SECTION 09652 – RESILIENT TILE FLOORING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Flooring and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.

B. Related Documents

1. The General Provisions of the contract, including the General Provisions for Construction Projects (2016), Special Provisions, and General Requirements of the Specifications, apply to the work specified in this Section.

C. Related Sections:

1. Other Division 9 - FINISHES sections for floor finishes related to this section but not the work of this section

2. Division 6 – WOODS AND PLASTICS; not the work of this section

1.02 REFERENCES

A. ASTM International:

1. ASTM E 648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source

2. ASTM E 662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials

3. ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

4. ASTM F 1066 Standard Specification for Vinyl Composition Tile

5. ASTM F 1482, Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring

6. ASTM F 1861 Standard Specification for Resilient Wall Base

7. ASTM F 1869 Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

8. ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

B. National Fire Protection Association (NFPA):

1. NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source

2. NFPA 258 Standard Test Method for Measuring the Smoke Generated by Solid Materials

D. Manufacturer's Installation Guidelines and Installation manuals.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Provide flooring which has been manufactured, fabricated and installed to performance criteria certified by manufacturer without defects, damage, or failure.

B. Administrative Requirements

1. Pre-installation Meeting: Conduct an on-site pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 1 - GENERAL REQUIREMENTS sections for Project Management and Coordination (Project Meetings).

2. Pre-installation Testing: Conduct pre-installation moisture testing & pH testing prior to installation of flooring material.

C. Test Installations/ Mock-ups: Install at the project site a job mock-up using acceptable products and manufacturer approved installation methods, including concrete substrate testing. Obtain Owner's and Consultant's acceptance of finish color, texture and pattern, and workmanship standards.

1. Mock-Up Size: 4' x 4'

2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.

3. Incorporation: Mock-up may be incorporated into the final construction with Owner's approval.

D. Sequencing and Scheduling

1. Install flooring and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring.

2. Do not install flooring over concrete slabs until they are sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond, moisture tests and pH test.

1.04 SUBMITTALS

A. Submit shop drawings, seaming plan, coving details, and manufacturer's technical data, installation and maintenance instructions for flooring and accessories.

B. Submit the manufacturer's standard samples showing the required colors for flooring and applicable accessories.

C. Submit Safety Data Sheets (SDS) available for adhesives, moisture mitigation systems, primers, patching/leveling compounds, floor finishes (polishes) and cleaning agents and Material Information Sheets for flooring products.

D. If required, submit the manufacturer's certification that the flooring has been tested by an independent laboratory and complies with the required fire tests.

E. Closeout Submittals: Submit the following:

1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Section 01300 – SUBMITTALS. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.

2. Warranty: Warranty documents specified herein

1.05 QUALITY ASSURANCE

A. Single-Source Responsibility: provide types of flooring and accessories supplied by one manufacturer, including moisture mitigation systems, primers, leveling and patching compounds, and adhesives.

B. Select an installer who is experienced and competent in the installation of resilient vinyl composition tile flooring and the use of subfloor preparation products for resilient flooring and base materials.

1. Confirm installer's certification by requesting their credentials

C. Fire Performance Characteristics: Provide resilient vinyl composition tile flooring with the following fire performance characteristics as determined by testing material in accordance with ASTM test methods indicated below by a certified testing laboratory or other testing agency acceptable to authorities having jurisdiction:

1. ASTM E 648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I

2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less

3. CAN/ULC-S102.2 – Flame Spread Rating and Smoke Developed – Results as tested.

1.06 DELIVERY, STORAGE AND HANDLING

A. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.

C. Store materials in a clean, dry, enclosed space off the ground, protected from harmful weather conditions and at temperature and humidity conditions recommended by the manufacturer. Protect adhesives from freezing. Store flooring, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

1.07 PROJECT CONDITIONS

A. Maintain a minimum temperature in the spaces to receive the flooring and accessories at 65ºF (18ºC) and a maximum temperature of 100ºF (38ºC) for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55ºF (13ºC) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances. Refer to the manufacturer’s installation manual, to ensure appropriate installation.

1.08 LIMITED WARRANTY

A. Resilient Flooring: Submit a written warranty executed by the manufacturer, agreeing to repair or replace resilient flooring that fails within the warranty period.

B. Limited Warranty Period: 5 years

C. Limited Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.09 EXTENDED SYSTEM LIMITED WARRANTY

A. Resilient Flooring System: Submit a written warranty executed by the manufacturer, agreeing to repair or replace system (subfloor preparation products, adhesive, and floor covering) that fails within the warranty period.

B. Limited Warranty Period: 10 years on top of the Resilient Flooring Limited Warranty

C. Cement based self-leveling compound
Flexible patching and smoothing compound
Acrylic primer for porous substrates
Acrylic primer for non-porous substrates
Two part moisture mitigation system

D. The installation of an Armstrong Flooring product along with the recommended Armstrong Flooring adhesive, as well as any one of the Strong System subfloor preparation products listed above, provides 10 additional years of limited warranty coverage. The Strong System limited warranty covers the installation integrity for the length of the flooring product warranty plus 10 years. In order to qualify for the Strong System Warranty, any subfloor preparation product needed for an installation must be an Armstrong Flooring product.

E. For the System Limited Warranty to be valid, this product is required to be installed using the appropriate manufacturer’s recommendations. Product installed not using the specific instructions from the manufacturer will void the warranty.

1.10 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials from same production run as products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Quantity: Furnish quantity of flooring units equal to 10% of amount installed.

2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra material.

PART 2 – PRODUCTS

2.01 MANUFACTURER

A. Resilient tile flooring, wall base, adhesives and subfloor preparation products and accessories:

Armstrong Flooring Inc., 2500 Columbia Avenue, Lancaster, PA 17604, www.armstrongflooring.com/commercial or Approved equal

Mohawk Group, 160-0. Industrial Blvd, Calhoun GA Telephone 800.241.4494. www.mohawkgroup.com or Approved equal

1. Manufacturer must have a headquarters in the United States of America

2. Substitutions or Equals: Substitutions are allowed only if they meet the in accordance with the General and Special provisions of this specification.

2.02 RESILIENT TILE FLOORING MATERIALS

A. Provide Vinyl Composition Tile: Standard Excelon® Imperial® Texture Tile Flooring manufactured by Armstrong Flooring, Inc. or approved equal.

1. Description: Tile composed of polyvinyl chloride resin, plasticizers, fillers, stabilizers and pigments with colors and texture dispersed uniformly throughout its entire thickness.

2. Vinyl composition tile shall conform to the requirements of ASTM F 1066, “Standard Specification Vinyl Composition Floor Tile", Class 2, through-pattern

3. Pattern and Color: Color to be selected from the manufacturers standard full range of colors.

4. Size: 12 in. x 12 in. (305 mm x 305 mm)

5. Thickness: 1/8"/0.125 in. (3.2mm)

2.03 PRODUCT SUBSTITUTION

A. Substitutions: Substitutions shall be permitted in accordance with the general Provisions and Special Provisions.

2.04 WALL BASE MATERIALS

A. For top set wall base: Provide 1/8 in. (3.18 mm) thick, 4 in. (10.16 cm) high Armstrong Flooring Color-Integrated Wall Base with a matte finish, conforming to ASTM F 1861, Type – Rubber

2.05 ADHESIVES

A. For Tile Installation System, Full Spread: Provide Armstrong S-515 Floor Tile Adhesive under the tile and Armstrong S-725 Wall Base Adhesive at the wall base as recommended by the flooring manufacturer.

B. For Tile Installation System, Tile On: Provide Armstrong S-515 Floor Tile Adhesive under the tile over smooth, completely bonded existing resilient flooring and Armstrong S-725 Wall Base Adhesive at the wall base as recommended by the flooring manufacturer.

C. For Tile High-Moisture Installation Warranty, Full Spread: Provide Armstrong S-515 Floor Tile Adhesive

2.06 ACCESSORIES

A. For patching, smoothing, and leveling monolithic subfloors (concrete, terrazzo, quarry tile, ceramic tile, and certain metals), provide Armstrong S-184 Fast-Setting Cement-Based Patch and Underlayment.

B. For priming porous substrates to aid in adhesive bond strength and reducing subfloor porosity, provide S-454 Prime Strong™ acrylic primer for porous substrates. For non-porous substrates, provide S-455 Prime Strong™ acrylic primer for non-porous substrates.

C. For creating a moisture barrier, provide S-452 Seal Strong™ two part moisture mitigation system.

D. For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.

E. Provide transition/reducing strips tapered to meet abutting materials.

F. Provide threshold of thickness and width as shown on the drawings.

G. Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.

H. Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring. Provide units of maximum available length to minimize the number of joints. Use butt-type metal edge strips for concealed anchorage, or overlap-type metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.

PART 3 – EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including technical bulletins, product catalog, installation instructions, and product carton instructions for installation and maintenance procedures as needed.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions (i.e. moisture tests, bond test, pH test, etc.).

B. Visually inspect flooring materials, adhesives and accessories prior to installation. Flooring material with visual defects shall not be installed and shall not be considered as a legitimate claim.

C. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.

D. Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.

E. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.

F. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.03 PREPARATION

A. Subfloor Preparation: Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects with Cement-Based Patch and Underlayment as recommended by the flooring manufacturer. Refer to ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring for additional information on subfloor preparation.

B. Subfloor Preparation Moisture Mitigation: Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, mitigate moisture and other defects with Fast-Setting Cement-Based Patch and Underlayment as recommended by the flooring manufacturer. Refer to ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring for additional information on subfloor preparation.

C. Subfloor Cleaning: The surface shall be free of dust, solvents, varnish, paint, wax, oil, grease, sealers, release agents, curing compounds, residual adhesive, adhesive removers and other foreign materials that might affect the adhesion of resilient flooring to the concrete or cause a discoloration of the flooring from below. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents. Spray paints, permanent markers and other indelible ink markers must not be used to write on the back of the flooring material or used to mark the concrete slab as they could bleed through, telegraphing up to the surface and permanently staining the flooring material. If these contaminants are present on the substrate they must be mechanically removed prior to the installation of the flooring material. Refer to ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring for additional information on subfloor preparation.

D. For Tile Installation System, Full Spread when using S-700 or S-750 adhesive, perform subfloor moisture testing in accordance with ASTM F 2170, “Standard Test Method for Determining Relative Humidity in Concrete Slabs Using *in-situ* Probes” and Bond Tests to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. Relative humidity shall not exceed 80%. MVER shall not exceed 5 lbs./1000 sq. ft./24 hrs. On installations where both the Percent Relative Humidity and the Moisture Vapor Emission Rate tests are conducted, results for both tests shall comply with the allowable limits listed above. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained

E. For Tile High-Moisture Installation Warranty when using S-515 Adhesive, perform subfloor moisture testing in accordance with [ASTM F 2170, “Standard Test Method for Determining Relative Humidity in Concrete Slabs Using *in-situ* Probes” and Bond Tests to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring.

Relative humidity shall not exceed 95%, MVER shall not exceed 7 lbs./1000 sq. ft./24 hrs. On installations where both the Percent Relative Humidity and the Moisture Vapor Emission Rate tests are conducted, results for both tests shall comply with the allowable limits listed above. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained.

F. For Tile High-Moisture Installation Warranty when using S-525 Adhesive, perform subfloor moisture testing in accordance with [ASTM F 2170, "Standard Test Method for Determining Relative Humidity in Concrete Slabs Using *in-situ* Probes" and Bond Tests to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. Relative humidity shall not exceed 90%., MVER shall not exceed 7 lbs./1000 sq. ft./24 hrs. On installations where both the Percent Relative Humidity and the Moisture Vapor Emission Rate tests are conducted, results for both tests shall comply with the allowable limits listed above. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained.

G. Concrete pH Testing: Perform pH tests on concrete floors regardless of their age or grade level. All test results shall be documented and retained.

3.04 INSTALLATION OF FLOORING

A. Install flooring in strict accordance with the all manufacturer's recommendations for proper installation. Failure to comply may result in voiding the manufacturer's warranty

B. Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.

C. If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.

D. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.

E. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.

3.05 INSTALLATION OF ACCESSORIES

A. Apply top set wall base to walls, columns, casework, and other permanent fixtures in areas where top-set base is required. Install base in lengths as long as practical, with inside corners fabricated from base materials that are mitered or coped. Tightly bond base to vertical substrate with continuous contact at horizontal and vertical surfaces.

B. Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.

C. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.

D. Apply overlap metal edge strips where shown on the drawings, after flooring installation. Secure units to the substrate, complying with the edge strip manufacturer's recommendations.

3.06 CLEANING

A. Perform initial and on-going maintenance according to the latest edition of the maintenance recommendations for resilient flooring.

3.07 PROTECTION

A. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

A. Work under this section will not be measured nor paid for separately, but shall be considered incidental to and included in the price bid for the various items of work in this project.

END OF SECTION