102.107 – FLOORING GUIDELINE

PART 1 - INTRODUCTION

1.01 GENERAL

A. This guideline serves to identify major elements associated with the selection, purchase and installation of flooring for all BJC facilities.

B. This guideline identifies critical issues that must be considered as part of the design and installation of finished flooring.

1.02 REFERENCES

A. Refer to Volume 3 of the Manual of Practice for facility specific finish standards.

B. Refer to the Building Components section in chapter 2 thru 6 for flooring requirements by occupancy type.

C. Refer to Room Data Sheets for type of flooring by room.

D. Refer to master specifications in Chapter 7 of the Manual of Practice. Division 09 contains pre-edited technical specifications for common flooring materials and systems.

E. Refer to Flooring Scope of Work checklist in Chapter 7, Specification Masters, Division 01.

PART 2 - GUIDELINE

2.01 FLOOR FINISH SELECTION

A. Select floor coverings appropriate to project specific conditions and requirements.

1. Selection of floor finishes is an important design effort that must include considerations for cleanliness, slip-resistance, durability, acoustics, maintenance, and mobility requirements (walking and wheeled).

B. Verify selection of floor coverings with building standard requirements (Chapters 2 thru 6), with Room Data Sheets and with BJC Design Project Manager.

C. Coordinate floor finish patterns and colors with BJC Design Project Manager, Director of Design and with entity finish standards.

2.02 SUBSTRATE REQUIREMENTS

A. General Requirements.

1. All substrates shall be clean, dry, sound, and capable of accepting intended flooring materials.

2. Moisture. Almost all floor coverings can be affected by excessive moisture. Design Professional must consider the proposed flooring materials and systems along with the substrate conditions and develop a comprehensive strategy for ensuring the successful installation of finished floors. Coordinate with manufacturers' requirements for all products/materials/systems that comprise the total flooring system. Regardless of the age of concrete slabs, all slabs must be tested

   a. Water vapor/moisture between the concrete substrate and the resilient tile and sheet products (in particular those installed with low to no VOC, water-soluble adhesives) can cause the glues to re-emulsify and therefore the floor coverings lose adhesion. Bubbling, rutting, and seam failures are indicative of adhesion failures due to moisture.
   b. Resinous Flooring can also be affected by moisture and must be properly mitigated. Moisture can cause materials to not cure properly, create subsurface staining issues, and can decrease bond strength.
   c. Tile, including ceramic, quarry, and stone tiling, and including those systems without a crack isolation/waterproof membrane beneath, can also be affected by the presence of moisture and water vapor. Bond strength can decrease causing tile de-bonding and/or efflorescence.

B. New Concrete Slabs. New slabs shall be designed to according to the requirements for concrete compressive strength, material composition, fine aggregates, water/cement ratio, under-slab vapor barrier, admixtures and additives, and reinforcement requirements indicated in Chapters 2 - 6. Prior to installing floor coverings, the following must occur.

1. Inspect Vapor Barrier (slab-on-grade). Proper design and installation of under-slab vapor barriers can effectively manage flooring failures due to water infiltration from hydrostatic pressure. Refer to the requirements in Chapters 2 – 6 for vapor barrier standards by building type. Design professional shall inspect vapor barrier installation prior to slab placement. All seams, penetrations, tears, and edge treatments must be properly taped and secured so as to provide continuity. Provide Field Observation Report to BJC Corporate Architect.

2. Perform Moisture Testing (all slabs). Coordinate with BJC Project Manager whether this testing will be performed by BJC or by the Contractor. Newly placed concrete slabs release the free water in the slab over a period of time and will not meet the moisture level requirements. Studies indicate it can take up to 12 months or longer for concrete slabs to dry to an acceptable level once the building is enclosed and the mechanical systems are working. As a result, moisture testing is required to determine the amount of moisture in the slabs. **Test all concrete slabs in general accordance with each of the following requirements below and report results to BJC Corporate Architect and BJC Project Manager prior to installing floors.**

Regardless of the results, moisture mitigation is required for new slabs. The purpose of the testing is to establish the existing slab conditions, therefore the quantity of tests can be less than the ASTM requirements.

a. Alkalinity. ASTM F710 (requirements referenced in ASTM F710).
b. Emission Rate. ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
c. Relative Humidity. ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

    1) Wagner moisture meters are preferred.
    2) Probe tests in structural concrete slabs or in slabs with embedded utilities (plumbing, electrical, etc.) may require scanning and x-ray activities in order to avoid conflict with embedded items.

3. Prepare Slab Surface (all slabs). Prepare the slabs according to manufacturer's recommendations in accordance with the International Concrete Repair Institute, Concrete Surface Profile. Remove coatings, including curing compounds, and other substances on substrates that are incompatible with installation primers, underlayments or adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents. Broom or vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

    a. Concrete design, placement, and curing impacts flooring requirements and must be considered as part of the complete flooring approach. Clear direction for curing concrete slabs and mitigating moisture conditions must be noted in the documents and coordinated with flooring manufacturer's requirements.
    b. Petroleum-based construction layout markings with Sharpies, grease pens or pencils, spray paint, etc. shall be removed completely to prevent ghosting of the markings through resilient flooring materials to the floor surface.
    c. Petroleum-based spills/leaks on concrete floors shall be cleaned immediately. If encountered, area shall be removed by bead blasting.

4. Floor Fill (all slabs). Concrete slabs shall meet the floor flatness and floor levelness requirements identified in the building standards in Chapters 2 thru 6. In addition to these requirements, floor fill may still be required in areas to achieve a desired flatness of the finished floor, for enhanced flatness/levelness requirements for certain clinical equipment, and/or to allow flush transition between two finish floor coverings

    a. Prior to installation of flooring materials, flooring contractor shall check slabs for surface regularity and utilize the 10' straightedge method as necessary to find localized high and low points. (Although there is no

nationally accepted standard for measuring and establishing compliance with this test, the results of the straightedge test, the flooring contractor combined with the surface profiles of the FF and FL tests, will provide the flooring contractor with the information necessary to identify locations and to quantify the amount of floor fill material.

b. There shall be no gaps under the straightedge in excess of 1/8" in 10'-0" in any direction for elevated slabs. There shall be no gaps under the straightedge in excess of 1/16" in 10'-0" in any direction for concrete slabs on grade. There shall be no gaps under the straightedge in excess of 1/16" in 2'-0" in any direction for all slabs.
c. Floor fill required to achieve flush face transitions of finished floor coverings shall not exceed the ADA requirements and shall be imperceptible under foot.
d. Floor fill shall be provided as part of the project scope for all areas up to the first 1/4" thickness of fill material. Any floor fill area over 1/4" thick shall be considered an additional, agreed upon cost, as identified in 012200 Unit Cost.

C. Existing Concrete Slabs. The testing and preparation requirements of existing slabs to receive floor coverings are as follows.

1. Remove existing flooring and adhesives (all existing slabs). All areas to receive new flooring shall be installed directly on concrete surfaces. All adhesive material shall be completely removed by manually scraping or mechanically grinding/sanding/bead blasting. Do not install new floor coverings over existing flooring.

2. Perform Moisture Testing

a. Existing slab-on-grade. **Test all concrete slabs-on-grade in general accordance with each of the following requirements below and report results to BJC Corporate Architect and BJC Project Manager prior to installing floors. Regardless of the results, moisture mitigation is required for existing concrete slabs-on-grade. The purpose is to establish the overall existing slab conditions, therefore the quantity of tests can be less than the ASTM requirements.**

1) Alkalinity. ASTM F710 (requirements referenced in ASTM F710).
2) Emission Rate. ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
3) Relative Humidity. ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

a) Wagner moisture meters are preferred.
b) Probe tests in slabs with embedded utilities (plumbing, electrical, etc.) may require scanning and x-ray activities in order to avoid conflict with embedded items.

b. Existing elevated slabs. **Test all elevated concrete slabs in strict accordance with the following requirements below and report results to BJC Corporate Architect and BJC Project Manager prior to installing floors. Moisture mitigation is required if any one of the tests exceed the levels identified below and as permissible by flooring system manufacturer.**

1) Alkalinity. ASTM F710 (requirements referenced in ASTM F710). 9.0 ph or less is required.
2) Emission Rate. ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride. Maximum permissible rate is 3lbs/1,000 sf/24 hours.
3) Relative Humidity. ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes. Maximum permissible relative humidity level is 75%.

a) Wagner moisture meters are preferred.
b) Probe tests in structural concrete slabs or in slabs with embedded utilities (plumbing, electrical, etc.) may require scanning and x-ray activities in order to avoid conflict with embedded items.

3. Prepare Slab Surface (all slabs). Prepare the slabs according to manufacturer's recommendations in accordance with the International Concrete Repair Institute, Concrete Surface Profile. Remove coatings, including curing compounds, and other substances on substrates that are incompatible with installation primers, underlayments or adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents. Broom or vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected. .

a. Petroleum-based construction layout markings with Sharpies, grease pens or pencils, spray paint, etc. shall be removed completely to prevent ghosting of the markings through resilient flooring materials to the floor surface.
b. Petroleum-based spills/leaks on concrete floors shall be cleaned immediately. If encountered, area shall be removed by bead blasting.

4. Floor Fill (all slabs as required). Concrete slabs shall meet the floor flatness and floor levelness requirements identified in the building standards in Chapters 2 thru 6. In addition to these requirements, floor fill may still be required in areas to achieve a desired flatness of the finished floor, for enhanced flatness/levelness requirements for certain clinical equipment, and/or to allow flush transition between two finish floor coverings

a. Prior to installation of flooring materials, flooring contractor shall check slabs for surface regularity and utilize the 10' straightedge method as

necessary to find localized high and low points. (Although there is no nationally accepted standard for measuring and establishing compliance with this test, the results of the straightedge test, the flooring contractor combined with the surface profiles of the FF and FL tests, will provide the flooring contractor with the information necessary to identify locations and to quantify the amount of floor fill material.

b. There shall be no gaps under the straightedge in excess of 1/8" in 10'-0" in any direction for elevated slabs. There shall be no gaps under the straightedge in excess of 1/16" in 10'-0" in any direction for concrete slabs on grade. There shall be no gaps under the straightedge in excess of 1/16" in 2'-0" in any direction for all slabs.
c. Floor fill required to achieve flush face transitions of finished floor coverings shall not exceed the ADA requirements and shall be imperceptible under foot.
d. Floor fill shall be provided as part of the project scope for all areas up to the first 1/4" thickness of fill material. Any floor fill area over 1/4" thick shall be considered an additional, agreed upon cost, as identified in 012200 Unit Cost.

2.03 FLOORING

A. **Ceramic Tile**. Ceramic tile is approved for interior use in certain location. Locations include but are not necessarily limited to public bathrooms, staff bathrooms, kitchen prep areas, and main lobby areas. Refer to Room Data Sheets for locations by room.

1. Tile flooring and installation shall comply with the latest edition of the TCNA Handbook for Ceramic, Glass, and Stone Tile Installation.

2. Ceramic tile is defined in ANSI A137.1 as "a ceramic surfacing unit, usually relatively thin in relation to facial area, made from clay or a mixture of clay and other ceramic materials, called the body of the tile, having either a glazed or unglazed face and fired above red heat in the course of manufacture to a temperature sufficiently high to produce specific physical properties and characteristics." ANSI A137.1 identifies 5 major types of ceramic tile as:

a. Porcelain Tile. Must meet the requirements of ASTM C373 and be certified by the Porcelain Tile Certification Agency (PTCA).
b. Pressed Floor Tile.
c. Mosaic Tile.
d. Quarry Tile.
e. Glazed Wall Tile.

3. These five major tile types are defined by their physical characteristics, and except for Glazed Wall Tile type, can either be glazed or unglazed. These characteristics include the material composition, manufacturing process, face size, and water absorption rate.

a. Tile body can be either natural clay, porcelain, or a combination of clay and porcelain.
b. The manufacturing process contributes to defining the type of tile which also can influence the edge treatment and grout joint size. Either the body is pressed into a mold or the body is extruded and cut before firing.
c. Tile size contributes to defining a tile. Mosaics are under 9 square inches.
d. The biggest characteristic that defines tiles is the water absorption. For most applications, especially tile flooring, lower water absorption is required. Lower water absorption tile also indicate a denser and more fused tile which is also indicative of better stain resistance and durability.

Table. Ceramic Tile Types and characteristics per ANSI A137.1 and as per the TCNA Handbook.

Highlighted rows represent the type of tile used as floor surfaces due to low water absorption and ability to meet slip resistance requirements.

*the body of the Glazed Wall Tile is considered Non-Vitreous, however the glaze creates an impervious finish.

ceramic tile types (approx. tile thickness)	surface coating	Suitable for floor applications	Suitable for wall applications	natural clay body	porcelain clay body	Manufactured by pressed method	Manufactured by extruded method	Mosaic, surface area less than 9 sq. in.	Standard Format, surface area greater than 9 sq. in.	Large Format, surface area greater than 9 sq. in. and one edge measures more than 15"	Impervious (0.5% or less absorption)	Vitreous (0.5% to 3.0% absorption)	Semi-Vitreous (3.0% to 7.0% absorption)	Non-Vitreous (7.0% to 20.0% absorption)
Porcelain	glazed		X		X	X	X		X	X	X			
	unglazed	X			X	X	X		X	X	X			
Pressed Floor	glazed		X	X		X			X	X		X	X	X
	unglazed	X		X		X			X	X		X	X	X
Mosaic (1/4" to 3/8" thick)	glazed		X	X	X	X	X	X			X	X	X	X
	unglazed	X	X	X	X	X	X	X			X	X	X	X
Quarry (3/8" to 3/4" thick)	glazed		X	X			X		X		X	X	X	
	unglazed	X		X			X		X		X	X	X	
Glazed Wall Tile *			X						X		X			X

4. Ceramic Tile Floor Applications. The three common types of ceramic tile flooring include unglazed porcelain, unglazed mosaic, and unglazed quarry tile. The general application of each is as described below.

a. Porcelain, unglazed. Consider using this type in areas exposed to wet conditions and areas which must resist staining, including bathrooms. The tiles must be impervious and thru-body type. Regardless of the impervious nature of the tile, BJC Infection

Prevention shall review and approve the use of tile flooring and grout in patient bathrooms. Consider using this type in areas of high traffic such as main entrance lobbies and corridors due to the ability to withstand traffic. The tiles must be impervious and thru-body type.

b. Mosaic, unglazed. Consider using this type in roll-in shower floors and other areas exposed to wet conditions and areas which must resist staining. The tiles must be impervious and thru-body type. Regardless of the impervious nature of the tile, BJC Infection Prevention shall review and must approve the use of tile flooring and epoxy grout.

c. Quarry Tile, unglazed. Quarry tile should be impervious type and is best suited for main food preparation areas.

1) Slip resistance. Two ways to achieve slip resistance in quarry tile flooring is either with an abrasive aggregate (aluminum oxide or similar) embedded in the face of the tile or by raised patterning on the tile surface. The abrasive aggregate affect mops and other cleaning instruments while the raised patterning creates edges trapping dirt making it harder to keep clean. Coordinate approach with Facility Director, BJC Design Project Manager, Corporate Architect and Director of Design.
2) Protect tile base, edges, coves and corners from impact with stainless steel corners.
3) Select a tile and installation resistant to thermal shock.
4) Specify Industrial Grade epoxy grout for use in kitchen areas.

5. Combined Waterproofing and Crack Isolation System. Use of a fabric-reinforced, fluid-applied system is required beneath all tile flooring installations.

a. Material type: Liquid latex rubber or elastomeric polymer with a fabric reinforcement membrane. Extend up walls a minimum of 6” above finished floor.
b. Membrane/system selection shall be reviewed by BJC Corporate Architect and Design Project Manager. Coordination with substrates, existing conditions, project characteristics and finished flooring is required.

6. Slip Resistance. Coefficient of friction shall be in accordance with ANSI A137.1, Section 9.6 in accordance with the Dynamic Coefficient of Friction (DCOF) AcuTest. Minimum value for wet surfaces shall be 0.42. For every ceramic tile floor, Architect shall verify selected tile complies with the slip resistance requirements and shall provide manufacturer’s data indicating compliance to BJC Corporate Architect, Design Project Manager, and Director of Design.

B. **Resilient Tile Flooring**. Resilient tile flooring includes those products made with vinyl and those made with rubber. Certain types of vinyl tile are approved for interior use in locations while rubber tile flooring is generally not permitted. Refer to Room Data Sheets for specific conditions and locations by room. Refer to plasticizer section below. Minimum thickness of all resilient tiles shall be 0.125".

1. Vinyl Tile. Generally permitted in most locations where seamless flooring is not required.

   a. Vinyl Composition Tile (VCT). ASTM F1344 defines VCT as comprised of limestone (primary raw ingredient, +/- 80%), pigments, fillers, and polyvinyl chloride or vinyl chloride copolymers as a binder material. VCT is a lower initial cost compared to other flooring options, however proper maintenance of VCT flooring requires frequent cleaning and waxing to maintain the finish (wearing layer). As a result of the cost of continuous maintenance, other floor coverings with less maintenance are generally preferred and as such, use of VCT is limited. Typical locations might include tenant fit-outs in medical office buildings and limited locations within office buildings. Refer to Room Data Sheets and coordinate use of VCT with BJC Design Project Manager. The three classes of VCT are as follows:

      1) Class 1 (solid color tiles)
      2) Class 2 (through-pattern tiles)
      3) Class 3 (surface pattern tiles)

   b. Solid Vinyl Tile (SVT). ASTM F1700 describes SVT as a type of resilient tile that contains fillers, pigments, and polyvinyl chloride or vinyl chloride copolymers as a binder material along with various plasticizers and stabilizers. SVT has a greater vinyl content and is generally less porous than VCT. They are commonly used as a durable, hard surface floor covering where seamless floors are not required. All of the SVT classes below include type A (smooth) and type B (embossed) surface options. The three classes of SVT are as follows:

      1) Class 1, monolithic vinyl tile. Color, pattern effect and composition are uniform throughout the tile thickness.
      2) Class 2, surface decorated tile. Color and pattern is not throughout the tile thickness.
      3) Class 3, printed film surface. This is commonly referenced as luxury vinyl tile (LVT). Color and pattern is printed and lies between a transparent wear layer and the base layer.

2. Rubber Tile. Rubber flooring is generally not permitted unless otherwise approved by BJC Director of Design.

3. Substrate Requirements. Refer to Substrate Requirements for new and existing concrete slabs for resilient tile flooring. Requirements include moisture testing, moisture mitigation, removal of existing floor coverings,

slab preparation, slab flatness according to the 10'-0" straightedge method, and floor fill.

4. Adhesives.

   a. Epoxy adhesive is required beneath all resilient tile installations where floors will be subjected to heavy or frequent wheeled traffic including but not limited to patient rooms and public corridors. Where epoxy adhesive is required, it shall be used throughout the entire room and not limited to isolated areas or portions of a room. Coordinate locations with BJC Design Project Manager and Corporate Architect and note locations of epoxy adhesive on drawings.
   b. Provide standard clear thin spread adhesive for all VCT installations.

5. Fire Test Response. Where required by code and in accordance with the authority having jurisdiction, resilient tile flooring shall have a Class 1 rating in accordance with ASTM E648 and NFPA 253. Minimum value for Class 1 requirement 0.45 W/sq. cm.

6. Layouts and Patterns. Patterns and layouts of resilient tile flooring shall be clearly communicated in the drawings. Approval of layout and pattern by BJC Design Project Manager is required. In general, the following conditions apply.

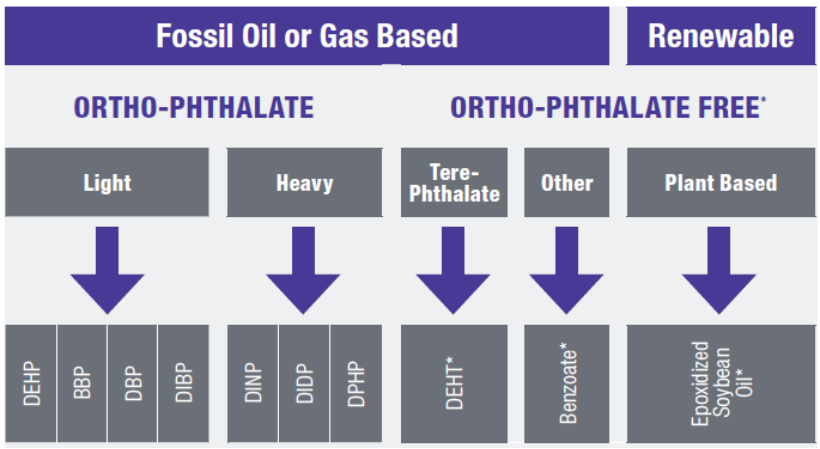
   a. Corridor locations, LVT planks shall be oriented so as to run parallel to the length of the corridor.
   b. Patient Room locations, LVT planks shall be oriented so as to run parallel to the corridor/exterior wall.
   c. Patient Room locations, accent color shall be used at the nurse work area.
   d. Inpatient areas in which part of the patient's recovery/therapy includes walking (Cardiac, Rehabilitation, etc.) the corridor patterning shall include distance markers in the floor covering as follows.
   e. Corridors shall have accent planks spaced 20'-0" apart. Accent width shall be the width of the LVT (typically 4" wide) and shall extend from the patient room side of the corridor wall a distance of 6'-0".
   f. Staff corridors in inpatient areas that cross through the core rooms shall be an accent color.
   g. Waiting rooms, niches and similar areas off corridors shall be an accent color.

7. Installation and Maintenance.

   a. VCT floors shall receive floor polish only as recommended by flooring manufacturer. Floor polish shall be provided and applied by Owner's housekeeping group at the completion of the project unless otherwise directed.
   b. SVT floors shall not receive floor polish unless otherwise recommended by flooring manufacturer and approved by BJC Director of Design.

8. Plasticizers.

   a. Plasticizers in resilient tile alters the PVC from being rigid to being flexible. Plasticizers historically have been derived from a class of chemicals generally called “phthalates”, or more specifically “ortho-phthalates”. Some studies link exposure to ortho-phthalates with developmental, reproductive, and endocrine health-related problems and there is a growing trend to ban its use. As such, flooring manufacturers are developing resilient tile products that are ortho-phthalate free. They are using benzoates, epoxidized soybean oil (ESO), or di (2-ethylhexyl) terephthalate (DEHT) as a replacement. In all pediatric areas, resilient tiles shall be specified as “orhto-phthalate free”.



C. **Resilient Sheet Flooring**. Resilient sheet flooring includes those products made with vinyl and those made with rubber. Both types can be either backed with a reinforcing material or unbacked. Certain types of vinyl sheet flooring are approved for interior use in locations while rubber sheet flooring is generally not permitted. Refer to Room Data Sheets for specific conditions and locations by room. Refer to plasticizer section below. Minimum thickness of all resilient sheet flooring shall be 0.080”.

   1. Vinyl Sheet. Generally permitted in most locations where seamless flooring is required.

      a. Unbacked sheet vinyl floors are required in locations where the floor covering may be exposed to bodily fluids, biological, chemical or other contaminants. These areas include but are not limited to Soiled Utility/ Soiled Holding, operating rooms, surgical areas, invasive procedure rooms, etc. Coordinate use of backed sheet vinyl flooring with BJC Design Project Manager. Clearly indicate backed and unbacked sheet vinyl floors on drawings.
      b. Backed sheet vinyl floors are permitted in locations where seamless floor is required but where there is no exposure to bodily fluids, biological, chemical or other contaminants. Such rooms may include but not be limited to Medication Room, Clean Supply, and Nourishment.

2. Rubber Sheet. Rubber sheet floor coverings, backed and unbacked, are not permitted unless otherwise approved in writing by BJC Director of Design.

3. Substrate Requirements. Refer to Substrate Requirements for new and existing concrete slabs for resilient sheet flooring. Requirements include moisture testing, moisture mitigation, removal of existing floor coverings, slab preparation, slab flatness according to the 10'-0" straightedge method, and floor fill.

    a. Resilient sheet flooring is a seamless floor installation and as a result, the adhesives are sensitive to excessive moisture in the concrete substrate. Proper slab preparation and moisture testing as described in Substrate Requirements is critical. Managing excessive moisture in the concrete with a topical moisture mitigation system is required.

4. Adhesives.

    a. Epoxy adhesive is required beneath all resilient sheet installations where floors will be subjected to heavy or frequent wheeled traffic including but not limited to procedure rooms, patient rooms and operating rooms. Where epoxy adhesive is required, it shall be used throughout the entire room and not limited to isolated areas or portions of a room. Coordinate locations with BJC Design Project Manager and Corporate Architect and note locations of epoxy adhesive on drawings.

5. Fire Test Response. Where required by code and in accordance with the authority having jurisdiction, resilient tile flooring shall have a Class 1 rating in accordance with ASTM E648 and NFPA 253. Minimum value for Class 1 requirement 0.45 W/sq. cm.

6. Layouts and Patterns. Layout flooring and patterns to minimize the number of seams. Drawings shall clearly depict seam locations. Approval of layout and pattern by BJC Design Project Manager is required.

7. Installation and Maintenance.

    a. Seams. All sheet vinyl floor covering seams shall be heat-welded seams only. Chemical welds are not permitted. Welding rods shall be color-matched to flooring material unless otherwise directed by BJC Design Project Manager. Patterned welding rods are not permitted due to concerns with shear failures. Sealant is not permitted as a seam material. Engage only skilled technicians experienced in the installation of flash cove bases.
    b. Do not wax or seal resilient sheet floors unless otherwise required by manufacturer.
    c. Integral flash-cove-base shall be provided in areas where the floor covering may be exposed to bodily fluids, biological, chemical or other contaminants. In general, these are areas that require unbacked sheet vinyl floor coverings. The following conditions apply.

1) Cove Strip: 1-inch (25-mm) radius, securely adhered to both wall and floor substrate. Cap strip shall be secured so as to eliminate the potential for puncture at cove.
2) Where floor supported furnishings are planned to be against walls with integral flash cove base, coordinate furnishing selections so that coved flooring does not bear load of the furnishing supports.
3) Cap Strip: Square stainless steel type cap provided by manufacturer. Provide sealant at top of cap strip to wall surface.
4) Cove height: Minimum 4" high.
5) All seams in a flash-cove base shall be heat welded and treated the same as the seams throughout the rest of the installation. Engage only qualified technicians experienced in the execution of heat-welded seams at flash-cove base conditions.

8. Plasticizers.

a. Plasticizers and ortho-phthalates are described in the Resilient Tile section above. In all pediatric areas and areas where frequent hand contact with flooring is likely, resilient sheet products shall be specified as "orhto-phthalate free".

D. **Tile Carpet**. Tile Carpet is approved for interior use only in certain locations. Refer to Room Data Sheets for floor covering by room.

1. Tile carpet is defined by the following characteristics.

a. Carpet Construction Type (Pile): Level Loop, Cut and Loop or Tip Shear are permitted. Cut pile is not permitted.
b. Process of Carpet Construction: Tufted only. Woven is not permitted.
c. Process of Carpet Construction: Tufted only. Fusion-bonded and needle punched are not approved.
d. Fiber Content: 100 percent nylon 6.6 and 100 percent nylon 6 are permitted.
e. Soil Resistance: Inherent in the fiber.

2. Substrate Requirements. Tile Carpeting is installed with adhesive materials that can be adversely affected by the presence of moisture and water vapor. As such, these adhesives can re-emulsify and reduce the bond strength between the concrete and floor covering. The size of tile and the permeability of the backing material can affect the ability of water vapor to pass through or past the floor covering. Consult with manufacturer's requirements for slab preparation and installation requirements. Proper slab preparation and moisture testing as described in Substrate Requirements is important. Managing excessive moisture in the concrete with a topical moisture mitigation system may be required. Coordinate with BJC Design Project Manager and Corporate Architect.

E. **Sheet Carpet**. Sheet carpet may only be considered for very limited locations. Refer to Room Data Sheets for floor covering by room. Use of sheet carpeting must be reviewed and approved for use by BJC Director of Design.

1. Where approved for use, the following conditions apply.

a. Carpet Construction Type (Pile): Either Level Loop, Multi-Level Loop, Level Tip Shear or Random Tip Shear are permitted. Cut pile, Frieze/Twist, and Sculpted/Carved are not permitted.
b. Face Construction: Tufted and Woven are permitted. Fusion-bonded, needle punched and knitted are not permitted.
c. Fiber Content: 100% nylon 6,6 and 100% nylon 6 are permitted. 100% wool, 80% wool + 20% nylon 6,6 or 80% wool + 20% nylon 6 only permitted upon approval by BJC Director of Design. 100% polypropylene (olefin) is not permitted.

2. Substrate Requirements. Sheet Carpeting is installed with adhesive materials that can be adversely affected by the presence of moisture and water vapor. As such, these adhesives can re-emulsify and reduce the bond strength between the concrete and floor covering. The permeability of the backing material can affect the ability of water vapor to pass through or past the floor covering. Consult with manufacturer's requirements for slab preparation and installation requirements. Proper slab preparation and moisture testing as described in Substrate Requirements is important. Managing excessive moisture in the concrete with a topical moisture mitigation system may be required. Coordinate with BJC Design Project Manager and Corporate Architect.

F. **Resinous Flooring**. Resinous flooring may be considered for use in limited areas where seamless floor coverings are required. Refer to Room Data Sheets for floor covering by room. Resinous flooring has been used in mostly in patient bath rooms (inpatient), operating rooms, some invasive procedure rooms, and other similar locations. Use of resinous flooring must be approved by BJC Director of Design.

1. Types of Resinous Flooring Systems. There are two different types of resinous flooring systems and they are based on the method of installation. Each system yields slightly different aesthetic and performance results. The selection of the proper system based on the intended use is important.

a. **Trowel-Applied Method**. This method utilizes placement of the mortar coat with a trowel. Quartz and/or sand, or rubber chips added to the mortar coat before placement establish the desired finished pattern/color of the flooring system.

1) Characteristics. Consider the following characteristics when selecting between trowel-applied and broadcast method.

a) Surface is generally smoother which can decrease slip-resistance.

b) Overall range of colors tends to be greater because aggregate size is larger (color is determined by the aggregate and therefore it is more prominent).
c) Overall pattern is slightly more speckled.
d) This system can accommodate distinct changes of color such as inlaid patterns.
e) Requires less time to install (due to fewer steps/layers and curing times).
f) More expensive to install because the matrix is 3/16" to 1/4" thick at completion.
g) Thicker body can mask substrate irregularities.
h) Overall system is generally more rigid, less resilient and does not have elongation properties as good as the broadcast method.
i) Requires highly skilled installers with a variety of tools to achieve uniform evenness.

2) The components of this system are as follows in order from substrate to finished surface.

a) Primer/moisture mitigation. A fluid applied material that creates a layer suitable for the subsequent coatings is required. This may be a moisture mitigation system when concrete substrates exceed manufacturer's limitations. A primer/moisture mitigation system that is not part of the manufacturer's system must be approved for use by the manufacturer.
b) Flexible membrane. These membranes are designed to resist minor substrate cracking from telegraphing through the flooring. They may also act as a waterproof membrane. Typically the membrane shall be no less than 50 mils thick shall have capability of 100% elongation.
c) Mortar coat. The mortar coat is a relatively dry and packable mixture of epoxy resins and granule/rubber chip additives (consistency similar to brown sugar). The mortar coat mixture shall be approximately 80lbs sand to 1 gal resin. Vinyl flake color chips shall not be used in this system. (The size of the aggregates may vary but are permitted to be slightly larger than those in the broadcast system because the mortar coat is installed as a thicker coat.)
d) Grout Coat. Used to fill in microscopic voids and capillaries in the mortar coat below. The product shall be applied and placed with a squeegee and back-rolled or shall be applied in accordance with manufacturer's requirements.
e) Top Coat 1. Clear resin. Formulations of urethane are required. Top coating is essential in any method to prevent "ambering" of material. These coats often establish the sheen level. In order to create non-slip surfaces for this method, white aluminum oxide shall be broadcast into the topcoat surface to provide slip resistance.

f) Optional Top Coat 2. Optional depending on desired sheen and slip resistance.

b. Broadcast Method. Color chips and aggregates are hand cast into the clear resin body coats. Mortar coats are used only to build slope. In general, the body coats are

1) Characteristics. Consider the following characteristics when selecting between trowel-applied and broadcast method.

a) Surface is less smooth which can provide better slip-resistance.
b) Overall range of colors tends to be less because aggregate size is smaller (color is determined by the aggregate).
c) Overall pattern is slightly less speckled and more uniform.
d) Difficult to accommodate distinct changes of color, especially inlaid patterns because of the broadcast nature.
e) Requires more time to install (due to greater steps/layers and curing times).
f) Less expensive to install because the system is approximately 1/8" thick at completion.
g) Thinner body may not easily mask substrate irregularities.
h) Overall system is generally more resilient and has better elongation properties.
i) Requires skilled installers, but the tools and applications are not as complex as in the trowel-applied system.

2) The components of this system are as follows in order from substrate to finished surface.

a) Primer/moisture mitigation. This is a fluid applied material that creates a layer suitable for the subsequent coatings. This may also be a moisture mitigation system when concrete substrates exceed manufacturer's limitations. A primer that is not part of the manufacturer's system must be approved for use by the manufacturer.
b) Optional Mortar Coat (only as required to build slope). The mortar coat in the broadcast method is only used when creating a sloping floor condition on flat slabs to direct water to drain. Like the mortar coat in the troweled system, it is a relatively dry and packable mixture of epoxy resins and sand. The mortar coat mixture shall be approximately 80lbs sand to 1 gal resin. Vinyl flake color chips shall not be used in this coat.
c) Grout Coat. Used in conjunction with the Mortar Coat when the mortar Coat is required to build slope.
d) Flexible membrane. These membranes are designed to resist minor substrate cracking from telegraphing through the flooring. They may also act as a waterproof membrane. Typically the membrane shall be no less than 50 mils thick shall have capability of 100% elongation.

e) Body Coat 1. Clear resin to which the additives (vinyl flakes, quartz, aggregates, etc.) are hand broadcast into.
f) Body Coat 2. The body coat is a clear resin to which the additives (vinyl flakes, quartz, aggregates, etc.) are hand broadcast into. Vinyl flakes can vary in size and are not used in conjunction with broadcast aggregates. Aggregates in a broadcast method are generally smaller than those in a trowel applied method.
g) Grout Coat. Used to fill in microscopic voids and capillaries in the body coat below. The product shall be applied and placed with a squeegee and back-rolled or shall be applied in accordance with manufacturer's requirements.
h) Top Coat 1. Clear resin with nothing broadcast into the finish. Formulations of urethane are preferred. Top coating is essential in any method to prevent "ambering" of material. These coats often establish the sheen level. In order to create non-slip surfaces, white aluminum oxide is placed into the surface.
i) Top Coat 2. Optional coat, depending on desired sheen and slip resistance.

2. Placement Continuity. Only use epoxy resin floors in locations where the entire floor can be placed at one time, in one single phase. Avoid using resinous floors where installation will present irregular and visible cold joints.

3. Pre-Qualified Installers. This flooring system is labor intensive. The quality of the installation is dependent on the capability of the installer and their experience with handling the product – testing, prep, mixing, coverage, etc. Flooring installers shall be approved in writing by the manufacturer and shall demonstrate a minimum of 5 years of experience installing a similar system and in similar environments.

4. Mock-Ups. Partial mock-ups samples of adequate size shall be provided to BJC for color and pattern selection. A full scale mock-up shall be requested to demonstrate the aesthetics, workmanship, and to determine the desired slip-resistance of the system. Provide at least 3 slip resistant surfaces for evaluation.

5. Proper Installation Procedures. The following procedures should be closely followed when installing resinous flooring systems. Coordinate with manufacturer's requirements and coordinate with requirements contained in this document.

a. Moisture Testing is required, no exceptions.
b. Slab preparation (bead blast, grinding, scarifying, crack repair) is required.
c. Topical moisture mitigation systems for slabs with high moisture content is required.

d. Verify mortar coats do not exceed thickness limitations of the material/system.
e. Allow for proper curing of materials before application of subsequent coats.
f. Maintain proper environmental conditions before, during and after the installation.
g. Install primer and underlayments according to project conditions.
h. Ensure and demonstrate proper mixing of resins/binders.
i. Ensure proper body coat installation for thickness and coverage.
j. Proper selection and coverage of top coating

6. Maintenance. Resinous flooring system have unique maintenance requirements that may include specific equipment and materials which also may vary between manufacturers. Coordinate with Facility Engineering Director regarding required maintenance.

G. **Stone Tile Flooring.** Use of stone tiles must be reviewed and approved for use by BJC Director of Design. When permitted, stone tile flooring and installation shall comply with the latest edition of the TCNA Handbook for Ceramic, Glass, and Stone Tile Installation.

1. Evaluation of stone tile for hardness, slip resistance, water absorption, stain resistance, delamination, type of grout, and variation of pattern/color should be considered.
2. Substrate Requirements are similar to those for Ceramic Tile. Coordinate with stone tile flooring requirements.

H. **Specialty Flooring**. Use of the following specialty type floor coverings must be reviewed and approved for use by BJC Director of Design.

1. Cork Flooring
2. Wood Flooring
3. Linoleum Flooring
4. Static-Control Resilient Flooring.
5. Resilient Athletic Flooring.
6. Terrazzo Flooring.

2.04 FINISHED FLOORING TRANSITIONS

A. General.

1. At areas where a transition between two floor surfaces occurs, the condition shall be detailed and appropriately noted in the drawings. Coordinate the transition of floor surfaces with BJC Design Project Manager.
2. Transition floor surfaces between rooms at the centerline of the door in the closed position where occurs.

B. Vertical Transition

1. At areas where a change in height of finished flooring occurs, a flush floor transition with minimal seams is preferred. Refer to the table below for acceptable methods/materials for flooring transitions. Coordinate transition design with the anticipated types of traffic including walkers, wheelchairs, wheeled equipment, and other mobility assisting devices and coordinate with BJC Design Project Manager and Corporate Architect.

Table. Typical sloping floor transitions between floor coverings.

Floor covering thickness indicated is approximate	resilient sheet (+/- 0.080" to 0.125")	resilient tile (+/- 0.125")	carpet sheet or tile (+/-0.25" to 0.325")	epoxy resin (+/-0.25" to 0.5")	ceramic tile (+/- 0.325 to 0.5")	terrazzo (+/- 0.5" or greater)
Concrete (no floor covering)	resilient reducer, ref. Johnsonite RRS-XX-B	resilient reducer, ref. Johnsonite RRS-XX-D	resilient transition, ref. Johnsonite CTA-XX-J	sloped alum. transition, ref. Schluter Reno-Ramp	sloped alum. transition, ref. Schluter Reno-Ramp	sloped alum. transition, ref. Schluter Reno-Ramp
resilient sheet (+/- 0.080" to 0.125")	heat weld seams (where resilient sheets are dissimilar thicknesses, float floor to align faces)	no trim piece, butt joint (where resilient materials are dissimilar thicknesses, float floor to align faces)	resilient transition, ref. Johnsonite CTA-XX-HT	stainless steel edge, ref. Schluter Schiene (float floor beneath resilient sheet to align finish faces)	stainless steel edge, ref. Schluter Schiene (float floor beneath resilient sheet to align finish faces)	stainless steel edge, ref. Schluter Schiene (float floor beneath resilient sheet to align finish faces)
resilient tile (+/- 0.125")		no trim piece, butt joint (where resilient tiles are dissimilar thicknesses, float floor to align faces)	resilient transition, ref. Johnsonite CTA-XX-H	stainless steel edge, ref. Schluter Schiene (float floor beneath resilient sheet to align finish faces)	stainless steel edge, ref. Schluter Schiene (float floor beneath resilient sheet to align finish faces)	stainless steel edge, ref. Schluter Schiene (float floor beneath resilient sheet to align finish faces)
carpet, sheet or tile (+/-0.25" to 0.5")				sloped stainless steel transition, ref. Schluter Reno-TK	sloped stainless steel transition, ref. Schluter Reno-TK	stainless steel edge, ref. Schluter Schiene (float floor beneath carpet to align finish faces)
epoxy resin (+/-0.25" to 0.5")				stainless steel edge, ref. Schluter Schiene	stainless steel edge, ref. Schluter Schiene (float floor as necessary to align finish faces)	stainless steel edge, ref. Schluter Schiene (float floor as necessary to align finish faces)
ceramic tile (+/- 0.325 to 0.5")						stainless steel edge, ref. Schluter Schiene (float floor as necessary to align finish faces)
terrazzo (+/- 0.5" or greater)						stainless steel edge, ref. Schluter Schiene

C. Transition at Building Joints. Instances of flooring spanning building expansion and control joints should be minimized and must be properly detailed to permit foot and wheeled traffic where they occur.

1. Layout floor plans to account for location of building joints. Minimize occurrences and instances where a building expansion joint is in or across high traffic areas.

2. For new concrete slabs, properly detail the slab edge conditions in order to receive an expansion joint cover that will result in a flush floor/joint condition. This includes blocking out portions of the slab.

3. For existing concrete slabs, a flush condition is still preferred. Consider one of the following options to achieve a flush and smooth transition.

a. Remove portion of existing expansion joint and portions of the slab edges either side of joint as necessary to install joint system flush. Existing slabs must be evaluated for fire separation requirements and structural integrity prior to selecting this method.

b. Float floors with cementitous floor fill material either side of joint so that the face of the joint cover and the floor surfaces on either side are flush conditions. Install low-profile joint cover with slip-resistant surfacing.

PART 3 - DOCUMENTATION

3.01 GENERAL

A. Flooring Installation – Scope of Work Checklist is included in the specification masters and should be included in every project with slab prep, demolition or new flooring installation activities. Complete the checklist prior to commencing any flooring activity and submit to BJC Design Project Manager for review.

B. Architect shall submit a binder containing approved interior material control samples at the completion of design for each flooring type, pattern and color.

C. Where multiple floor finishes occur or where specific patterning and layout is important, provide interior floor finish plans indicating material type and locations. Dimension finish plan complete with work points or match lines as required.

D. Unless otherwise directed, furnish a minimum of 5% extra materials to owner at completion of project for each type of size, pattern, color used. Extra material shall be packaged with protective covering and identified with labels describing contents and project information. Coordinate exact amount of extra materials with Owner’s requirements and project size.

E. Types of adhesive throughout room called out.

3.02 SUBSTRATE PREPARATION

A. General Contractor is responsible to deliver an acceptable substrate to the flooring installer and in accordance with the construction schedule. General Contractor may be required to provide temporary heat and/or dehumidification to adequately dry new or existing concrete slabs to receive floor finishes. Flooring contractor may be required to provide moisture control system if slabs do not meet flooring manufacturer's requirements.

B. Substrate preparation requirements. Flooring vendor shall remove coatings, including curing compounds, and other substances on substrates that are incompatible with installation adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents. Broom or vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Prepare concrete substrates in accordance with ASTM F710. Substrates must be clean and free of all residues, adhesives, dirt, moisture, oil, wax, soap, and other contaminants that can interfere with the proper installation. Remove materials in their entirety to return substrate to bare concrete. Coordinate activities with Owner's infection control procedures.

   a. Remove all traces of existing adhesives, floor coatings and compounds including but not limited to those that contain soap, wax, oil and/or silicone by mechanically sanding and grinding and bead-blasting methods. Chemicals and solvents are not permitted.

      1) Petroleum-based construction layout markings (including but not limited to Sharpies, grease pens or pencils, spray paint, etc.) shall be avoided. If encountered, markings shall be removed by bead blasting to prevent the ghosting of the markings through to the floor surface.
      2) Petroleum-based spills/leaks on concrete floors shall be cleaned immediately. If encountered, area shall be removed by bead blasting.

D. Substrate must also be flat and level in accordance with the straightedge test method. Provide unit cost for floor leveling in excess of ¼" thick. Refer to Unit Cost specification section.

E. Testing requirements for installation of moisture-sensitive flooring over concrete substrates.

   a. Flooring vendor shall verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions. Perform moisture tests in accordance with ASTM requirements and so that each test area does not exceed 200 sq. ft. (18.6 sq. m) and perform no fewer than two tests in each installation. For some projects, owner may engage a qualified testing company in addition to flooring vendor's testing. Contractor always has the option of independently testing and

trending slabs for moisture. All test results shall be delivered to design team and owner.

1) Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours or limit as acceptable in writing by flooring manufacturers.
2) Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75% relative humidity level measurement or limit as acceptable in writing by flooring manufacturers.
3) Perform alkalinity tests and additional tests as recommended by flooring manufacturer. Proceed with installation only after substrates meet the requirements.

b. If it is determined that concrete slabs are not capable of drying to a level that meets the standards indicated and according to manufacturer's requirements, flooring vendor shall properly prepare slabs and provide a moisture vapor reduction system. The system shall only be from one of the manufacturers identified below under moisture control system. No exceptions.

3.03 INSTALLATION

A. Flooring materials shall be installed as late in the construction schedule as practical, and be protected by the General Contractor from damage from construction operations and placement of equipment and fixtures during the remainder of the construction period. Use of recommended protection methods shall be in accordance with the flooring manufacturer and installer's requirements. Ensure the flooring material is without damage or deterioration at time of Substantial Completion.

PART 4 - SUPPORTING INFORMATION

4.01 GENERAL

A. Coordinate with entity specific standards regarding acceptable manufacturers and products.

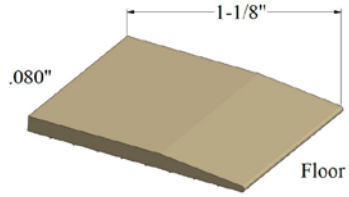
B. Refer to the "Flooring Installation - Scope of Work Checklist" following this guideline.

4.02 FLOOR TRANSITION PRODUCTS

A. Flooring transition products are identified in the table above as a basis-of-design. Other manufacturers and products that meet the performance requirements and profiles identified may be permitted and included in the contract documents. The products listed are depicted below.

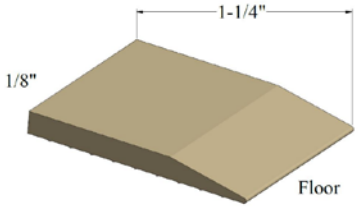
1. Resilient Transitions, Basis-of-Design manufacturer: Johnsonite

a. RRS-XX-B:



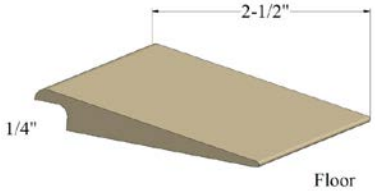
RRS-XX-B
3' Pieces
.080" material to floor

b. RRS-XX-D:



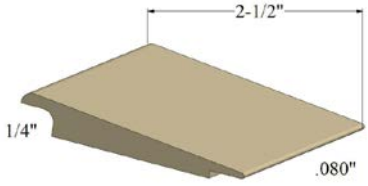
RRS-XX-D
25' Roll
1/8" material to floor

c. CTA-XX-J:



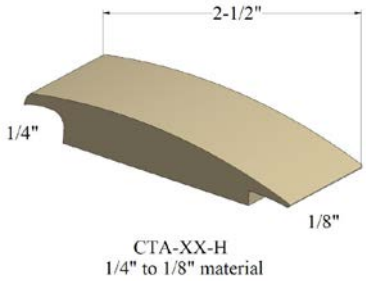
CTA-XX-J
1/4" material to subfloor

d. CTA-XX-HT:



CTA-XX-HT
1/4" to .080" material

e. CTA-XX-H:



2. Metal Transitions, Basis-of-Design manufacturer: Schluter.

a. Reno-Ramp:

b. Schiene:

c. Reno-TK:

4.03 MOISTURE CONTROL SYSTEM

A. The following is a list of approved manufacturers for concrete slab moisture mitigation systems. Products manufactured by these companies for the purpose of

mitigating moisture in concrete slabs shall be used. NO EXCEPTIONS ARE PERMITTED.

1. Ardex
2. Koster
3. Mapei

4.04 TILE FLOORING

A. The following manufacturer(s) and/or products are approved for use. Other manufacturers may be subject to approval by BJC Director of Design.

1. Mosaic Tile Floor.

   a. American Olean; Division of Dal-Tile International Inc.
   b. Daltile; Division of Dal-Tile International Inc.

2. Mosaic Tile Wall.

   a. American Olean; Division of Dal-Tile International Inc.
   b. Daltile; Division of Dal-Tile International Inc.

3. Quarry Tile Floor.

   a. American Olean; Division of Dal-Tile International Inc.
   b. Atlas Minerals & Chemicals, Inc.
   c. Daltile; Division of Dal-Tile International Inc.
   d. Deutsche Steinzeug America, Inc.
   e. Endicott Tile Ltd.; Endicott Clay Products Co.
   f. Florida Brick & Clay Company Inc.
   g. Florida Tile Industries, Inc.
   h. Interceramic.
   i. Metropolitan Ceramics.
   j. Portobello America, Inc.
   k. Quarry Tile Co.
   l. Seneca Tiles, Inc.
   m. Summitville Tiles, Inc.
   n. United States Ceramic Tile Company.

4. Resilient Sheet Flooring

   a. Armstrong World Industries, Inc.
   b. Mannington Mills, Inc
   c. Tarkett, Inc.

5. Resilient Tile - Solid Vinyl Floor Tile

   a. Armstrong World Industries, Inc.
   b. Mannington Mills, Inc

c. Tarkett, Inc.

6. Resilient Tile - Vinyl Composition Tile

a. Armstrong World Industries, Inc, Excelon
b. Mannington Mills, Inc., Essentials

7. Tile Carpeting

a. Constantine
b. InterfaceFLOR
c. Mannington Mills, Inc.
d. Masland
e. Mohawk Group

END OF DOCUMENT

4.2 RESPONSIBILITY MATRIX

The following matrix identifies those individuals, roles or departments responsible for maintaining the accuracy of the information and those responsible for providing input. Refer to Preface for detailed explanation.

	BJC HealthCare													Hospital/Entity				
	PD&C																	
	Corporate Architect	Corporate Engineer	Director of Planning	Director of Design	Director of Construction	Sustainability Project Manager	Clinical Asset Management (CAM)	Risk Management	Real Estate	Ergonomics	Infection Prevention (IP)	Info Systems, Data, Telecom (IS)	Other:	Standards Review Committee	Facilities Engineering	Housekeeping	Security	Other:
Primary Authorship	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Secondary Authorship	☒	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

4.3 DOCUMENT REVISION HISTORY

The following able indicates the date the document originated and any subsequent revisions.

Document 102.107 – Flooring Guideline		
Issue	Description of Issue	Prepared by
2012 v1	Original Issue	G. Zipfel
2014v1	Added references to updated flooring documents	G. Zipfel
2016v1	Additions and revisions	G. Zipfel
2018 v1	Reorganized and updated, changed to 102.107	G. Zipfel