTM D2047, Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
 - p. ASTM F2055, Size and Squareness
 - q. ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
 - r. ASTM F2199, Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat
5. BAAQMD. Bay Area Air Quality Management District; www.baaqmd.gov
 6. CARB. California Air Resources Board; www.arb.ca.gov
 7. EPA. U.S. Environmental Protection Agency; www.epa.gov
 8. Greenguard. Greenguard Environmental Institute; www.greenguard.org
 9. GS. Green Seal; www.greenseal.org
 10. ISO/IEC. International Organization for Standardization, International Electrotechnical Commission; www.iec.ch/
 11. NFPA. National Fire Protection Association; www.nfpa.org
 - a. NFPA 253, Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Energy Source.
 - b. NFPA 258, Research Test Method for Determining Smoke Generation of Solid Materials
 12. NIST. U.S. National Institute of Standards and Technology; www.nist.gov
 - a. United States Department of Commerce, Procedures for the Development of Voluntary Product Standards
 - 1). Voluntary Standard PS 1
 - 2). Voluntary Standard PS 2
 13. RFCI. Resilient Floor Covering Institute; www.rfci.com
 - a. Recommended Work Practices for Removal of Resilient Floor Coverings (January 1998)
 14. SCAQMD. South Coast Air Quality Management District; www.aqmd.gov
 15. USGBC. United States Green Building Council; www.usgbc.org

1.3 ADMINISTRATIVE REQUIREMENTS

NOTE: Coordinate and edit to the correct Section number below. The numbers shown indicate relevant broad-scope, medium-scope and/or narrow-scope numbers of the CSI MasterFormat® system.

- A. Coordination per SECTION 013000 or 013100, and as follows:
 1. Coordinate expansion joint covering system installation prior to installing quartz flooring. Refer to SECTION 079500 or 079513.

RED NOTE: Specifier to closely coordinate applicable sections between concrete and

other subfloor substrate finishes with floor covering.

2. Coordinate concrete topping finish per SECTION 035400 or 035416.

NOTE: Coordinate and edit to the correct Section number below.

- B. Preinstallation Meetings per SECTION 013000 or 013100 and as follows:

1. Meeting purpose is to review site conditions, installation procedures, schedules, coordination with other work, and warranty requirements.

NOTE: Coordinate and edit to the correct Section number below.

- C. Sequencing: Per SECTION 010000 or 011100.

NOTE: Coordinate and edit to the correct Section number below.

- D. Scheduling: Per Section 010000 or 011100, and SECTION 013000 or 013200.

1.4 SUBMITTALS

NOTE: Coordinate and edit to the correct Section number below.

- A. Product Data per SECTION 013000 or 013300 and as follows: Submit manufacturer's printed descriptions of materials, components and systems, performance criteria, use limitations, recommendations, installation information, and the following:

1. Typical section details indicating each specified system on proposed substrates and transitions to other flooring systems.
2. Typical sections indicating flooring system abutting wall.
3. Typical plan views of various layout patterns.

NOTE: Coordinate and edit to the correct Section number below.

- B. Shop Drawings per SECTION 013000 or 013300 and as follows: Submit keyed location plans, plans indicating tile type, layout, pattern direction, edge transitions, columns, doorways, enclosing partitions, built-in furniture, cabinets, cutouts, expansion and control joints, and attachment requirements.

NOTE: Coordinate and edit to the correct Section number below.

- C. Samples per SECTION 013000 or 013300 and as follows:

1. Initial for Selection: Submit printed color charts, sample chains or Architectural Binder indicating manufacturer's complete range to determine color, texture, shape, and/or composition for each type of material finish exposed to view.
2. Final Selection: Submit two (2) full size tiles of each different type, color and pattern selected for acceptance.

- D. Quality Assurance Submittals per SECTION 014000 and as follows:

1. Test and Evaluation Reports: Submit certified test results by a recognized testing laboratory in accordance with specified test methods for each product and/or system indicating physical, chemical and performance characteristics.
 - a. Hard-set adhesive, if used, is compatible and provides proper adhesion.
2. Qualification Statements: Submit a letter, on printed letterhead and signed by an officer of the firm, for each listed quality assurance qualification listed, attesting to meeting each requirement called out.

NOTE: Edit LEED Requirements below to suit project.

- E. Sustainable Design (USGBC [LEED](#)®) Submittals: Submit the following in accordance with the requirements of SECTION 018113, LEED REQUIREMENTS:
1. LEED Credit MR, Materials & Resources. Submit completed LEED-NC 2.2 Submittal Templates, and other required paperwork as follows:
 - a. MR 5.1: Regional Materials, Regionally Extracted, Processed & Manufactured Products, 10 Percent
 - b. MR 5.2: Regional Materials, Regionally Extracted, Processed & Manufactured Products, 20 Percent
 - 1). Submit product data indicating name of the manufacturer, product cost, distance between the project site and the manufacturer, and the distance between the project site and the extraction site for each raw material
 2. LEED Credit EQ, Indoor Environmental Quality. Submit completed LEED-NC 2.2 Submittal Templates and required paperwork as follows:
 - a. EQ 4.1: Low Emitting Materials, Adhesives & Sealants, VOC Data
 - 1). Submit manufacturers' product data for construction adhesives and sealants, including printed statement of VOC content and MSDS Sheets.
 - 2). Submit manufacturer's certification that products meet the requirements of SCAQMD Rule 1168 in areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur.
 - 3). Submit manufacturer's certification that products meet the requirements of BAAQMD Regulation 8, Rule 51 for containers larger than 16 oz and with CARB for containers 16 oz or less, for areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - b. EQ 4.3: Low Emitting Materials, Carpet and Resilient Flooring Systems
 - 1). Submit manufacturers product data for systems that includes printed statement of VOC content.

NOTE: Coordinate and edit to the correct Section numbers below.

- F. Closeout Submittals per SECTION 017000 or 017800, unless noted otherwise.
1. Maintenance Data: Including methods for maintaining installed products, maintenance product recommendations, related product data and MSDS sheets, directions for product use and performance.
 2. Executed Warranty Documentation: Manufacturers' material warranties and installers workmanship warranty.
 3. Record Documents: Drawings, Specifications, Product Data.

NOTE: Edit LEED Requirements below to suit project.

4. Sustainable Design Closeout Documentation: Submit completed USGBC LEED® worksheet templates for the following credits:
 - a. MR 5.1, MR 5.2
 - b. EQ 4.1, EQ 4.3

NOTE: Edit percentage below to suit scope of project.

- G. Maintenance Material Submittals - Extra Materials: Submit no less than five (5) percent additional full and unopened cartons of each type and pattern of tile used.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements

1. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E648 or NFPA 253 by a qualified testing agency.
 - a. Critical Radiant Flux Classification: Class I; not less than 0.45 W/cm²
 - b. Smoke Density per ASTM E662 or NFPA 258: 450 or less

B. Qualifications:

1. Manufacturer: A firm experienced a minimum five (5) years in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
2. Installer / Applicator: Perform installation with skilled, experienced and trained workmen supervised by trained personnel who shall have a minimum three (3) years successful experience in installations of similar size and scope.
3. Testing Agency: An independent testing agency with the experience and capability to conduct testing, meeting requirements of ISO/IEC (International Organization for Standardization / International Electrotechnical Commission) Standard 17025 or ASTM E699 and ASTM E329.

C. Source Limitations: Obtain primary flooring materials through one source from a single manufacturer.

1. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.

NOTE: Edit sustainability standards and certifications below to suit project.

D. Sustainability Standards and Certifications:

1. Adhesive and Sealant VOC Limits: According to South Coast Air Quality Management District [Rule 1168](#) and [GS-36](#) for aerosols.
2. VOC Limits: As tested using U.S. EPA Reference Test Method 24 and as defined by
 - a. South Coast Air Quality Management District Rules: In areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur.

- 1). SCAQMD [Rule 1113](#), Architectural Coatings
 - 2). SCAQMD [Rule 1168](#), Adhesive and Sealant Applications
 - b. Bay Area Air Quality Management District Regulation: For containers larger than 16 oz., for areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - 1). BAAQMD [Regulation 8, Rule 51](#)
 - c. California Air Resources Board: For areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - 1). CARB for containers 16 oz. or less.
- E. Field Samples per SECTION 014000: Provide field samples, dry laid, to demonstrate aesthetic effects of materials in situ, assisting the Architect and Owner in making final selections.

NOTE: Edit size of field sample layout to suit project.

1. Minimum Layout Size: 25 sf (2.3m²)

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, Storage and Handling per industry and manufacturer guidelines, SECTION 016000, and as follows:

1. Delivery and Acceptance Requirements
 - a. Deliver materials to Project site in an undamaged condition, in original unopened cartons bearing manufacturer's intact label, names, brand names, types and sizes of contents, and proper handling, storing, unpacking, protecting, and installation instructions, as warranted.
 - b. Inspect shipped materials on delivery to ensure compliance with requirements of Contract Documents and to ensure that products are undamaged and properly protected.
 - 1). Reject damaged goods, and accept properly ordered, protected and undamaged goods.
2. Storage and Handling Requirements
 - a. Store all materials in a dry, temperature-controlled interior area at 65 to 80 deg F (18 to 27 deg C) and 30 to 60 percent RH. Avoid exposure to temperature extremes. Protect materials from damage due to improper handling, the actions of other trades, construction operations, and other damage, in proportion to the fragility and hazard of each item and its finished surfaces.
 - 1). Do not store cartons outdoors.
 - 2). Cartons shall be stored in dry, well-ventilated storage areas or warehouses.
 - 3). Do not store cartons directly on warehouse floors.
 - 4). Storage area environment shall be kept between 25 and 60 percent RH between 65 and 85 deg F.
3. Packaging Waste Management
 - a. Request that manufacturers, suppliers and shippers provide least amount of packaging that adequately and properly protects, supports and contains the items shipped, and is reusable, returnable or recyclable.

1.7 WARRANTY

- A. Manufacturer Warranty. Provide manufacturer's limited warranty stating Knight Quartz Flooring tiles are guaranteed to be free from wear-through due to normal use in light industrial and commercial applications.

1. Warranty Period: **Fifteen (15)** years from date of Sale.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Manufacturers List: Subject to compliance with requirements, provide products by one of the following:

1. Knight Quartz Flooring, 7500 4th Street, Marrero, LA 70072; 800.356.0740; 504.340.7487; Fax 866.340.7487; www.kpflooring.com or www.knightquartzflooring.com
a. Technical Support; 866.850.8836; support@kpflooring.com

NOTE: Select one of the following Substitution Limitations paragraphs, deleting the one not used.

- B. Substitution Limitations: Manufacturers of equivalent products shall be considered when submitted in accordance with CSI Substitution Request Form 1.5C (During the Bidding Phase) or Form 13.1 (After the Bidding Phase.) [link](#)

NOTE: Coordinate and edit to the correct Section number above. The three numbers shown indicate relevant broad-scope, medium-scope and narrow-scope numbers of the CSI MasterFormat® system.

- C. Substitution Limitations: Manufacturers of equivalent products shall be considered when submitted in accordance with SECTION 013000 or SECTION 013300, and SECTION 016000.

D. Product Options

1. Flooring Type:
- a. Knight Quartz Concepts (directional pattern)
 - 1). Size: 12 x 12 x 0.100 inch (305mm x 305mm x 2.5mm)
 - 2). Size: 24 x 24 x 0.100 inch (610mm x 610mm x 2.5mm)
 - 3). Color and Pattern: As selected by Architect from manufacturer's [34 types](#)
 - b. Knight Quartz Scapes (non-directional pattern)
 - 1). Size: 24 x 24 x 0.100 inch (610mm x 610mm x 2.5mm)
 - 2). Color and Pattern: As selected by Architect from manufacturer's [15 types](#)
2. Floor Finish Systems:
- a. Factory UV Cured Urethane Finished Tile (No Field Finish.)
 - b. Standard Tile (Requires Field Finish)
 - 1). Field Applied Finish: Conventional acrylic system

NOTE: Custom colors, custom marbling and solid color tiles available by Special Order.

3. Accessories
 - a. Underlayment leveling compound per SECTION 035416
 - b. Expansion joints per SECTIONS 079200 and 079513
 - c. Transition and divider strips per SECTION 096513

NOTE: Select appropriate adhesive and delete types not selected.

- d. Adhesive – Knight Pressure Sensitive Adhesive #0901300
- e. Adhesive – Epoxy by Henry as recommended for heavy loading conditions (compatible adhesive by others)
- f. Adhesive – Two part Polyurethane by Henry as recommended for top down water, heavy impact or continued cold conditions (compatible adhesive by others)

RED NOTE: Do not use asphalt-based adhesives.

- g. Trowel
- h. Cleaning products
- i. Finish systems

2.2 DESCRIPTION

- A. Knight quartz floor tile is an ASTM E84 **Class A** fire-resistance rated, ASTM F1700 Class II, surface decorated tile, composed of 70 percent quartz sand inorganic filler suspended in polyvinyl esters, formed under heat and pressure and cut to create resilient quartz tile flooring in a variety of colors and patterns.
- B. **Sustainability Characteristics**
 1. **USGBC LEED Rating:** Comply with project requirements intended to achieve the following Rating, as measured and documented according to the USGBC LEED® Green Building [Rating System](#), Version indicated:

NOTE: Each LEED Version requires a different credit total to achieve the desired LEED Rating.

NOTE. Select one of the following Ratings:

- a. **Rating: Certified**
- b. **Rating: Silver**
- c. **Rating: Gold**
- d. **Rating: Platinum**

NOTE. Select one of the following Versions:

- e. **Version: [LEED-NC](#) v. 2.2 (New Construction)**
- f. **Version: [LEED-EB](#) v. 2.0 (Existing Building)**
- g. **Version: [LEED-CI](#) v. 2.0 (Commercial Interiors)**
- h. **Version: [LEED for Schools](#), Version 2007**
- i. **Version: [LEED for Retail](#), v. 2 (July 2008) Draft (Commercial Interiors)**

- j. Version: [LEED for Health Care](#)
- 2. Applicable LEED Credits: Performance requirements of the following LEED Categories and Credits apply to this Section and are met as follows:
 - a. Materials & Resources (MR):
 - 1). MR Credit 5.1, 10% Regional Materials (within 500 miles of project site)

NOTE: Select MR 5.1 or MR 5.2 deleting 5.1 or both if not applicable.

- 2). MR Credit 5.2, 20% Regional Materials (within 500 miles of project site)

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

- a). 20 percent of Knight Quartz Flooring is extracted processed and manufactured regionally with natural quartz sand recovered from within 500 miles radius of the KQF manufacturing facilities in Marrero, LA.
 - b. Indoor Environmental Quality (EQ):
 - 1). EQ Credit 4.1, Low-Emitting Materials: Adhesives and Sealants:
 - a). SCAQMD Rule 1168 sets a limit of 50 grams / liter (g/L) for VCT adhesives.
 - b). BBAQMD Regulation 8, Rule 51, requires VOC limit of 150 g/L for Indoor Floor Covering Installation.
 - c). Knight Quartz Floor Tiles meet SCAQMD Rule 1168, BBAQMD Regulation 8, Rule 51, and [GREENGUARD Indoor Air Quality Certified](#) requirements per certificate #HF2Vc94811-1.
 - d). Knight Pressure Sensitive Adhesive (by W.W. Henry Co.); VOC Content: **0 g/L**; more than meets SCAQMD Rule 1168 and BBAQMD Regulation 8, Rule 51.
 - 2). EQ Credit 4.3, Low-Emitting Materials: Composite Wood Products
 - a). Knight Quartz Floor Tiles meet GREENGUARD [Certified for Children & Schools](#) emission requirements per certificate #HF2Vc94811-1.

2.3 PERFORMANCE / DESIGN CRITERIA

A. Performance Capacities

1. Size, Thickness, Squareness per ASTM F1066: Pass
2. Dimensional Stability per ASTM F2199: Pass
3. Impact Resistance per ASTM F1265: Pass
4. Short Term Indentation per ASTM F1914: Pass
5. Static Load Limit per ASTM F970: 3000 psi
6. Fire Rating per ASTM E84: **Class A**
7. Critical Radiant Flux per ASTM E648: Class 1
8. Smoke Density per ASTM E662:
 - a. Non-flaming: Pass
 - b. Flaming: Pass
9. Chemical Resistance per ASTM F925: Pass
10. Abrasion Resistance per ASTM F510: Pass
11. TVOC Emissions per ASTM D5116 & D6670: Pass; CA Section 01350 compliant
12. Slip Resistance per ASTM D2047: Standard Tile; Ave. 0.53

2.4 MATERIALS

A. Quartz Floor Tile per ASTM F1700: Class: II, Surface-Decorated Tile

1. Composition: Minimum 70 percent mined quartz suspended in a vinyl matrix
2. Surface: Type A, Smooth

NOTE: Special thicknesses available upon request.

3. Thickness: 0.100 inch (2.5mm)
4. Edge: Square

NOTE: Select size(s) to suit project and delete that not chosen.

5. Size: 12 by 12 inches (305mm by 305mm)
6. Size: 24 by 24 inches (610mm by 610mm)

NOTE: Custom color available.

7. Color: As selected by Architect from Manufacturers standard colors.

2.5 FINISHES

A. Factory Applied Urethane Coating: UV Cured Protective, Clear Finish Coating; Aliphatic moisture-cured, one-part urethane coating; VOC compliant (0 g/L), non-HAP, non-yellowing, low-odor, and fast cure.

1. Manufacturer / Product: Formulators / Poly-Cur S-200
(www.formulatorsonline.com)
2. Cleaning Product: JohnsonDiversey Inc. / UHS Cleaner

NOTE: Select factory-applied UV Cured urethane finish above or field-applied system below, deleting item not chosen.

- B. Field Applied Floor Finish: Provide protective liquid floor finish system as listed in manufacturer's [Maintenance Guides](#).

2.6 ACCESSORIES

NOTE: Select one of the following leveling methods, deleting the one not chosen.

- A. Concrete Slab Leveling and Patching Compound: Trowelable latex-modified, Portland cement based formulation provided or approved by manufacturer for applications indicated.
 - 1. Manufacturer / Product: Ardex / CP; or Architect acceptable equivalent.
- B. Self-Leveling Underlayment: Pourable latex-modified, Portland cement based formulation provided or approved by manufacturer for applications indicated.
 - 1. Manufacturer / Product: Ardex / K-15; Ardex / LU 100; or Architect acceptable equivalent.
- C. Expansion Joints: Refer to SECTION 079200 and SECTION 079500 or 079513.
- D. Adhesive – Pressure Sensitive: Solvent-free, low odor, acrylic based, water-resistant type by floor tile manufacturer to suit floor tile product and substrate conditions indicated.
 - 1. Manufacturer / Product: Knight Quartz Flooring / Pressure Sensitive Adhesive

RED NOTE: In cases of heavy or dynamic loading, top down water or continued cold conditions epoxy or a two-part polyurethane adhesive by Henry is recommended.

Do not use asphalt-based adhesives.

PART 3 - EXECUTION

3.1 FIELD CONDITIONS

- A. Conditions and Measurements: Visit jobsite to verify installation conditions and floor measurements.

NOTE: Coordinate and edit to the correct Section number below.

- B. Ambient Conditions per manufacturer's written recommendations, SECTION 017000 or 017100 or 017116, and as follows:
 - 1. New concrete slabs shall be flat, clean and dry meeting all moisture tests passing manufacturer's written requirements.
 - 2. Environmental Limitations: Do not deliver or install until building is enclosed, wet work is complete, and HVAC system has been operating a minimum one (1) week, consistently maintaining temperature and RH at occupancy levels per ANSI / ASHRAE 55-2004 (Figure 5.2.1.1.), per manufacturer's recommendations, and as follows:

- a. Maintain a min. 65 deg F (18 deg C) to max. 80 deg F (26.7 deg C) temperature for 24 hours prior to and during Installation.
- b. Maintain RH between 25 percent 60 percent prior to and during Installation.

NOTE: It is recommended to use a datalogger to track and capture relevant ambient air and ambient relative humidity conditions prior to and during all testing.

3. Do not install floor tiles until quartz tile system products are same temperature as space where they are to be installed.
 - a. Move floor tile products and installation materials into spaces where they will be installed a minimum 48 hours in advance of installation.

3.2 EXAMINATION

NOTE: Coordinate and edit to the correct Section number below.

A. Examination per SECTION 017000 or 017100 or 017116, and as follows:

1. Acceptance of Conditions: Carefully examine installation areas with Installer/Applicator present, for compliance with requirements affecting Work performance.
 - a. Verify that field measurements, surfaces, substrates, deflection, tolerances, levelness, plumbness, temperature, humidity, moisture content level, cleanliness and other conditions are as required by the manufacturer, and ready to receive Work.
 - 1). Verify that substrate is flat to within 1/8 inch in 10 ft (3mm per 3m) per ASTM F710.
2. Test substrates as required by manufacturer to verify proper conditions.

NOTE: Coordinate and edit requirements to the project substrates present.

- a. Concrete:
 - 1). Perform moisture testing to verify that concrete substrate is sound and dry.
 - a). Perform RH test using in situ probes per ASTM F2170. Proceed with installation only after each substrate measures a maximum 75 percent RH.
 - b). Perform anhydrous calcium chloride testing per ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 5 lbs of water/1000 sf (2.27 kg of water/92.9m²) in 24 hours.
 - 2). Perform alkalinity testing to verify pH level is 9 or below per ASTM F710.
 - 3). Perform bond testing per ASTM F710 to determine compatibility of adhesive to concrete substrate.
 - b. Wood: Shall be dry, clean, structurally sound, and flat to within 1/8 inch in 10 ft (3mm per 3m), well nailed and/or glued, free of voids and with joints that do not exceed 1/16 inch (1.6mm) per underlayment manufacturer's installation instructions.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

NOTE: Coordinate and edit to the correct Section numbers below.

- A. Preparation per manufacturer's written instructions, SECTION 017000 or 017100 or 017123, and as follows:

1. Prepare substrates to ensure proper adhesion of quartz tile flooring system.

NOTE: Select correct substrate(s), edit to suit project, and delete items that do not suit project.

2. Concrete Substrates: Prepare according to ASTM F710.
 - a. Verify the substrate is smooth, dry and clean being free of dirt, rust, oil, wax, paint, and other contaminants that will interfere with adhesive bonding.
 - b. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, silicone, or curing compounds using mechanical methods recommended by manufacturer.
 - 1). Do not use solvents.
 - 2). Mechanically abrade substrate as needed.
 - 3). Sweep and vacuum substrate just prior to installation.
 - c. Use latex Portland cement filler to patch cracks, small holes, and for leveling of small areas.
 - 1). Do NOT skim coat large areas with latex patching compound.
 - 2). Sand patched areas smooth after material is cured.

RED NOTE: Do not use gypsum based underlayment products, and do not skim coat concrete subfloors.

- d. Self-Leveling Underlayments: Provide a dry and smoothly sanded underlayment substrate ready for quartz tile system installation. Underlayment compound shall be moisture, mildew and alkali resistant, and have a minimum 3,500 psi (24.1 MPa) compressive strength.
 - e. Structural Lightweight Concrete shall have a compressive strength greater than 3,500 psi (24.1 MPa).
3. Wood Substrates and Panel Type Underlayment. Prepare and install per PS1, PS2, APA Form L335, and as follows:

GREEN NOTE: Specify use of exterior glues in lieu of interior urea-formaldehyde glue to reduce amount of indoor air pollutants.

- a. Wood substrate shall be double layer construction minimum 1 inch total thickness.
- b. Double layer underlayment construction of a minimum 1 inch (25.4mm) thickness with a minimum 18 inches (457mm) of well-ventilated airspace beneath.
 - 1). Crawl spaces shall be insulated and protected by a vapor barrier.
- c. The top layer of a wood substrate shall be completely free of knots or surface voids.

NOTE: Edit below to the wood substrate type and thickness used. Delete APA item above if not used.

- d. **[Insert wood product or panel type selected]**
 - e. Thickness: **[Insert product thickness]**
 - f. Underlayment shall be smooth, dry and clean being free of paint, varnish, wax, oils, solvents or other foreign matter, structurally sound, and flat to within 3/16 inch in 10 ft. (4.8mm per 3m) and within the equivalent of 1/32 inch in 12 inches (0.8mm in 305mm), well nailed or screwed per manufacturer's installation instructions
 - 1). Ensure that each nail or screw head is set flush with or below surface.
4. Install substrate per ASTM F1482, per underlayment manufacturers' instructions, and per requirements of finish flooring product manufacturer.

RED NOTE: Do not use particleboard, flakeboard, chipboard, luan or OSB underlayment products per Knight Quartz Flooring requirements.

5. Existing Substrate to Remain:

RED NOTE: Remove existing resilient floors including, but not limited to, asphalt based adhesives and tiles, prior to installation per OSHA regulations, and RFCI work practices, as applicable.

- a. Substrate shall be smooth, dry and clean being free of dirt, rust, oil, wax, paint, or other contaminants that will interfere with adhesive bonding. Clean using methods and products compatible with substrate material.
 - b. Level irregularities using a trowelable leveling or self-leveling and patching compound, compatible with substrate material, following leveling compound manufacturer's directions for bonding to substrate.
 - 1). Fill cracks, holes, and depressions in substrates and remove bumps and ridges to produce a uniform and smooth substrate.
 - 2). Saw cuts, construction seams, and other irregularities shall be filled flat and smooth only with manufacturer-approved underlayment products.
 - 3). Comply with manufacturer's recommendations for compatible products.
 - 4). Verify that substrate is flat to within 1/8 inch in 10 ft (3mm per 3m).
 - c. **(Insert acceptable underlayment product and thickness)**
6. Expansion joints, isolation joints or other moving joints in concrete shall not be filled with patching compound nor covered with resilient flooring. Refer to SECTION 079513.
7. Sweep and vacuum clean flooring substrates immediately prior to installation of floor tile.

3.4 INSTALLATION / APPLICATION

NOTE: Coordinate and edit to the correct Section number below.

- A. Installation per manufacturer's written instructions, SECTION 017000 or 017300 or 017316, and as follows:

1. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width.
 - a. Ensure lines are square.

NOTE: Chose aligned or checkered / quarter turned installation method below deleting the one not used.

- b. Tiles shall be installed with directional marking on back all aligned in the same direction.
 - c. Tiles shall be installed in a checkered / quarter-turned fashion.
 - d. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 - e. Adjust as necessary to accommodate door openings.
 - f. Locate joints in tile surfaces directly above joints in concrete substrates.
2. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered.
 - a. **Collect and recycle cut tile debris.**
3. Scribe, cut, and snugly fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and doorframes.

NOTE: Knight Quartz Flooring tiles are heat weldable and flexible enough to be turned up walls and used as coved base.

4. Extend floor tiles into toe spaces, door reveals, closets, and similar openings.
 - a. Extend floor tiles to center of door openings.
 5. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates.
 - a. Use chalk or other nonpermanent, non-staining marking device.
 6. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of adhesive and tile.
 - a. Do not saw-cut joints after installing tiles.
 - b. Do not fill movement joints with patching compound or cover with resilient flooring.
 - c. Install movement joint systems per manufacturers instructions and per SECTION 079513 and SECTION 079200 or 079513.
7. Trowel Adhesive Method for Knight Pressure Sensitive Adhesive: Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate with a trowel to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections.
 - a. Spread adhesive with a 1/16 inch D x 1/16 inch W x 1/16 inch square-notch trowel.
 - b. Allow adhesive to dry to the touch (approximately 30 to 45 minutes).
 - 1). Do not set tile in adhesive that has “skinned” over.
 - c. Following installation of tile (typically within an hour after installing) roll entire floor area with a 75 to 100 lb roller to ensure proper bonding.

8. Protect flooring from traffic for 12 hours before and after installation per adhesive manufacturer's instructions to allow proper set up time.
 - a. Do NOT place heavy equipment on tiles for a minimum 72 hours after installation.

RED NOTE: Do not wet mop until adhesive has properly set per adhesive manufacturer's written instructions.

3.5 FIELD QUALITY CONTROL

NOTE: Coordinate and edit to the correct Section number below.

- A. Site Tests and Inspections: Per SECTION 014000 or 014500 or 014523, and as follows:
 1. Inspect floor installation for non-conforming work including, but not limited to, the following:
 - a. Lack of adequate adhesion
 - b. Air blisters, buckles, and dirt or debris under the tile flooring
 - c. Loose edges or seams
 - d. Adhesive on top of the flooring
 - e. Wide joints
 - f. Misapplication of directional patterning
 - g. Improper substrate preparation as indicated by buckling or telegraphing
 - h. Damaged tiles as indicated by dents, splits, cuts, cracks, punctures, melting, burn marks
- B. Non-Conforming Work per General Conditions and as follows:
 1. Remove, Repair and Reinstall or Restore in Place damaged items.
 - a. Finish touch-up damaged surface finishes.
 2. Replace damaged materials or items with New if repair not acceptable to Architect.

3.6 CLEANING

NOTE: Coordinate and edit to the correct Section number below.

- A. Waste Management per SECTION 017000 or 017400 or 017419, and as follows:
 1. Coordinate take-back program with manufacturer, if applicable.
 - a. Store and return pallets, containers and cartons to shipper or recycler for reuse or recycling.
 - b. Store scrap materials to be returned to manufacturer for recycling into new product.

NOTE: Coordinate and edit to the correct Section number below.

- B. Provide Progress Cleaning per SECTION 017000 or 017400 or 017413, and as follows:
 1. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

- a. Clean and protect completed construction until Substantial Completion.
2. Site: Maintain Project site free of waste materials and debris.

NOTE: Coordinate and edit to the correct Section number below.

- C. Provide Final Cleaning immediately prior to Substantial Completion inspection per manufacturer's written recommendations, and SECTION 017000 or 017400 or 017423.
 1. Protection: Remove installed protection immediately prior to Substantial Completion inspection, unless required otherwise.

3.7 CLOSEOUT ACTIVITIES

NOTE: Coordinate and edit to the correct Section number below.

- A. Substantial Completion Requirements per SECTION 017000 or 017700 and as follows:
 1. Perform Closeout Procedures per SECTION 017000 or 017700.
 2. Sustainable Design Closeout Documentation per SECTION 017000, 017800 or 017853: LEED credit worksheet paperwork.

3.8 PROTECTION

- A. Protect materials from construction operations until date of Final Completion or Owner occupancy, whichever occurs first.
 1. Protect finished floor from abuse and damage by using heavy non-staining kraft paper, drop cloths or equivalent. Use additional non-damaging protective materials as needed.

NOTE: Insert Light Traffic and Heavy Traffic Guidelines per Adhesive Manufacturers Recommendations.

3.9 MAINTENANCE

NOTE: Select either factory finish or standard finish deleting the one not chosen.

- A. Initial maintenance of Factory UV cured urethane floor Finish per Knight Quartz Flooring's written recommendations and as follows:
 1. Factory UV Cured Urethane Finished Tile
 - a. Clean floor of debris, dust, dirt, and remove adhesive residue.
 - b. Wash floor with neutral 6-8 pH, non-abrasive cleaner.

RED NOTE: Do NOT use strippers on Factory UV Cured Urethane Finished Tiles.

- c. Clean using low-speed equipment with white polish pad.
- B. Initial maintenance of Standard tile with field applied floor Finish per Knight Quartz Flooring's and floor finish manufacturer's written recommendations and as follows:

1. Begin initial maintenance only after meeting (adhesive manufacturer's) recommendations for minimum cure time.
 - a. Clean floor of debris, dust, dirt, and remove adhesive residue.
 - b. Strip floor of tile's shipping protective coating, if recommended, and follow installation with coldwater stripper or equivalent.
 - c. Finish floor with two (2) coats of manufacturer's matte, semi-gloss, or high-gloss finish.
 - 1). Field applied, Conventional acrylic finish system
 - 2). Field applied, High Speed acrylic finish system
 - d. Clean floor with a neutral 6-8 pH cleaner and with recommended Knight Restorit® Maintainer or spray buff cleaner.

RED NOTE: Do not wet mop flooring until adhesive has fully cured per Adhesive Manufacturers guidelines.

END OF SECTION

RED NOTE: Be sure to obtain the latest version of this Guide Specification.

This Guide Specification is not a completed document ready for use. It must be edited, deleting, adding, or modifying text, as required to suit project requirements.

The professional stamping and the contracting parties of the Contract Documents are responsible for the accuracy of issued project specifications, including any use of this Knight Quartz Flooring Guide Specification.

KNIGHT QUARTZ FLOORING SHALL NOT BE LIABLE FOR DAMAGES ARISING OUT OF THE USE OF THIS GUIDE SPECIFICATION.