

Vinyl Sheet Flooring

Section revised and reissued by Addendum 01
Section revised and reissued by Addendum 03

PART 1- GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Vinyl sheet flooring (RSFX).

1.2 Administrative Requirements

- .1 Conduct a pre-installation meeting in accordance with Section 01 31 19.
 - .1 Independent inspection and testing company shall attend the pre-installation meeting.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Show sheet flooring roll and width layout as related to *Consultant's* floor pattern including borders and accents including where flooring materials meet other floor materials.
 - .2 Show locations of seams, floor drains, floor plates, and where flooring meets other flooring.
- .4 Samples:
 - .1 Selection samples:
 - .1 Submit manufacturer's range of pattern and colours available for *Consultant's* selection.
 - .2 Samples for verification:
 - .1 Submit sample of vinyl sheet flooring, minimum 150 mm (6") x 150 mm (6") of each different colour and pattern of vinyl sheet flooring.
 - .2 Submit sample of heat-welding bead, minimum 150 mm (6") length of each colour.
 - .3 Submit seam samples for each vinyl sheet flooring product and colour with heat-welded seam. Sample shall be a minimum of 150 mm (6") x 254 mm (10") and shall be adhered to a rigid backing material with the seam running lengthwise and in the center of the sample.
 - .4 Submit sample of fillet support at integral site formed flash cove bases,
- .5 Test and evaluation reports:
 - Submit moisture and alkalinity test results.

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1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Operation and maintenance data:
 - .1 Submit manufacturer's operation and maintenance instructions for inclusion in the operation and maintenance manuals.
- .3 Maintenance materials:
 - .1 Submit 3% of each colour in full running length, pattern and type flooring material required for this project for maintenance use.
 - .2 Provide 6,000 mm in 3,000 mm lengths of prefabricated flash cove bases for each colour and type flooring material required for this project for maintenance use.
 - .3 Maintenance materials to be same production run as installed materials.
 - .4 Suitably package for protection and storage, each identified with name of manufacturer and flooring material.
 - .5 Tag and store where directed by *Owner*.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 Installers:
 - .1 Shall have 5 years' experience, minimum, in application of *Products*, systems and assemblies specified and with approval and training of *Product* manufacturers.
- .2 Mock-ups:
 - .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*.
 - .2 Mock-up shall include flooring showing edge treatment and relationships to adjoining surfaces.
 - .3 Location of installation shall be determined by *Consultant*.
 - .4 Do not proceed with flooring specified in this section until mock-up has been accepted by *Contractor* and *Consultant*.

1.6 Delivery, Storage, and Handling

- .1 Package flooring materials and identify contents of each package.
- .2 Store materials for a minimum of 24 hours immediately before installation to comply with temperatures specified under Field Conditions.
- .3 Store flooring rolls on end.

1.7 Field Conditions

- .1 Ambient conditions:

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- .1 Install materials of this section only when surfaces and air temperatures have been maintained between 18.4°C and 29.4°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. Relative humidity shall be 50 +/- 10%.
- .2 Ensure that adequate ventilation is provided during installation and curing of materials of this section.
- .3 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.
- .4 Allow products to acclimatize in installation area for a minimum 24 hour prior to installation.

1.8 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty; ~~provide manufacturer's standard product warranty:~~
 - .1 Labour, ~~materials~~, and workmanship for work of this section; including flooring and seams.
.1 Duration: 2 years.
 - .2 Manufacturer's guarantee that products will be free from any manufacturing defects and that it will provide the following length of serviceable life in normal wear and tear circumstances:
 - .1 Duration:
 - .1 ~~RSF1, and~~ RSF2, RSF3, RSF4, RSF5, RSF6, RSF7: 10 years.
 - .2 ~~RSF3~~ RSF8 and RSF9: 15 years.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Slip resistance: Floors shall have a wet Dynamic Coefficient of Friction (DCOF) of 0.42 or greater in accordance with ANSI A326.3.
- .2 Vinyl sheet flooring shall not:
 - .1 Become stained or discoloured due to slab markings.
 - .2 Delaminate from substrates.
 - .3 Have welded seams which separate.

2.2 General

- .1 Single source responsibility: Obtain each *Product* from a single source with resources to provide products of consistent quality in appearance and physical properties, same production run. Products installed as part of the work of this section shall be from same production run.

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2.3 Vinyl Sheet Flooring

- .1 Vinyl sheet flooring (RSF1, ~~RSF2, RSF3, RSF4, and RSF5~~ RSF7, RSF8 and RSF9):
 - .1 Thickness: 2 mm (0.08").
 - .2 Colours: Refer to Interior Finish Schedule.
 - .3 Acceptable *Products*: Refer to Interior Finish Schedule.
 - .4 Substitutions in accordance with Section 01 25 00.
- .2 Slip resistant sheet vinyl flooring (RSF2) (RSF3) (RSF4) (RSF5) (RSF6):
 - .1 Thickness: 2 mm (0.08").
 - .2 Colours: Refer to Interior Finish Schedule.
 - .3 Acceptable *Products*: Refer to Interior Finish Schedule.
 - .4 Substitutions in accordance with Section 01 25 00.

2.4 Miscellaneous Materials

- .1 Seam construction:
 - .1 Hot welded joints, provide welding rod matched to floor pattern/colour selected.
 - .2 Colours: To later selected by *Consultant* from full colour range.
- .2 Primer/adhesives:
 - .1 Types as recommended by resilient flooring manufacturer compatible with materials and to suit substrate types and to comply with warranty requirements.
 - .2 Adhesives shall be appropriate for equipment, cart, and patient bed/stretchers rolling load traffic where applicable.
- .3 Patching and levelling compound:
 - .1 Trowel applied Portland cement based, moisture, mildew, and alkali-resistant.
 - .2 Minimum compressive strength after 28 days shall be minimum 3,500 psi when tested in accordance with ASTM C109/C109M-21 or ASTM C472.
 - .3 Gypsum based compounds are not acceptable.
 - .4 Acceptable manufacturers:
 - .1 Ardex.
 - .2 Mapei.
 - .3 Substitutions: in accordance with Section 01 25 00.
 - .5 Acceptable *Product*: type as recommended by flooring manufacturer.
- .4 Cleaning solution:
 - .1 Acceptable *Products*: type as recommended by flooring manufacturer.
- .5 Site fabricated flash cove base accessories:
 - .1 Aluminum cove cap: Flooring manufacturer's standard product, clear anodized finish.

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- .2 Plastic filler:
 - .1 Filler shall be used for sealing joints between top of integral cove wall base or integral cove cap and irregular wall surfaces.
 - .2 Filler shall be type as recommended by vinyl sheet flooring manufacturer.
- .3 Fillet cove support strip:
 - .1 Minimum radius of 20 mm (3/4").
 - .2 Aluminum-PVC fillet support shall be approved by vinyl sheet flooring manufacturer and approved by Consultant.
 - .1 Acceptable Product:
 - .1 Altro 'Cove Former'.
 - .2 Substitutions in accordance with Section 01 25 00.
 - .3 Supply in product manufacture's longest lengths available.
- .6 Floor transition strips:
 - .1 Metal transition trim:
 - .1 Acceptable Product:
 - .1 Schluter-Schiene-E, stainless steel E30.
 - .2 Vinyl flooring to concrete:
 - .1 Acceptable Product:
 - .1 Schluter 'Reno Ramp K, stainless steel'.
 - .2 Size to suit installation.
- .7 Sealant: Mildew resistant sealant in accordance with Section 07 92 00.

PART 3 - EXECUTION

3.1 Examination

- .1 Verify that field conditions have been provided as requested and specified.
- .2 Verify that substrates have been provided as specified without holes, protrusions, cracks greater than 1.6 mm (0.06") wide, unfilled control joints, depressions greater than 3 mm (1/8") deep, or other major defects.
- .3 Substrates shall be firm, structurally sound, sufficiently porous, and dry.
- .4 Examine substrate to ensure clean lines, correct level and freedom from cracks, ridges, dusting, scaling and carbonation.
- .5 Examine floors in advance of application of flooring to ensure that floors are protected against entry of water and moisture. Perform compatibility test with primer/adhesive and substrate.
- .6 Report conditions contrary to requirements preventing proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.

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- .7 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.
- .8 Defective work resulting from application to unsatisfactory surfaces will be considered the responsibility of those performing the work of this section.

3.2 Preparation

- .1 Comply with recommendations of ASTM F710-22.
- .2 Substrates shall be free of wax, oil, silicone, soap, grease, dust, solvents, sealers, curing compounds, hardeners, alkaline salts, excessive carbonation or laitance, mould, mildew, paints, varnish, asphalt, residual adhesives, adhesive removers, or other contaminants or deleterious material that may inhibit bond strength or act as a bond breaker. Remove such contaminants and deleterious material using mechanical methods recommended by manufacturer. Do not use chemical abatement methods.
- .3 Concrete substrates that are loose, sandy, scaly, or have a white powdery surface are not acceptable. Substrates shall be mechanically prepared.
- .4 Flooring substrates shall be smooth and level within a tolerance of 3 mm (1/8") in a 3 m (10'-0") radius.
- .5 Fill surface cracks, holes, score marks, depressions, and grooves, and repair surface spalls with Portland cement patching or levelling compound.
- .6 Expansion joints, isolation joints, and other movement joints in substrates shall not be filled with patching or levelling compound.
- .7 Remove bumps, high spots, peaks and ridges to produce a uniform and smooth substrate.
- .8 Prepare substrates so that installation of flooring shall not show telegraphing of substrate.
- .9 Remove chalking and dusting and loose material from concrete surfaces with wire brushed or by scraping.
- .10 Sweep and vacuum clean substrates minimum 24 hours prior to alkalinity, moisture, and adhesion testing. Do not use sweeping compounds.
- .11 Notify *Consultant* of any substrate or levelling compound defects or installation conditions that may result in unsatisfactory performance.
- .12 Prepared concrete substrate shall have a finish equivalent to a magnesium trowel finish. Shiny, slick, non-porous, or overly porous substrates are not acceptable and shall require additional preparation prior to installation of flooring products. Prepared concrete substrates shall have a Concrete Surface Profile #3 to #5 in accordance with International Concrete Repair Institute (ICRI).
 - .1 Substrate to be approved in writing by flooring manufacturer prior to application of flooring.
 - .2 Submit written report to *Consultant* following procedures for manufacturer's field review in accordance with Section 01 45 00.
- .13 Alkalinity and moisture testing:

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- .1 Test substrates in accordance with paragraph 3.7 Field Quality Control after mechanically preparing subfloor or applying patching and levelling compounds.
- .2 Proceed with installation only after substrates pass testing. Document tests performed and submit in writing to *Consultant*.
- .14 Do not install floor coverings until they are same temperature as space where they are to be installed.
 - .1 Move floor coverings and installation materials to acclimatize in spaces where they will be installed at least 48 hours in advance of installation.
- .15 Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation. Do not use sweeping compounds.
- .16 Where flooring adjoins thicker floor materials, apply levelling screed, feather out to make up difference in level between materials to achieve flush floor finish between adjacent flooring materials unless otherwise indicated.
- .17 Spray paints, permanent markers and other indelible ink markers shall not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and permanently stain the flooring material. If such contaminants are present on the substrate they shall be mechanically removed prior to the installation of the flooring material.

3.3 Flooring Installation

- .1 Verify product type, size, thickness, and colour prior to commencing installation. Do not install flooring with visual imperfections, colour variations or apparent defects.
- .2 Allow material to relax unrolled overnight, minimum 12 hours in installation areas.
- .3 Install rolls and cuts in sequence following manufacturer's installation requirements/diagrams.
 - .1 Lay flooring with joints parallel to building lines to produce symmetrical pattern and minimum joints.
 - .2 Place seams in inconspicuous and low-traffic areas, at least 150 mm (6") away from parallel joints in levelling underlayment, concrete joints, saw cuts and other type of joints.
 - .3 Avoid cross seams.
 - .4 Lay sheet flooring centered in corridors, with equal sized sheet to either side of center sheet.
 - .5 Mitre intersections at corridors typically. "T" type corridors shall be butt type installation.
 - .6 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.
 - .7 Layout seaming uniformly, using full length flooring typically, minimum flooring size of not less than roll width. Limit quantity of less than full length floor pieces at corridors to maximum of 1.

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- .8 Layout flooring to match reviewed shop drawings floor pattern including borders and accents.
- .9 Match edges of floor coverings for colour shading at seams.
- .4 Cutting and fitting sheets:
 - .1 Cut pieces to length allowing approximately 75 mm (3") to 150 mm (6") excess for trimming.
 - .2 Remove 12.7 mm (1/2") off the factory seam edge using an edge trimmer or straight edge and knife.
 - .3 Cut sheet and fit neatly around fixed objects without gaps.
 - .4 Position remaining sheets so that the top sheet overlaps the previous sheet by 12.7 mm (1/2") to 19 mm (3/4").
 - .5 Install one sheet at a time in wet adhesive.
 - .6 Roll the flooring immediately in both directions using 45 kg (100 lb) three-section roller.
 - .7 After the material has been laid and rolled in wet adhesive, underscribe the seam using the short scribes with a scribed pin right away.
 - .8 Cut the material along the scribe line using a hooked blade knife and holding it at an angle so to slightly undercut the material.
 - .9 Roll the seam with a hand roller.
 - .10 Cross seams:
 - .1 Straight edge and undercut at an angle the end of the first sheet.
 - .2 Spread adhesive and lay in wet adhesive.
 - .3 Roll the flooring immediately in both directions using 45 kg (100 lb) three-section roller.
 - .4 Overlap the second sheet at butt seam approximately 25 mm (1").
 - .5 Adhere second sheet except for last 450 mm (18") of butt seam; wait 20 – 30 minutes.
 - .6 Spread the adhesive for the last 450 mm (18"), lay in material, underscribe the seam to a neat, fit cut, and roll flooring immediately in both directions using 45 kg (100 lb) three-section roller.
- .5 Install drain clamping rings.
- .6 As installation progresses, roll flooring with 45 kg (100 lb) three-section roller to ensure full adhesion, remove adhesive ridges, and entrapped air.
- .7 Where cove base is not required, seal joint at wall with manufacturer's approved sealant.
- .8 Apply adhesive uniformly and at spreading rates in accordance with adhesive manufacturer's requirements. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .9 Obtain 100% adhesive coverage to flooring backing.

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- .10 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. Cut flooring to floor drains occurring within finished floor areas.
- .11 Heat-welded seams:
 - .1 Weld seams in accordance with ASTM F1516-13(2018).
 - .2 Wait minimum of 24 hours after flooring installation before grooving and heat welding seams.
 - .3 Prepare, weld, and trim seams to produce flat surfaces flush with adjoining floor covering surfaces.
 - .4 Rout joints to approximately 2/3 of the thickness of the material and use welding bead to permanently fuse sections into a seamless floor covering. Groove shall be between 3 mm (0.118") and 3.5 mm (0.138") wide.
 - .5 Using a weld plate and skiving knife to make first cut and allow weld rod to fully cure to room temperature.
 - .6 Using a skiving knife only, finish the trimming of the remainder of the weld. The finish should be smooth and on the same level as the flooring.
 - .7 Trimming of welded joint while warm is not permitted unless final trimming is performed after weld has cooled to flooring temperature. Excess weld shall be removed using a heated standard putty knife.
 - .8 Roll the seam area with 45 kg (100 lb) three-section roller.
 - .9 Maximum variation of welds from plane or from straight: 6 mm (1/4") in 3 m (10 ft) length using a 3 m (10 ft) straight edge.
- .12 Flooring installation shall not show telegraphing of substrate. Flooring installation shall be homogenous free of substrate lines, pockets, bumps and unevenness.

3.4 Site Fabricated Flash Cove Wall Base Installation

- .1 Filler shall be used for sealing joints between top of integral cove wall base or integral cove cap and irregular wall surfaces such as masonry.
- .2 Supply and install continuous fillet cove support strip without gaps. Mitre fillet cove support strip at corners.
 - .1 Install straight and level to variation of 1:1000.
 - .2 When fillet cove is installed, there shall be no gaps between fillet cove support and floor substrate.
 - .3 Joints shall be straight and vertical and not less than 610 mm (2'-0") from corners.
 - .4 Locate joints of cove cap over substrate control joints.
 - .5 Taper/trim cove former to reduce radius to less than 12.7 mm (1/2") at door frame or similar conditions to ensure that cove radius is concealed at locations where cove base terminates at projections.
 - .6 Outside corners to be butterfly type.

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- .3 Supply and install continuous cove caps without gaps in longest lengths available. Mitre cove caps at corners.
 - .1 Install straight and level to variation of 1:1000.
 - .2 Scribe and fit cove caps to door frames and other obstructions.
 - .3 Joints shall be straight and vertical and not less than 610 mm (2'-0") from corners.
 - .4 Locate joints of cove cap over substrate control joints.
 - .5 Seal cove cap to wall substrate with sealant bead.
- .4 Base height: In accordance with Interior Finish Schedule.

3.5 Installation - Transition Trim

- .1 Protect exposed edges of flooring, where finished and unfinished areas adjoining, by means of a transition trim butting to and flush with the finished surface of the flooring covering material and securely adhered to the substrate material.
- .2 Coordinate transitions with work of other sections.
- .3 Allow coiled vinyl material to lay flat for at least 24 hours at ambient temperatures specified above prior to installation.
- .4 Set to ensure installation is free of gaps.
- .5 Install in longest lengths possible.
- .6 Install straight to maximum allowable variation of 3 mm (1/8") over 3 m (10'-0").
- .7 Scribe and fit to obstructions.
- .8 Fit joints tightly, straight and vertical as applicable and not less than 610 mm (24") from corners.
- .9 Mitre corners.

3.6 Field Quality Control

- .1 Conduct quality control in accordance with Section 01 45 00.
 - .1 Field tests and inspections:
 - .1 Moisture and alkalinity:
 - .1 Test for moisture vapour transmission in accordance with ASTM F710-22 and ASTM F1869-22 or ASTM F2170-19a in accordance with manufacturer's written flooring installation requirements. Results must not exceed 170 µg/m² (3 lb per 1,000 ft²) in 24 hours when tested to ASTM F1869-22, or exceed 75% when tested to ASTM F2170-19a.
 - .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 F710-22.
 - .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.

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- .2 Repair areas as directed by inspection and testing company or *Consultant*, as a result of any inspection and testing work.

- .2 Manufacturer's field review to be in accordance with Section 01 45 00.

3.7 Adjusting and Cleaning

- .1 Remove excess adhesive from surfaces of the sheet flooring and base as work progresses.
- .2 Thoroughly clean surfaces in accordance with manufacturer's recommendations.

3.8 Protection

- .1 Prohibit foot traffic on installed flooring for a period of 24 hours after installation. No heavy traffic, rolling loads, or furniture placement are permitted for a minimum of 72 hours after installation.
- .2 Protect new floors from time of final set of adhesive until final inspection.
- .3 Install floor protection in areas where work, repairs and installation of equipment, and foot traffic will occur.

3.9 Maintenance

- .1 Perform initial maintenance according to the manufacturer's written requirements.
- .2 Allow flooring to dry prior to applying protection.

END OF SECTION