**Altro Aquarius**

**Innovative Slip Resistant Flooring**

**SECTION 09 65 16.23**

**RESILIENT SHEET FLOORING**

**(Slip Resistant Sheet Vinyl Safety Flooring)**

PART 1 GENERAL

* 1. SUMMARY
1. Section Includes: This section includes labor, materials and other services necessary to complete resilient sheet flooring, slip resistant sheet vinyl safety flooring systems and accessories work. Conform with requirements of all Sections of Division 1, General Requirements, as it applies to the work of this Section.
2. Related Sections:
3. Section 03300 - Cast-in-Place Concrete: Concrete finishing.
4. Section 06100 - Rough Carpentry: Plywood floor sheathing.
5. Division 7 - Thermal and Moisture Protection.
6. Division 15 - Mechanical.

1.02 REFERENCES

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 F1303**, Standard Specification for Sheet Vinyl Floor Covering with Backing.
8. **ASTM F2170**, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
9. **(RFCI)** Resilient Floor Covering Institute
10. RFCI Standard Slab Moisture Test Method (Calcium Chloride Method)

1.03 SUBMITTALS

1. 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 [gulley edge] [cap strip] [joint cover strip] [cove former] in accordance with Section 01330 - Submittal Procedures.

D. Closeout Submittals: Submit the following:

1. Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.

1.04 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 an Altro 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.

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

2. 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, manufacturer’s warranty requirements, and installer qualifications.

1.05 SITE CONDITIONS

A. Temperature Requirements: If storage temperature is below 65F (18C) or the floor temperature is below 50F (18C), the Altro safety flooring product must be moved to a warmer place and allowed to reach this temperature before unrolling or installation. For further information, refer to current Altro Installation Practices and Quick Facts.

B. Maintain air temperature and structural base temperature at flooring installation area between 68F (20C) and 80F (26C) for 48 hours before, during and 24 hours after installation.

1.06 WARRANTY

1. Warranty period for Altro Aquarius shall be 10 years commencing on date of substantial completion. Refer to conditions of the contract for project warranty provisions.
	1. BACKING

A. Altro Aquarius uses non-woven polyester/cellulose, glass fiber reinforcement.

**PART 2 PRODUCTS**

2.01 SAFETY FLOORING

A. Slip Resistant Sheet Vinyl Manufacturer: Aquarius by Altro, Telephone 800.377.5597, Fax 610.746.4325;
E-Mail Assistance: support@altrofloors.com

B. Acceptable material: Altro Aquarius (measurements and product weights given below are approximate): Slip Resistance .88/D 1.03/W

COLORS

1. **AQ2001 Dragonfly:** Thickness: 0.08” (2 mm); Roll Width: 6'7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg);

2. **AQ2004 Cygnet:** Thickness: 0.08” (2 mm); Roll Width: 6'7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg);

3. **AQ2007 Walrus:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg); .

4. **AQ2010 Vole:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg);

5. **AQ2021 Iguana:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg)

6. **AQ2022 Newt:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

7. **AQI2002 Blue Penguin:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg);

8. **AQI2003 Treefrog:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg);

9. **AQI2005 Puffin:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

10. **AQI2006 Otter:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

11. **AQI2008 Tern:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

12. **AQI2009 Terrapin:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

13. **AQI2011 Salamander:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

14. **AQI2012 Swan:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

15. **AQI2013 Hippo:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

16. **AQI2014 Coral Crab:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

17. **AQI2015 Mallard:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

18. **AQI2016 Spoonbill:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

19. **AQI2017 Sandpiper:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

20. **AQI2018 Sealion:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

21. **AQI2019 Curlew:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

22. **AQI2023 Gosling:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

23. **AQI2024 Sea Snail:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg).

24. **SB2017 Jetty:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 65’5” (20 m); Roll Weight: 220 lb (100 kg)

NEW COLORS – featuring AltroBead technology

1. **Lighthouse PX2001:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg);

2. **Cuttlefish PX2002:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg);

3. **Breakwater PX2003:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg); .

4. **Shoreline PX2006:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg);

5. **Windbreak PX2016:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg)

6. **Fisherman PX2009:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg).

7. **Driftwood PX2004:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg);

8. **Seahorse PX2011:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg);

9. **Deckchair PX2013:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg).

10. **Houseboat PX2015:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg).

11. **Starfish PX2010:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg).

12. **Beach hut PX2012:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg).

13. **Sea Urchin PX2014:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg).

14. **Jellyfish PX2005:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg).

15. **Porthole PX2007:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg).

16. **Anchor PX2008:** Thickness: 0.08” (2 mm); Roll Width: 6' 7" (2 m); Roll Length 6’5” (20 m); Roll Weight: 220 lb (100 kg).

2.02 ACCESSORIES

A. **Vinyl welding rod**: Acceptable material:

 1. Altro weld rod

B. **Cove former**: Acceptable material, sized to suit application:

1. Altro Cove former [20R - 24 mm (1") radius] [38R - 45 mm (1.75") radius].

C. **Gulley edge**: Acceptable material, vinyl, sized to suit application:

1. Altro Gulley Edge [GA 35/25] [GE 35RE] [GE 25RE].

D. **Cap strip**: Acceptable material, sized to suit application, [Vinyl] [stainless steel]:

1. Altro Cap Strip [C4] [C7] [C8] [C11].

E. **Subfloor Filler and Leveler**: Use only gray Portland cement-based “moisture tolerant” underlayments, and patching compounds. Use for filling cracks, holes or leveling. White gypsum materials are not acceptable.

F. **Metal edge strips**:

1. Aluminum extruded, smooth, [mill finish] stainless steel with lip to extend over flooring.

 G. **Adhesives**

1. Altrofix 30- 2 part polyurethane for areas prone to moisture

2. Altrofix 31- 2 part polyurethane fast set version for repairs and small areas.

**PART 3 EXECUTION**

3.01 EXAMINATION

A. Compliance: Comply with manufacturer’s product data, including product technical bulletins, product catalog, installation instructions.

B. 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.

3.02 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. Always conduct moisture tests per ASTM F-2170 on all concrete slabs regardless of age or grade level. ASTM F-2170 Relative Humidity (RH) test results must not exceed 90%.

C. Do not proceed with work until results of moisture condition tests are acceptable.

D. When patching, a ***moisture tolerant*** patching compound must always be used.

3.03 INSTALLATION

A. Aquarius Installation: Install Altro safety flooring in accordance with the current posted Altro Installation Practices and Quick Facts Guide. All Seams shall be heat welded with Altro Weldrod™ only. Failure to install Altro safety flooring in accordance with recommended procedures will void the Altro Limited Product Warranty.

B. Coved Installation: Where Altro safety flooring is coved up wall surfaces and other abutments, installation shall be in accordance with Altro safety flooring Installation Practices using the following accessories:

* + 1. At standard wall finishes: Use Altro C7 vinyl cap strip to accommodate sheet vinyl to a height as indicated.
		2. At ceramic tile, Altro Whiterock semi-rigid wall cladding or FRP paneling: Use Altro C8 Vinyl Captile Strip or C4 cap, respectively.
		3. At 0.75" (19.1 mm) radius coving at juncture of vertical and horizontal surfaces: Use Altro Vinyl Cove Former 20R.
		4. At 1.5" (38 mm) radius coving at juncture of vertical and horizontal surfaces: Use Altro Vinyl Cove Former 38R.
		5. Top set cove base: Install in accordance with manufacturer’s instructions.

3.04 CLEANING

**Specifier Note: Altro safety flooring is unaffected by surface water and most chemicals which do not have a solvent action on vinyl. Certain organic solvents and chemicals, including asphalt, can cause staining. Acids and dyes may affect the color, which should be selected accordingly. Contact Altro for information about the effect of chemicals on Altro safety flooring.**

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.

B. Protection:

* + 1. Sweep or vacuum all construction debris and dust first, then clean the flooring with Altro Clean 44 using an auto scrubber.

3.05 PROTECTION

1. 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.
2. Aquarius should be covered and protected from all other trades during construction with a suitable non-staining protective covering without taping to the surface of the flooring.

----------------------------------------------------------- END OF SECTION -----------------------------------------------------------