



Division 09 65 66
Resilient Athletic Flooring

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. This section includes labor, materials and other services necessary to complete resilient sheet flooring, slip resistant sheet vinyl safety flooring systems and accessories work.
- B. Conform with requirements of all Sections of Division 1, General Requirements, as it applies to the work of this Section.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-in-Place Concrete: Concrete finishing.
- B. Section 06100 - Rough Carpentry: Plywood floor sheathing.
- C. Division 7 - Thermal and Moisture Protection.
- D. Division 15 - Mechanical.

1.3 REFERENCES

- A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
- B. American Society for Testing & Materials (ASTM):
 1. ASTM D 2047, Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
 2. ASTM E 648/NFPA 253, Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
 3. ASTM E662, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
 4. ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
 5. ASTM F 970, Standard Test Method for Static Load Limit.



6. ASTM F1482, Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring.
7. ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
8. ASTM F1303, Standard Specification for Sheet Vinyl Floor Covering with Backing.
9. ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

C. Resilient Floor Covering Institute (RFCI)

1. RFCI Standard Slab Moisture Test Method (Calcium Chloride Method).

1.4 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide slip resistant sheet vinyl safety flooring which has been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's current printed product literature, specifications, installation instructions, and field reports in accordance with Section 01330 - Submittal Procedures.
- B. Shop Drawings: Submit shop drawings to indicate materials, details, and accessories in accordance with Section 01330 - Submittal Procedures including but limited to the following:
1. Submit a cut diagram indicating seam locations and roll direction. Use mitered seam layouts for corners when changing directions 180 degrees (e.g. when running material down corridors which bisect at a right angle), unless approved otherwise.
- C. Samples: Submit duplicate 12" x 12" (300 mm x 300 mm) sample pieces of sheet material, 12" (300 mm) long [gully edge] [cap strip] [joint cover strip] [cove former] in accordance with Section 01330 - Submittal Procedures.
- D. Quality Assurance Submittals: Submit the following:
1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
 2. Manufacturer's Instructions: Current published manufacturer's installation and maintenance instructions.
 3. Manufacturer's Field Reports: Manufacturer's field reports specified herein.



- E. Closeout Submittals: Submit the following:
 - 1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
 - 2. Warranty: Warranty documents specified herein.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
 - 1. Training: Installer who has attended a SignaFlex Aqua safety flooring installation training clinic.
- B. Regulatory Requirements: Provide slip resistant sheet vinyl safety flooring in compliance with the following:
 - 1. Americans with Disabilities Act Architectural Guidelines (ADAAG).
 - 2. Occupational Safety & Health Administration (OSHA).
- C. Mock-ups: Install at 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: [Specify mock-up size.].
 - 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 final construction upon Owner's approval.
- D. Pre-installation Meeting: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

1.7 DELIVERY, STORAGE & HANDLING

- A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Deliver, store and handle resilient flooring materials in accordance with Section 01610 - Basic Material Requirements.



- C. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- D. Store materials protected from exposure to harmful weather conditions, at temperature and humidity conditions recommended by manufacturer.
- E. Store rolls in dry locations. Stand rolls on end. Protect and secure rolls from falling.

1.8 WASTE MANAGEMENT AND DISPOSAL

- A. Deposit all packaging materials in appropriate container on site for recycling or reuse.
- B. Avoid using landfill waste disposal procedures when recycling facilities are available.
- C. Keep all discarded packaging away from children.

1.9 PROJECT CONDITIONS

- A. Temperature Requirements: If storage temperature is below 65F (18C), the SignaFlex Aqua safety flooring product must be moved to a warmer place and allowed to reach this temperature before unrolling or installation. The room temperature must not be below 65F (18C) and the floor temperature 50F (10C). For further information, refer to current Installation Guide.
- B. Maintain air temperature and structural base temperature at flooring installation area between 65F (18C) and 80F (26C) for 48 hours before, during and 24 hours after installation.

1.10 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
- C. Warranty Period for SignaFlex Aqua shall be 7 years commencing on Date of Substantial Completion.



1.11 EXTRA MATERIALS

- A. Provide extra materials of resilient sheet flooring and adhesives in accordance with Section 01780 - Closeout Submittals.
- B. Provide []sqft ([]m²) of each color, pattern and type flooring material required for project for maintenance use.
- C. Provide []sqft ([]m²) of extra materials in one piece and from same production run as installed materials.
- D. Clearly identify each roll of sheet flooring and each container of adhesive.
- E. Deliver to Consultant, upon completion of the work of this section and store where directed.

PART 2 – PRODUCTS

2.1 MANUFACTURER

- A. Address: California Sports Surfaces
 150 Dascomb Rd., Andover, MA 01810
 Telephone: 800-364-0287
 Email: sportorders@icpgroup.com

2.2 SAFETY FLOORING

- A. Slip Resistant Sheet Vinyl: To ASTM F1303, Type 2, Grade 1, sheet vinyl flooring with moisture resistant backing Class A. Static coefficient of slip resistance in excess of 0.6 when tested in accordance with ASTM D2047, SignaSan integrated bacteriostat, color selected by Consultant.



- B. Acceptable material: SignaFlex Aqua (measurements and product weights given below are approximate):
1. IPT2001 Splash: Thickness: 0.080" (2 mm); Roll Width: 6' 7" (2 m); Roll Length: 66' (20 m); Roll Weight: 220 lb (100 kg); Slip Resistance (Dry): 0.82.
 2. IPT2002 Dune: Thickness: 0.080" (2 mm); Roll Width: 6' 7" (2 m); Roll Length: 66' (20 m); Roll Weight: 220 lb (100 kg); Slip Resistance (Dry): 0.82.
 3. IPT2003 Moya: Thickness: 0.080" (2 mm); Roll Width: 6' 7" (2 m); Roll Length: 66' (20 m); Roll Weight: 220 lb (100 kg); Slip Resistance (Dry): 0.82.
 4. IPT2004 Verdant: Thickness: 0.080" (2 mm); Roll Width: 6' 7" (2 m); Roll Length: 66' (20 m); Roll Weight: 220 lb (100 kg); Slip Resistance (Dry): 0.82.
 5. IPT2005 Pacific: Thickness: 0.080" (2 mm); Roll Width: 6' 7" (2 m); Roll Length: 66' (20 m); Roll Weight: 220 lb (100 kg); Slip Resistance (Dry): 0.82.
 6. IPT2006 Candy: Thickness: 0.080" (2 mm); Roll Width: 6' 7" (2 m); Roll Length: 66' (20 m); Roll Weight: 220 lb (100 kg); Slip Resistance (Dry): 0.82.
 7. IPT20002 White: Thickness: 0.080" (2 mm); Roll Width: 6' 7" (2 m); Roll Length: 66' (20 m); Roll Weight: 220 lb (100 kg); Slip Resistance (Dry): 0.82.
 8. IPT20153 Fog: Thickness: 0.080" (2 mm); Roll Width: 6' 7" (2 m); Roll Length: 66' (20 m); Roll Weight: 220 lb (100 kg); Slip Resistance (Dry): 0.82.
 9. IPT20215 Bone: Thickness: 0.080" (2 mm); Roll Width: 6' 7" (2 m); Roll Length: 66' (20 m); Roll Weight: 220 lb (100 kg); Slip Resistance (Dry): 0.82.
 10. IPT20412 Blue: Thickness: 0.080" (2 mm); Roll Width: 6' 7" (2 m); Roll Length: 66' (20 m); Roll Weight: 220 lb (100 kg); Slip Resistance (Dry): 0.82.

2.3 ACCESSORIES

- A. Vinyl welding rod: Acceptable material:
1. California Sports Surfaces weld rod
- B. Cove former: Acceptable material, sized to suit application:
1. California Sports Surfaces Cove former [20R - 24 mm (1") radius] [38R - 45 mm (1.75") radius].
- C. Gulley edge: Acceptable material, vinyl, sized to suit application:
1. California Sports Surfaces Gulley Edge [GE 35/25] [GE 35RE] [GE 25RE].
- D. Cap strip: Acceptable material, sized to suit application, [Vinyl] [stainless steel]:
1. California Sports Surfaces Cap Strip [C4] [C7] [C8] [C11].
- E. Joint cover strip: Acceptable material, vinyl, sized to suit application:
1. California Sports Surfaces Joint Cover Strip [EJC75/20] [EJC50/20] [EJC75/32].



- F. Acrylic Adhesive: For dry areas with no spillage, use Ecofix, a one-part, water-based, acrylic adhesive as recommended by manufacturer.
- G. Polyurethane Adhesive: For areas subjected to spillage, extreme temperature changes or heavy rolling loads, use SignaGrip 30 or 300, a two-part resin-based polyurethane adhesive.
- H. Subfloor Filler and Leveler: Use only gray Portland cement-based underlayments, and patching compounds. Use for filling cracks, holes or leveling. White gypsum materials are not acceptable. Contact California Sports Surfaces for more information and recommendations.
- I. Metal edge strips:
 - 1. Aluminum extruded, smooth, [mill finish] stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

2.4 SOURCE QUALITY

- A. Source Quality: Obtain safety flooring products from a single manufacturer.

PART 3 – EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog, installation instructions and product label instructions for installation.

3.2 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.

3.3 SUB FLOOR PREPARATION

- A. Remove ridges and bumps.



- B. Apply subfloor filler to low spots and cracks to achieve floor level to a tolerance of 1:1000, allow to cure. Never install SignaFlex Aqua flooring over gypsum-based toppings, underlayments, leveling or patching compounds.
- C. Meet ASTM F710 Standard for Concrete or other monolithic floors / ASTM F1482 Standard for Wood Subfloors.
- D. Prepare and seal porous and powdery concrete surfaces in accordance with flooring manufacturer's written instructions.
- E. Ensure concrete slopes to drains and other floor sinks.
- F. Remove dust, old adhesive, paint, dirt, wax, sealer and foreign matter from existing surfaces.

3.4 PREPARATION

- A. Safety flooring shall be installed over subfloors conforming to ASTM F710 for concrete and other monolithic floors or ASTM F1482 for wood subfloors.
- B. Maintain air temperature and structural base temperature at flooring installation area between 65F (18C) and 80F (26C) for 48 hours before, during and 24 hours after installation.
- C. Perform moisture tests on concrete floors regardless of the age or grade level. Verify concrete substrate is dry in accordance with the RFCI Industry Standards Slab Moisture Test Method (Calcium Chloride Method), in strict accordance with instructions.
- D. Perform moisture condition test in each major area. A minimum of 1 test per 93 m² (1000 sqft), prior to installation. Moisture emissions from concrete subfloors must not exceed 3 lbs per 1000sf per 24 hours (1.4 kg H₂O/24 hr/93 m²) for acrylic adhesive and 5lbs for polyurethane adhesive via the Calcium Chloride Test Method (ASTM F1869). If subfloor moisture exceeds the allowable maximum for installing California Sports Surfaces flooring, please call your local California Sports Surfaces distributor for advice.
- E. Conduct moisture tests around room perimeter, at columns and where moisture may be evident.
- F. Perform alkali tests to ensure pH levels of concrete subfloor surface do not exceed pH 9.9. Concrete must be neutralized if above pH 9.9.



- G. Do not proceed with work until results of moisture condition and/or pH tests are acceptable.
- H. Wood subfloors shall not exceed 10% moisture content when measured with a Delmhorst Wood Moisture Tester.
- I. Underlayment and Patching Compounds: Use only grey colored Portland cement based underlayments; patching compounds are used for filling cracks, holes and leveling. White gypsum materials are not acceptable.

3.5 INSTALLATION

- A. Safety Flooring Installation: Install SignaFlex Aqua safety flooring in accordance with the current published California Sports Surfaces Installation Guide. Seams shall be heat welded with SignaFlex Aqua Weldrod™ only. Failure to install California Sports Surfaces safety flooring in accordance with recommended procedures will void the California Sports Surfaces Limited Product Warranty.
- B. Drains: Fit SignaFlex Aqua safety flooring and mechanically fasten to drain outlets to ensure a permanent, watertight installation.
 - 1. New Round Drains: Install round flash clamping ring type drains to accommodate SignaFlex Aqua safety flooring. Install drains to fit flush with surrounding floor surface. Acceptable drain manufacturers and drain types include Wade FC-1100. Please refer to California Sports Surfaces' current Installation Guide for approved drain manufacturers and styles.
 - 2. Existing Drains: When existing drains are to be used, provide mechanically fastened stainless steel drain rings over all round drain outlets. Fit rings over slip resistant sheet vinyl safety flooring and permit inside diameter that will allow clean out plate to be removed after installation. Drill into concrete to accommodate lead or plastic anchors. Screw drain rings to create a tight seal with beveled head stainless steel screws.
 - 3. Square and Rectangular Drains and Floor Sinks: Install California Sports Surfaces Gully Edge GE25RE or GE35RE around perimeter of drain which has been set in concrete in accordance with California Sports Surfaces Installation Guide. Do not use California Sports Surfaces Gully Edge around drains set in wood floors. Provide stainless steel strips, mechanically fastened with stainless steel screws. Use stainless steel strips in other areas where it is not practical to use California Sports Surfaces Gully Edge.



- C. Coved Installation: Where California Sports Surfaces safety flooring is covered up wall surfaces and other abutments, installation shall be in accordance with California Sports Surfaces safety flooring Installation Guide using the following accessories:
1. At standard wall finishes: Use Signa C7 vinyl cap strip to accommodate sheet vinyl to a height as indicated; adhere with contact adhesive.
 2. At ceramic tile, California Sports Surfaces Whiterock semi-rigid wall cladding or FRP paneling: Use Signa C8 Vinyl Captile Strip.
 3. At 0.75" (19.1 mm) radius coving at juncture of vertical and horizontal surfaces: Use Signa Vinyl Cove Former 20R: install with contact adhesive.
 4. At 1.5" (38 mm) radius coving at juncture of vertical and horizontal surfaces: Use Signa Vinyl Cove Former 38R: install with contact adhesive.
 5. Top set cove base: Install in accordance with manufacturer's instructions.
 6. Reducer strip - Reducer strip GE25RE/GE35RE where California Sports Surfaces safety flooring will not adjoin other materials or surfaces.

3.6 FIELD QUALITY REQUIREMENTS

- A. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
1. Site Visits: [Specify number and duration of periodic site visits].

3.7 CLEANING

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas.
1. Repair or replace damaged installed products.
 2. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance.
 3. Remove construction debris from project site and legally dispose of debris.

3.8 PROTECTION

- A. Cover and protect finished installation from damage from other trades using a non-staining, temporary floor protection system, such as a reusable textured plastic sheeting.
- B. Protection:
1. Protect the newly installed flooring from foot traffic for 24 hours and heavy rolling traffic for 72 hours.
 2. Protect installed product and finish surfaces from damage during construction in accordance with section 01760 - Protecting Installed Construction.