



## 1 – GENERAL

### 1.01 SUMMARY

- A. Section includes: Resilient floor covering and accessories.
- B. Related requirements:
  - 1. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 1 References Section)
  - 2. Section 03: Concrete (subfloors)
  - 3. Section 06: Wood (subfloors)
  - 4. Section 07: Thermal and moisture protection

### 1.02 REFERENCE STANDARDS

- A. ASTM International
  - 1. E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
  - 2. F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
  - 3. F 925 Standard Test Method for Resistance to Chemicals of Resilient Flooring
  - 4. F 970 Standard Test Method for Static Load Limit
  - 5. F 1303 Standard Specification for Sheet Vinyl Floor Covering with Backing
  - 6. F 1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
  - 7. F 1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
  - 8. F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes
- B. Other referenced documents
  - 1. EN 1516 Surfaces for sports areas. Determination of resistance to indentation
  - 2. EN 1569 Surfaces for sports areas. Determination of the behavior under a rolling load
  - 3. EN 12235 Surfaces for sports areas. Determination of vertical ball behavior
  - 4. EN 13036 Road and airfield surface characteristics. Test methods. Method for measurement of slip/skid resistance of a surface. The pendulum test
  - 5. EN 14808 Surfaces for sports areas. Determination of shock absorption
  - 6. EN 14809 Surfaces for sports areas. Determination of vertical deformation
  - 7. EN 434 Resilient floor coverings. Determination of dimensional stability and curling after exposure to heat
  - 8. ISO 105B-02 Tests for color fastness -- Part B02: Color fastness to artificial light: Xenon arc fading lamp test
  - 9. ISO 5470 Rubber- or plastics-coated fabrics -- Determination of abrasion resistance -- Part 1: Taber abrader
  - 10. LEED-NC, version 3

### 1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Install floor covering after finishing operations, including painting and ceiling operations, have been completed.
- B. Pre-installation Meetings: Meet to confirm project requirements, substrate conditions, manufacturer's installation instructions and warranty requirements in compliance with Division 1 requirements.
- C. Sequencing: Do not install floor covering over concrete substrates until substrates have cured and are dry to bond with adhesive as determined using test methods specified in ASTM F710 and following adhesive manufacturer's instructions.

### 1.04 ACTION SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures.
- B. Product Data: For specified products, submit latest edition of product supplier's technical specifications data (available from the manufacturer).
- C. Samples: Submit selection and verification samples showing the required finishes, colors, designs, and textures for flooring, as well as samples of adhesives and applicable accessories such as welding rods, game line paint, etc.

### 1.05 INFORMATION SUBMITTALS

- A. Test and Evaluation Reports
  - 1. Product test reports: As required by Conditions of the Contract and Division 1 Regulatory Requirements Section, submit test certificates from an independent test laboratory showing compliance with specified performance characteristics and physical properties.
  - 2. Compatibility and adhesion test reports: Submit test reports confirming adhesive's effectiveness with the product(s) specified.
- B. Manufacturer Instructions: For specified products, submit latest editions of product supplier's installation and cleaning & maintenance instructions (available from the manufacturer)
- C. Sustainable Design Submittals: For projects requiring LEED submittal based on LEED-NC version 3
  - 1. Submit documentation substantiating G-Courts Woodgrain or G-Courts Colored recycled content contribution to Materials & Resources Credit 4.
  - 2. If using Perma-Bond adhesive, submit documentation substantiating the adhesive's contribution to Indoor Environmental Quality Credit 4.1.

### 1.06 CLOSEOUT SUBMITTALS

- A. Warranty documentation: For specified products and accessories, submit product supplier's warranty documents (available from the manufacturer).
- B. Sustainable Design Closeout Documentation: Submit documentation to substantiate implementation of each relevant category of LEED credits.

## 1.07 QUALITY ASSURANCE

- A. Manufacturer: Manufacturer shall be ISO 9001 and ISO 14001 certified.
- B. Installer: To be qualified to install the material, installer shall fulfill one of the following requirements.
  - 1. Installer shall have a minimum of five years of proven experience in performing work of this section and in installing sheet vinyl floor covering – including heat welding and coving, if applicable -- similar to that required for this project and shall provide a minimum of three references for comparable systems and installations successfully performed by the installer within the last 18 months
  - 2. Installer shall be certified in resilient flooring installation. Acceptable certifications include The International Standards and Training Alliance (INSTALL), The International Certified Floorcovering Installers Association (CFI), and Flooring America University.
- C. Testing Agency: Agency shall be independent and qualified to perform concrete substrate moisture and humidity testing according to ASTM F710 prior to the flooring being installed.
- D. Preconstruction Testing:
  - 1. Concrete substrate: Reference Standard ASTM F710 for more detail. To partially summarize here, regardless of its age or grade level or history of use, perform the following concrete tests:
    - i. Concrete Moisture Test: Perform moisture tests (ASTM F1869 and ASTM F2170) on concrete with a minimum of three tests for the first 1000 square feet and one additional test for each 1000 square feet or fraction thereof. A diagram of the area showing the location and results of each test shall be dated and submitted to the architect, general contractor, and/or end user. If test results exceed the floor covering manufacturer's limits, installation shall not commence until results conform to limits.
    - ii. If test results exceed the following limits, installation shall not commence until results conform to limits:
      - 1. ASTM F 1869: 5 lbs/1000 sq feet/24 hours
      - 2. ASTM F 2170: 75% relative humidity
    - iii. Concrete pH Test: Perform pH tests on concrete. Readings below 7.0 and above 10.0 can adversely affect resilient flooring or adhesives, or both.
  - 2. Wood substrate: Per ASTM F1482, wood subfloor/underlayment assemblies shall be double layer construction, with a total thickness of not less than 1"
    - i. There shall be a minimum of 18 inches of well-ventilated air space beneath all wood subfloors. Crawl spaces shall be insulated and protected by a moisture vapor barrier.
    - ii. Do not install over "sleeper" underlayment systems or wood underlayment installed over concrete.
    - iii. Do not install over existing resilient flooring, Lauan panels, CCA plywood, fire-rated plywood, plywood with knots, underlayment made of pine or other soft woods, particle board, Masonite™, or other hardboard underlayment, hardwood flooring, treated or otherwise coated wood material, or other uneven or unstable substrates. Unacceptable substrates shall be covered using a ¼ inch or thicker panel underlayment that is warranted by the underlayment manufacturer for use as an underlayment for sheet vinyl floor covering in commercial applications.
    - iv. Fasten underlayment panels using underlayment staples or nails. Screws are not recommended.

## 1.08 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with Division 1 Product Requirements Section
- B. Delivery and Acceptance Requirements: Comply with the product supplier's ordering and lead time requirements to avoid construction delays, and to allow material to acclimatize as required in the specified product's installation instructions. Accept delivery of materials only if they are in unopened, undamaged packaging that bears the name and brand of the manufacturer/product supplier, project identification, and shipping and handling instructions.
- C. Storage and Handling Requirements: Upon receiving floor covering, immediately remove from pallet and lay on a flat surface. Store material -- including underlayment panels, patching or underlayment compound, floor covering material, adhesive, and welding rods -- in the original packaging (as delivered) in areas that are enclosed and weather tight with the permanent HVAC system set at a temperature of between 65°F and 80°F for a minimum of 48 hours prior to commencement of installation. In addition, comply with storage and handling requirements listed on product packaging, and described in the latest edition of the product's installation instructions (available from the manufacturer).

## 1.09 AMBIENT SITE CONDITIONS

The permanent HVAC system shall be operational and set at a temperature of between 65°F and 80°F for a minimum of 48 hours prior to commencement of installation, during the time of installation, and for 48 hours after installation has been completed. Thereafter, minimum temperature shall be 55°F. Refer to the latest version of the installation instructions (available from the manufacturer) for additional ambient requirements (humidity, completion of related work or substrates, etc.) under which the work must be performed in order for the work results to provide the specified quality.

## 2 – PRODUCTS

### 2.01 MANUFACTURERS

- A. Supplier: GSP, #160 - 21900 Westminster Highway, Richmond, B.C. V6V 0A8, ph 604.818.6795, fax 604.278.9604, info@gsp.ca, www.gsp.ca
- B. Substitutions: no substitutions permitted. [Specifier note: edit this paragraph to suit project requirements. If substitutions are permitted, edit text. Add text to refer to Division 1 Project Requirements (Product Substitutions Procedures) Section.]

## C. Product Options

## 1. G-Court Elite

Width: 6'7"  
Length: 49'2"  
Thickness: 6mm  
Wear layer thickness: 1.3mm  
G-Court Wood Weight: .76 lbs/sq ft.  
G-Court Colors Weight: .76 lbs/sq ft.  
G-Court Wood colors: Oak  
G-Court colors: [Orange] [Green] [Blue]

## 2. G-Court Supreme

Width: 6'7"  
Length: 49'2"  
Thickness: 6.7mm  
Wear layer thickness: 1.3mm  
G-Court Wood Weight: .84 lbs/sq ft.  
G-Court colors Weight: .78 lbs/sq ft.  
G-Court Wood colors: Maple  
G-Court colors: [Red] [Orange] [Teal] [Green] [Blue] [Navy]

## 3. G-Court Extreme

Width: 6'7"  
Length: 49'2"  
Thickness: 8mm  
Wear layer thickness: 1.3mm  
G-Court Wood Weight: .88 lbs/sq ft.  
G-Court colors Weight: .86 lbs/sq ft.  
G-Court Wood colors: Maple  
G-Court colors: [Red] [Orange] [Teal] [Green] [Blue] [Navy]

D. Performance: Physical properties of the resilient athletic flooring shall conform to the following minimums:

1. G-Court Elite

**Performance**

Shock absorption	EN 14808	25%
Sliding resistance	EN 13036	105
Color fastness	ISO 105-B02	6
Ball rebound	EN 12235	98%
Critical radiant flux	ASTM E648	Class 1

**Durability**

Wear resistance	ISO 5470	< 250 mg
Rolling load	EN 1569	1,500 N
Dimensional stability	EN 434	0.2%
Vertical deformation	EN 14809	0.8mm
Chemical resistance	ASTM F925	No change
Indentation resistance	EN 1516	0.18mm
Static load limit	ASTM F970	200 psi

**LEED**

MR 4	% recycled	4.8% pre-consumer
IEQ 4.1	low VOC adhesive	Perma-Bond VOC: 3 g/L

2. G-Court Supreme

**Performance**

Shock absorption	EN 14808	33%
Sliding resistance	EN 13036	105
Color fastness	ISO 105-B02	6
Ball rebound	EN 12235	99%
Critical radiant flux	ASTM E648	Class 1

**Durability**

Wear resistance	ISO 5470	< 250 mg
Rolling load	EN 1569	1,500 N
Dimensional stability	EN 434	0.2%
Vertical deformation	EN 14809	0.9mm
Chemical resistance	ASTM F925	No change
Indentation resistance	EN 1516	0.19mm
Static load limit	ASTM F970	200 psi

**LEED**

MR 4	% recycled	G-Court colors: 4.7% pre-consumer
MR 4	% recycled	G-Court Woodgrain: 4.4% pre-consumer
IEQ 4.1	low VOC adhesive	Perma-Bond VOC: 3 g/L

### 3. G-Court Extreme

#### Performance

Shock absorption	EN 14808	34%
Sliding resistance	EN 13036	105
Color fastness	ISO 105-B02	6
Ball rebound	EN 12235	99%

#### Durability

Wear resistance	ISO 5470	< 250 mg
Rolling load	EN 1569	1,500 N
Dimensional stability	EN 434	0.2%
Vertical deformation	EN 14809	1.2mm
Chemical resistance	ASTM F925	No change
Indentation resistance	EN 1516	0.46mm
Static load limit	ASTM F970	200 psi

#### LEED

MR 4	% recycled	4.3% pre-consumer
IEQ 4.1	low VOC adhesive	Perma-Bond VOC: 3 g/L

## 2.02 ACCESSORY PRODUCTS

- A. Adhesive: Architect to specify adhesive and trowel notch size per the latest edition of the installation instructions (available from the manufacturer).
- B. Other: For game line paint, follow product supplier's recommendations in the latest edition of the installation instructions (available from the manufacturer). For any other desired accessory products, call a Product Specialist at 1.888.824.3442.

## 3 – EXECUTION

### 3.01 EXAMINATION

- A. Overall: Follow guidelines laid out in Division 01, Section 01 71 00 – Examination and Preparation as well as Section 01 43 00 – Quality Assurance.
- B. Verification of Conditions: Inspect all substrates and subfloors for proper tolerances and dryness, and report any discrepancies to the general contractor in writing.
- C. Preinstallation Testing: Verify that concrete testing per ASTM F710 has been conducted by an independent testing agency, and that results are within the adhesive and floor covering manufacturers' requirements.
- D. Evaluation and Assessment: See the state requirements for the project location.

### **3.02 SURFACE PREPARATION**

- A. Follow guidelines laid out in Division 01, Section 01 71 00 – Examination and Preparation.
- B. Prepare concrete substrates per ASTM F 710. All work required to put the concrete subfloor in acceptable condition shall be the responsibility of the general contractor. See the state requirements for the project location.

### **3.03 INSTALLATION**

- A. Follow Division 01 relevant guidelines, and the latest edition of the manufacturer's installation instructions (available from the manufacturer)
- B. Interface with Other Work: If transitions are required to and/or from the specified floor covering, contact the supplier for suitable transition material.

### **3.04 FIELD QUALITY CONTROL**

- A. Manufacturer Services: Coordinate with supplier if an on-site manufacturer's representative is desired.

### **3.05 CLEANING**

- A. General: Clean up job site, including sweeping or dust mopping the floor to remove all dirt or grit, and put all waste in general contractor's dumpster. Follow overall cleaning guidelines described in Division 01.
- B. Initial Maintenance: Conduct a full initial maintenance following the latest edition of the manufacturer's maintenance instructions (available from the manufacturer)

### **3.06 CLOSEOUT ACTIVITIES**

Follow state requirements and Division 01 Section 01 76 00 – Protecting Installed Construction and Section 01 78 00 – Closeout Submittals requirements for these activities.