

## **1 GENERAL**

### **1.1. GENERAL INSTRUCTIONS**

- 1.1.1. Read and be governed by conditions of the *Contract Documents*, including sections of Division 1.

### **1.2. SECTION INCLUDES**

- .1 1.1. General Instructions
- .2 1.2. Section Includes
- .3 1.3. Summary
- .4 1.4. Submittals
- .5 1.5. Closeout Submittals
- .6 1.6. Quality Assurance
- .7 1.7. Delivery, Storage, And Handling
- .8 1.8. Field Conditions
- .9 1.9. Warranty
- .10 2.1. Resilient Tile Flooring
- .11 3.1. Examination
- .12 3.2. Preparation
- .13 3.3. Conditioning
- .14 3.4. Installation Of Tile Flooring
- .15 3.5. Initial Maintenance After Installation
- .16 3.6. Field Quality Control
- .17 3.7. Adjusting And Cleaning
- .18 3.8. Protection

### **1.3. SUMMARY**

- 1.3.1. Section includes:
  - 1.3.1.1. Luxury Vinyl Tile

### **1.4. SUBMITTALS**

- 1.4.1. Submit required submittals in accordance with Section 01 33 00.
- 1.4.2. Product data sheets:
  - 1.4.2.1. Preparation instructions and recommendations.
  - 1.4.2.2. Storage and handling requirements and recommendations.
  - 1.4.2.3. Installation methods.
  - 1.4.2.4. Maintenance recommendations.
- 1.4.3. Selection Samples:
  - 1.4.3.1. For each finish product specified, two sets of each type, colors and finish of resilient flooring and accessory required, indicating full range of color and pattern variation.
- 1.4.4. Verification Samples:
  - 1.4.4.1. For each finish product specified, two sets of each type, colors and finish of resilient flooring and accessory required, indicating color and pattern of actual product, including variations, as proof of application compliance.

### **1.5. CLOSEOUT SUBMITTALS**

- 1.5.1. Submit closeout submittals in accordance with Section 01 77 00.
- 1.5.2. Operation and maintenance data:
  - 1.5.2.1. Submit manufacturer's operation and maintenance instructions for inclusion in the operation and maintenance manuals.
- 1.5.3. Maintenance materials:
  - 1.5.3.1. Deliver 2% of each colour, pattern and type of flooring material required for this project for maintenance use. Store where directed. Clearly identify each box.
  - 1.5.3.2. Maintenance materials to be same production run as installed materials.

## **1.6. QUALITY ASSURANCE**

- 1.6.1. Qualifications:
  - 1.6.1.1. Installers / applicators / erectors: *Provide* work of this section, executed by competent installers with minimum 5 years experience in application of Products, systems and assemblies specified and with approval and training of *Product* manufacturers.
- 1.6.2. Source Limitations:
  - 1.6.2.1. Obtain each type of product from a single manufacturer.
- 1.6.3. Products:
  - 1.6.3.1. Provide products from same production run. Install products in sequence from sequentially numbered dye lots.
- 1.6.4. Bond Test:
  - 1.6.4.1. Install multiple bond tests using a 75mm x 75mm pieces of material adhered with adhesive to verify quality of adhesion. Remove half of each piece after 24 hours, then the other half after 48 hours. Document Results. Refer to Preparation procedures.
- 1.6.5. Mock-up:
  - 1.6.5.1. Prior to commencing flooring installation for this section, prepare full room mock- up (room size at least 10 m2 (100 ft2) in area) for acceptance by the Consultant.
  - 1.6.5.2. Do not proceed flooring specified in this section until mock-up has been accepted by *Contractor* and *Consultant*.

## **1.7. DELIVERY, STORAGE, AND HANDLING**

- 1.7.1. Store products in manufacturer's unopened packaging until ready for installation.
- 1.7.2. Label containers to clearly identify contents by product description, manufacturer, lot number, size, color and pattern.
- 1.7.3. Prevent freezing of product
- 1.7.4. Deliver products to area of work minimum three (3) days prior to installation. Remove them from containers to allow them to become fully acclimatized.
- 1.7.5. Keep delivered materials warm, dry and free from stains. Store cementitious material off damp surfaces.
- 1.7.6. Cartons should be stored on a smooth, flat, sturdy horizontal surface. Do not store cartons on end. It is recommended that cartons not be stacked more than 4 high during acclimation. Do not store cartons outside.
- 1.7.7. Replace damaged materials at no cost to the owner.

## **1.8. FIELD CONDITIONS**

- 1.8.1. Install materials of this section only when surfaces and air temperatures have been maintained between 18°C and 24°C for 48 hours preceding installation and will be so maintained during installation and for 48 hours thereafter. Maintain a minimum temperature of 13°C after above period.
- 1.8.2. Ensure that adequate ventilation is provided during installation and curing of materials of this section.
- 1.8.3. Close off areas to traffic during resilient flooring installation, and for a period of time after installation as recommended in writing by the manufacturer.
- 1.8.4. Install resilient flooring materials and accessories after other finishing operations, including painting, have been completed.
- 1.8.5. Concrete floors are to be dry, and exhibit negative alkalinity, carbonization, or dusting, and be free of curing/sealing compounds, residue from paint and adhesives.
- 1.8.6. Conduct the tests in accordance with ASTM F710-11 and the following:
  - 1.8.6.1. Test for moisture vapour transmission in accordance with ASTM F710-11 and ASTM F1869-11 or ASTM F2170-11 in accordance with manufacturer's written flooring installation instructions. Results must not exceed 170 µg/m<sup>2</sup> (3 lb per 1,000 ft<sup>2</sup>) in 24 hours when tested to ASTM F1869-11 or exceed 75% when tested to ASTM F2170-11.

- 1.8.6.2. Test for surface pH. Levels of pH shall not exceed the written recommendations of the flooring manufacturer and adhesive manufacturer. Test in accordance with ASTM F710-11.
- 1.8.6.3. For each test type: Conduct 3 tests for flooring applications up to 93 m2 (1000 ft²) in area, and 1 additional test for each additional 93 m2 (1000 ft²) of flooring area.
- 1.8.6.4. Testing shall be completed prior to application of water vapour reduction system, if applicable, and after application of water vapour reduction system in accordance with floor finish specifications.
- 1.8.7. In areas that are exposed to intense or direct sunlight, Products shall be protected during the conditioning, installation, and adhesive curing periods, by covering the light source.

## **1.9. WARRANTY**

- 1.9.1. Warrant work of this section in accordance with Section 01 78 36 for a period of 2 years.

## **2 PRODUCTS**

### **2.1. RESILIENT TILE FLOORING**

- 2.1.1. Resilient Tile Flooring:
  - 2.1.1.1. Manufacturer: Centura London & Windsor
  - 2.1.1.2. Product: Commercial Luxury Vinyl Tile
  - 2.1.1.3. Collection Name: Dura Contract 2.5
    - (1) Description:
      - (A) CONTRACT 2.5 is a 100% solid vinyl tile and plank flooring with natural woodgrain and stone embossing, with bevelled edges. PUR / UV cured, ceramic bead reinforced commercial grade wear layer; supported by a high-density PVC core
  - 2.1.1.4. Finish: Delta - #DCV648DELTA
  - 2.1.1.5. Size: 152mm x 1219mm
  - 2.1.1.6. Thickness: 2.5mm
- 2.1.2. Primer:
  - 2.1.2.1. 'Flextile 43 Latex Additive' by Flextile. Submit product data sheets
- 2.1.3. Sub-floor filler and leveller:
  - 2.1.3.1. 'Flextile Patch' by Flextile
  - 2.1.3.2. or alternate as recommended by flooring manufacturer for use with their product.
- 2.1.4. Adhesive:
  - 2.1.4.1. Acceptable Materials:
    - (1) Armstrong S-515 Moisture Resistant, clear, waterproof adhesive. Submit product data sheets
- 2.1.5. Metal edge strips:
  - 2.1.5.1. aluminum extruded, smooth, with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.
- 2.1.6. Polyethylene sheet:
  - 2.1.6.1. To CAN2 51.33-M77, Type 2, for protection.
- 2.1.7. Sealant: Low VOC type, clear silicone, as manufactured by Tremco, Momenitive, or Dow Corning.
- 2.1.8. Water vapour reduction system:
  - 2.1.8.1. 100% solids epoxy one coat system, 0 VOC, suitable for application to 100% RH floors per ASTM F2170-11, designed to protect moisture sensitive adhered flooring systems from elevated moisture and alkalinity levels, warranted by manufacturer to cover subsequent flooring materials and labour, compatible with finish flooring products.
  - 2.1.8.2. ASTM E96/E96M-10 water vapour transmission (wet methods) performance shall be documented by independent testing laboratory at a minimum 97% for water vapour transmission reduction compared to untreated concrete.
  - 2.1.8.3. ASTM E96/E96M-10 perm rating shall not exceed a 0.10 Perm rating.

- 2.1.8.4. ASTM D1308-02(2013) insensitivity to alkaline environment up to, and including, pH 14 in a 14-day bath test.
- 2.1.8.5. Manufacturer certifies acceptance and exposure to continuous topical water exposure after final cure.
- 2.1.8.6. Water vapour reduction system shall be a single coat, stand alone system with no requirements for additional components such as sand broadcast for adhesion of flooring systems.
- 2.1.8.7. System shall reduce Calcium Chloride readings of up to 25lbs/1000 ft<sup>2</sup>/24 hrs by 97% in one coat. System must be able to perform as required with RH Probe readings of 100%.

### **3 EXECUTION**

#### **3.1. EXAMINATION**

- 3.1.1. Examine substrate to ensure clean lines, correct level and freedom from cracks, ridges, dusting, scaling and carbonation.
- 3.1.2. Examine walls in advance of application of base to ensure that surfaces are protected against entry of water and moisture. Perform compatibility test with primer/adhesive and substrate.
- 3.1.3. Report conditions contrary to requirements preventing proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- 3.1.4. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the substrate. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

#### **3.2. PREPARATION**

- 3.2.1. Comply with recommendations of ASTM F710-11.
- 3.2.2. Water vapour reduction system:
  - 3.2.2.1. Where concrete substrate exhibits higher than permitted moisture and alkalinity levels, provide water vapour reduction system to protect moisture sensitive flooring system from elevated moisture and alkalinity levels.
    - (1) Shot blast floors to a International Concrete Repair Institute (ICRI) Concrete Surface Profile (CSP) #3 or #4 and clean surfaces with an industrial vacuum cleaner and remove residues from the substrate. Grinding is allowed only in areas not accessible by shot blasting. Remove defective materials, and foreign matter such as dust, adhesives, levelling compounds, paint, dirt, floor hardeners, bond breakers, oil, grease, curing agents, form release agents, efflorescence, laitance, and other deleterious substances. Repair cracks, expansion joints, control joints, and open surface honeycombs and fill in accordance with water vapour reduction system manufacturer's recommendations.
    - (2) Reinforcing fibres, if applicable, that are visible after shot blasting shall be removed and vacuumed leaving no fibres left on the concrete surfaces.
    - (3) Repair concrete prior to moisture vapour reduction system installation by using water vapour reduction system manufacturer's recommended bonding emulsion with approved concrete repair materials. Comply with requirements as listed in water vapour reduction system manufacturer's technical data information. Consult with vapour reduction manufacturer.
    - (4) Shot blast a small test area and review surface profile with the finished flooring applicator. As the water vapour reduction system is not a levelling material, Provide feather finish or levelling material to "flatten" or level the water vapour reduction system treated concrete prior to the flooring installation.
    - (5) Apply moisture vapour reduction system monolithically to manufacturer's recommended spreading rate in number of coats to achieve manufacturer's recommended thickness.

- (6) Consult with vapour reduction manufacturer and comply with requirements as listed in water vapour reduction system manufacturer's technical data information.
  - (7) Review surface profile with the finished flooring applicator. As the water vapour reduction system is not a levelling material, provide feather finish or levelling material to "flatten" or level the water vapour reduction system treated concrete prior to the flooring installation. Flooring installation shall not show telegraphing of substrate. Flooring installation shall be homogenous free of substrate lines, pockets, bumps, and unevenness.
  - (8) Verify proper adhesion of flooring adhesives, coatings, and levelling compounds to the final vapour reduction coating system for acceptability.
  - (9) Do not proceed with finished flooring installation if moisture vapour transmission exceeds maximum permitted rates.
- 3.2.3. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- 3.2.4. Alkalinity and adhesion testing: Perform tests and proceed with installation only after substrates pass testing. Document tests performed and submit in writing to Consultant.
- 3.2.5. Fill cracks, holes, and depressions in substrates with trowel-applied levelling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- 3.2.6. At door opening locations where finished flooring is adjacent to weather-stripping or automatic door bottoms Provide trowel-applied levelling compound to Provide full contact between finished flooring and weather-stripping or automatic door bottoms. Taper trowel-applied levelling compound to transition with adjacent flooring substrate to be Provide smooth and seamless transition at maximum slope of 3:1000 (height to distance) ratio.
- 3.2.7. Do not install floor coverings until they are same temperature as space where they are to be installed.
  - 3.2.7.1. Move floor coverings and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- 3.2.8. Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation.
- 3.2.9. Remove chalking and dusting from concrete surfaces with wire brushes.
- 3.2.10. Where flooring adjoins thicker floor materials, apply epoxy levelling screed, feather out to make up difference in level between materials.

### **3.3. CONDITIONING**

- 3.3.1. All flooring, adhesive, and related materials shall be conditioned or acclimatized within the area of installation and be adequately protected from soil, dust, moisture, and other contaminants during this time. The conditioning period shall be for at least 72 hours before installation, or until the materials reach the service temperature and humidity levels of the installation area.
- 3.3.2. It is the responsibility of the installer to inspect all materials carefully before installation and to determine if the substrate and jobsite conditions are environmentally and structurally acceptable for floor installation.
- 3.3.3. If the temperature and humidity levels are outside these parameters, the installation must not begin until the heating and ventilation system is operational. The temperature and humidity level must reach the minimum requirements and be maintained for a minimum of 72 hours before and maintained during and after the installation.

### **3.4. INSTALLATION OF TILE FLOORING**

- 3.4.1. Planks should be taken from several boxes to ensure a blend of color and design. Carefully check all planks for any defects. Ensure that you have the correct material and that all the cartons are from the same production lot. Do not install any planks from different production lots. No claims will be accepted for material that has been installed with visual defects.

- 3.4.2. Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- 3.4.3. Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, and the like. Extend flooring into toe spaces, door recesses, closets, and similar openings.
- 3.4.4. Maintain continuity of colour and pattern.
- 3.4.5. Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.
- 3.4.6. Install flooring to entire area indicated or scheduled, including coverplates occurring within finished floor areas. Maintain overall continuity of colour and pattern with pieces of flooring installed on cover plates. Tightly butt edges to perimeter of floor around cover plates and to cover plates. Do not install flooring to floor drains occurring within finished floor areas.
- 3.4.7. Roll tile with a 45.36 kilogram (100-pound) 3-section roller prior to adhesive hardening. Refer to specific rolling instructions of the tile manufacturer. Telegraphing of adhesive marks not permitted. Perform second rolling 2 to 3 hours after first rolling.
- 3.4.8. Cut tile and fit neatly around fixed or excessively heavy objects.
- 3.4.9. Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.
- 3.4.10. Install metal edge strips at unprotected or exposed edges where flooring terminates.
- 3.4.11. Use a full-spread, premium adhesive for the installation of vinyl planks. Use the notched trowel recommended by the adhesive manufacturer to achieve full transfer of the adhesive to the backing of the floor covering. Work in small enough area to ensure that the planks are laid into the adhesive according to the adhesive manufacturer installation methods.
- 3.4.12. Position the plank in the adhesive without sliding and pressing firmly down, paying special attention to the edges and corners. Ensure that each plank fit "tightly" together, the planks should not be forced into place.
- 3.4.13. Lay a complete row of planks and cut the last plank with the cut edge to fit against the opposite wall, the planks should not be forced into place.
- 3.4.14. Ensure that the flooring is free from general traffic for 24 hours after installation.

### **3.5. INITIAL MAINTANCE AFTER INSTALLATION**

- 3.5.1. Broom sweep or vacuum thoroughly.
- 3.5.2. Do not wet mop, wash, scrub, or strip the floor.

### **3.6. FIELD QUALITY CONTROL**

- 3.6.1. Conduct quality control in accordance with Section 01 45 00.
- 3.6.2. Manufacturer's field review to be in accordance with Section 01 45 00.

### **3.7. ADJUSTING AND CLEANING**

- 3.7.1. Remove excess adhesive from surfaces of the sheet flooring and base as work progresses.
- 3.7.2. Thoroughly clean surfaces in accordance with manufacturer's recommendations.
- 3.7.3. Only if so notified by Architect, and in the presence of the Owner, scrub the floor using a neutral detergent and a floor machine of 170-250 rpm capability equipped with a scrub brush or a scrubbing pad (3M blue or equal).
- 3.7.5. Lightly rinse and allow to dry. Note: Do not flood the floor with rinse water, scrubbing, or stripping solutions. Final re-washing, if required, and waxing will be done by owner.

### **3.8. PROTECTION**

- 3.8.1. Protect new floors from time of final set of adhesives until final inspection. Install suitable protection sheeting, lap joints of material by 150 mm (6") and seal with non-asphaltic tape.

- 3.8.2. Prohibit traffic on floor for 48 hours after installation. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.
- 3.8.3. Install floor protection in areas where other work, repairs and installation of equipment, and foot traffic will occur.
- 3.8.4. Protect exposed edges of flooring, where finished and unfinished areas adjoining, by means of a transition strip butting to and flush with the finished surface of the flooring covering material and securely adhered to the substrate material.
- 3.8.5. Install transition strips where flooring terminates. Set flush with adjacent floor finishes.

**END OF SECTION**