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NAVFAC PTS-C30 (September 2022)  
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Preparing Activity: NAVFAC SUPERSEDING PTS-C30 (January 2020)  
  
PERFORMANCE TECHNICAL SPECIFICATION  
  
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SECTION C30  
  
INTERIOR FINISHES  
09/22

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NOTE: This section is intended to be used as a guide and contains requirements that are common to many different types of facilities; however, not all requirements and equipment items will be applicable to all projects. In addition, there may be special requirements for a particular project that are not addressed at all. The RFP preparer may have to incorporate additional information to address these special requirements in this PTS and corresponding Part 3 ESR. If the RFP preparer chooses to delete building elements that are not required for the project, do not change the remaining Uniformat paragraph designations (example - A102001). Uniformat designations are unique to the products they are assigned to. However, the subparagraph numerical extensions (example - 1.2 or a,b,c) of the Uniformat designations may change if subparagraphs are deleted.  
  
This guide specification is formatted utilizing Uniformat II, an industry recognized standard, ASTM E 1557. When the RFP preparer chooses to add a paragraph that does not apply to an existing building element already included in the specification, refer to the Uniformat/WBS located on the NAVFAC Design-Build Website for a listing of Uniformat II designations and definitions.  
  
NOTE: The RFP preparer may view or hide the criteria notes in this PTS section by modifying the WORD preferences for "Hidden text". To view the criteria notes, choose "File" then "Option". Click "Display" then check the "Hidden text" box under "Always show these formatting marks on the screen". In the same section, check the box for "Print hidden text" under "Printing options" to print the criteria notes.  
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**C30 GENERAL**

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

All interior finish products must be from manufacturers' standard running line offerings. Custom fabrications are not permitted unless otherwise noted.

**C30 1.1 DESIGN GUIDANCE**

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards referenced in the section text that are not found in the [Unified Master Reference List (UMRL)](http://www.wbdg.org/ffc/dod/unified-master-reference) in the [Federal Facility Criteria (FFC)](http://www.wbdg.org/ffc/federal-facility-criteria) at the [Whole Building Design Guide (WBDG)](http://www.wbdg.org/) website, are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the referenced standard at the time of contract award.

**C30 1.1.1 Industry Standards And Codes**

FLOOR COVERING INSTALLATION CONTRACTOR'S ASSOCIATION (FCICA)

FLOOR COVERING INSTALLATION BOARD (FCIB)

TILE COUNCIL OF NORTH AMERICA (TCNA)

**C30 1.1.2 Government Standards**

UNIFIED FACILITIES CRITERIA (UFC)

|  |  |
| --- | --- |
| UFC 1-200-01 | DoD Building Code (A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed therein, which includes the following significant UFC(s): UFC 3-101-01, Architecture UFC 3-120-10, Interior Design) |
| UFC 1-200-02 | High Performance and Sustainable Building Requirements |

**C30 1.2 DESIGN SUBMITTALS**

Provide design submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*, Part 2 Section 01 33 10.05 20, *Design Submittal Procedures*, Facilities Criteria (FC) 1-300-09N, *Navy and Marine Corps Design Procedures,* UFC 3-101-01, *Architecture and UFC 3-120-10, Interior Design*.

In addition, UFGS sections listed below or in the body of the PTS text are to be used by the Designer of Record (DOR) as a part of the design submittal. If the UFGS products or systems are applicable to the project, the DOR must edit these referenced UFGS sections and submit them as a part of the design submittal specification. Edit the specification sections in accordance with the limitations stated in PTS Section Z10, *General Performance Technical Specifications*.

Changes must not be made to the finishes that are submitted in the plans, specifications, and Structural Interior Design submittals and approved by the Government during the design phase unless changes are requested by the Government. In the event that revisions may be required because of unforeseen conditions such as discontinued product, the revisions must be approved by the DOR and then submitted to the Government Interior Designer for approval before substitutions can be made.

**C30 1.3 CONSTRUCTION SUBMITTALS**

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) and the NAVFAC Interior Designer must approve the following construction submittals as a minimum:

Paint, Finish materials, Finish colors

Installation drawings for floors with carpet, tile, stone, architectural cast-in-place concrete or terrazzo to include locations and details of seams, color and material transitions, details of divider strips, control joints, and crack control solutions.

Changes must not be made to the finishes that are submitted and approved by the Government during the design phase. In the event that revisions may be required because of unforeseen conditions such as discontinued product, the revisions must be approved by the DOR and then submitted to the Government Interior Designer for approval before substitutions can be made.

**C3010 WALL FINISHES**

Provide moisture and mildew resistant interior wall finishes which are easily maintained, and suitable in accordance with industry standards for the architectural surface being finished. For painted wall finishes, refer to C3040 "INTERIOR PAINTING AND SPECIAL COATINGS".

**C301001 CONCRETE WALL FINISHES**

**C301001 1.1 SPECIAL OR ARCHITECTURAL FINISHES ON INTERIOR CONCRETE WALLS**

Cast-in-place or pre-cast concrete wall finishes include, but are not limited to, abrasive blasted surfaces, colored surfaces, exposed aggregate, grooved surfaces, or tooled surfaces.

**C301002 PLASTER WALL FINISHES**

Veneer plaster must be cement plaster veneer finish on concrete or masonry. Refer to Section C3040 for paint system and gloss level.

**C301002 1.1 CEMENT PLASTER**

**C301002 1.1.1**

Portland cement plaster base coat in accordance with ASTM C150, gray Portland cement. Use Type I when no special characteristics are required, Type II when plaster and stucco will be exposed to moderate sulfate (alkali) action, Type III when early strength is needed as in cold weather, and Type V when high resistance to sulfate is required.

**C301002 1.1.2**

Portland cement plaster finish coat in accordance with ASTM C150, gray Portland cement Type I when no special characteristics are required, Type II when plaster and stucco will be exposed to moderate sulfate (alkali) action, Type III when early strength is needed as in cold weather.

**C301002 1.1.3**

Factory-mixed finish coat according to the manufacturer's instructions.

**C301002 1.2 ACRYLIC PLASTER COATING**

High Performance (impact resistant) seamless interior acrylic coating system must be used as an interior wall finish over CMU that has been joint filled and smoothed with a water resistant manufactured recommended compound. Coating system to be mold and mildew resistant, have a minimum Barcoll Hardness Index of 38 and flame spread 15 or less per ASTM-E84 and have a minimum final film thickness of higher than 10 mils. Coating system must have been on the market and successfully used in commercial applications for a minimum of 10 years. Coating system must be applied by a manufacturer's factory trained applicator/installer.

**C301003 GYPSUM WALLBOARD FINISHES**

Conform to specifications, standards and requirements in accordance with Gypsum Association GA 214, GA 216 and GA 224. Provide asbestos free materials only. Provide Type X gypsum board in fire rated assemblies. Provide a foil back gypsum board when a vapor retarder is required.

**C301003 1.1 MOISTURE RESISTANT GYPSUM BOARD**

ASTM C630/C630M, 1/2 or 5/8 inch (12.7 mm or 15.9 mm) thick in residential construction, and 5/8 inch (15.9 mm) thick in non-residential construction. Use in humid areas or spaces but not as a substrate in tiled areas where wall tile is exposed to direct moisture contact or condensation accumulation.

**C301003 1.2 CEMENTITIOUS BACKING UNITS**

Provide cementitious backer units, 1/2 inch (12 mm) thick, in accordance with Tile Council of North America Handbook; use as a substrate for ceramic tile in wet areas that are exposed to direct moisture contact or condensation accumulation for areas including, but not limited to, tubs, shower enclosures, saunas, steam rooms, gang shower rooms, and shower drying rooms. Provide screws specifically designed for use with cement panels.

**C301003 1.3 IMPACT RESISTANT GYPSUM BOARD**

Reinforced gypsum panel with imbedded fiber mesh or polycarbonate resin thermoplastic backing, 5/8 inch (15.9 mm) thick, tapered edges, in accordance with Structural Failure Test; ASTM E695 or ASTM D2394 and Indentation Test; ASTM D5420 or ASTM D1037. Provide metal framing of 20-gauge minimum. Provide fasteners that meet manufacturer requirements and specifications. Impact resistant gypsum board must have a flame spread rating of 25 or less and a smoke developed rating of 50 or less, ASTM E84. Finish with a high strength plaster veneer. Refer to PTS C10 for further requirements on impact resistant wall construction.

**C301003 1.4 JOINT TREATMENT**

ASTM C475, Joint compound must be specifically formulated and manufactured for use with and compatible with tape, substrate and fasteners as recommended by the manufacturer. Tape and finish gypsum board in accordance with ASTM C840, GA 214 and GA 216. Provide premanufactured joints at all structural expansion joints, crack control joints, and change of materials as recommended by the manufacturer and in accordance with GA 216.

**C301003 1.5 FASTENERS**

ASTM C514. Fasteners must be compatible with each type of gypsum board material as recommended by the gypsum board manufacturer and in accordance with GA 216 and GA 224.

**C301003 1.6 ACCESSORIES**

ASTM C1047. Fabricate from corrosion protected steel or plastic designed for intended use. Accessories manufactured with paper flanges are not acceptable. Flanges must be free of dirt, grease, and other materials that may adversely affect bond of joint treatment.

**C301003 1.7 LEVEL OF FINISH**

**C301003 1.7.1**

Tape and finish gypsum board in accordance with ASTM C840, GA 214 and GA 216. Plenum areas above ceilings must be finished to GA 214, Level 1. Water resistant gypsum backing board, ASTM C630/C630M, to receive ceramic tile must be finished to GA 214, Level 2. Walls to receive a heavy-grade wall covering or have textured finish before painting must be finished to GA 214 Level 3. Walls without wall wash lighting to receive paint (MPI Gloss Level 2), light textures, or wall coverings must be finished to GA 214 Level 4. Unless otherwise specified, all gypsum board walls, partitions must be finished to GA 214 Level 5. Provide joint, fastener depression, and corner treatment. Do not use fiberglass mesh tape with conventional drying type joint compounds; use setting or hardening type compounds only. Provide treatment for water-resistant gypsum board as recommended by the gypsum board manufacturer.

**C301003 1.7.2**

Wherever gypsum board is to receive eggshell (MPI Gloss Level 3), semigloss (MPI Gloss Level 5), or gloss (MPI Gloss Level 6) paint finish, finish gypsum wall surface to GA 214 Level 5.

**C301003 1.7.3**

Where wall wash lighting will accent the flatness of the wall and surface irregularities in gypsum board joints, provide feature edge gypsum board and two coat joint compound fillers. Provide this special joint treatment at up lighting, down lighting and horizontal lighting at the end of a passageway wall.

**C301004 TILE AND TERRAZZO WALL FINISHES**

**C301004 1.1 CERAMIC TILE WALL SYSTEM FINISHES**

Provide ceramic tile wall systems as defined in the Tile Council of North America (TCNA) handbook for ceramic tile installations suitable for the service requirements listed. Install systems in accordance with Tile Council of North America Handbook and American National Standards Institute (ANSI) A108/A118 series standards. Colored epoxy grout with sealer must be provided. Coordinate with ceramic bath accessories for modularity. Include all trim pieces, caps, stops, and returns to complete installation.

**C301004 1.1.1**

Ceramic Mosaic Wall Tile must be a minimum of 1/4 inch (6 mm) thick and installed from floor to ceiling, unless otherwise noted.

**C301004 1.1.2**

Wall tile must be glazed, matte glazed or unglazed finish. Refer to project program for tile type, pattern, and surface texture.

**C301004 1.1.3**

Porcelain wall tile must be through color, polished or unpolished. Refer to project program for tile type, pattern, and surface texture.

**C301004 1.1.4**

Provide wall tile color and style selections a minimum of one grade above base grade.

**C301004 1.1.5**

Provide Designer accent tile, accent strips and accessory ceramic tile shapes as an integral part of the ceramic wall tile system.

**C301090 OTHER WALL FINISHES**

**C301090 1.1 SOLID SURFACING WALL FINISHES**

Solid surfacing material must consist of 100% pure acrylic polymer, mineral fillers, and pigments. The material must be homogenous, not coated or laminated, meeting ANSI Z124.3 and ANSI Z124.6 requirements. Superficial damage to a depth of 0.010 inch (.254 mm) must be repairable by sanding or polishing. Provide manufacturer's full range of colors and patterns. Flammability, ASTM E84: Class I/A, flame spread 25 maximum; smoke developed 30 maximum.

**C301090 1.1.1**

If used in a shower, solid surfacing wall finishes must extend from top of shower pan to a minimum of 84 inches (2130 mm) or to underside of ceiling and must surround the shower enclosure. If used in a kitchen, solid surfacing wall finish must extend from top of kitchen countertop to underside of wall cabinet.

**C301090 1.1.2**

Provide solid surfacing with factory recommended fasteners/adhesives/caulk to complete the installation.

**C3020 FLOOR FINISHES**

Refer to C3040 "INTERIOR PAINTING AND SPECIAL FINISHES" for painted floor coatings.

**C3020 1.1 RESILIENT SUBFLOOR PREPARATION**

Have third party independent concrete slab testing agent verify that concrete slabs comply with ASTM F710. Minimum values must not be below the following: Concrete floor flatness must meet minimum flatness of FF 60 when tested in accordance to ASTM E1155 - 96(2008). Concrete levelness on slab on grade must meet minimum levelness of FL 45 when tested in accordance with ASTM E1155 - 96(2008). This requirement does not apply to elevated concrete slabs.

**C3020 1.1.1 Floor Preparation**

Prior to installation of flooring materials the concrete sub-floors are to be dry, free of curing compounds, sweeping compounds, sealers, hardeners, and other materials which could interfere with bonding of adhesive. If curing compounds, sweeping compounds, bond breakers or sealers exist, they must be completely removed by mechanical means and methods, specifically grinding and shot blasting of concrete surface as necessary. Determine adhesion and dryness characteristics by performing bond and moisture tests. Prior to building being conditioned, perform a preliminary moisture test using in situ probe relative humidity testing as specified per ASTM F 2170.

**C3020 1.1.2 Testing**

All pre-installation moisture testing is to be performed by a qualified independent testing agency. Perform the following test as soon as building is enclosed, watertight, and conditioned, and a minimum of two months prior to floor covering installation.

a. Moisture Testing: Perform moisture and pH tests as recommended by the flooring and adhesive manufacturers. Perform test starting on the deepest part of the concrete structure. Proceed with installation only after concrete substrates meet or exceed floor covering manufacturer's requirements. In the absence of specific guidance from the flooring manufacturer the following must be the required minimum:

b. Perform concrete internal relative humidity testing using in situ probes in accordance with ASTM F 2170. Proceed with installation only after concrete reaches maximum 75 percent relative humidity level measurement.

**C3020 1.1.3 Additional Preparation**

If tested moisture levels exceed the allowable limits, shot blast the concrete subfloors to including grinding of areas not accessible to shot blasting equipment and install a 100% solids VOC free epoxy moisture and pH control system as recommended by the third party testing agent.

a. Install cement based self-leveling underlayment over epoxy moisture and pH control system to create a smooth substrate suitable for floor covering and approved by floor covering manufacturer for use with their products.

b. Correct conditions that will impair proper installation.

c. Fill cracks, joints and other irregularities in concrete with leveling compound.

d. Do not use adhesive for filling or leveling purposes.

**C3020 1.1.4 Final Cleaning Prior to Flooring Finish Installation**

Clean floor of oil, paint, dust, and deleterious substances. Leave floor dry and cured free of residue from existing curing or cleaning agents.

**C302001 TILE FLOOR FINISHES**

Provide ceramic tile floor systems as defined in the Tile Council of North America (TCNA) handbook for ceramic tile installation and materials for the service requirements listed. Provide installation and materials in accordance with ANSI A108/A118 series standards, except do not use organic adhesives. Provide manufacturer’s full range of colors and styles. Tile must be a minimum of two grades above base grade.

Mortar must be Portland cement, ANSI A108.1A/1B/1C/ A118.1, Latex-Portland cement, ANSI A108.5/A118.4 or Epoxy ANSI A108.6/A118.3.

Grout must be factory sanded Portland cement, ANSI A108.10/A118.6, Latex-Portland cement, ANSI A108.10/A118.7 or Epoxy ANSI A108.6/A118.3. Provide tile joint grout sealer on white, light colored areas that are routinely exposed to water and liquid cleaning materials, entrance areas, and areas that require a high degree of stain resistance, and as required by the manufacturer. Provide chemical resistant epoxy resin for kitchens and other areas where high resistance to staining and absorption are required, ANSI A118.3.

Slip resistant tile must have a minimum Dynamic Coefficient of Friction (wet and dry) of 0.42, ANSI A137.1-2012. Tile must have smooth, non-slip or textured surface and a glazed or unglazed finish. Non-slip or textured surface required for tile in areas where there is excessive water or grease and oils such as kitchens, dining facilities, shower rooms, toilets, and in industrial and maintenance facilities.

**C302001 1.1 CERAMIC GLAZED FLOOR TILES**

Ceramic glazed floor tiles shall be a minimum of 5/16 inch (8 mm) thick with a minimum of 1/8 inch (3 mm) grout width with cushioned edge. Tile shall have a 0.5 to 3.0 percent water absorption rate, ASTM C373. Do not use in areas where there is excessive water or grease and oils such as kitchens, dining facilities, toilets, showers, shower drying rooms, building entrance areas, and in industrial and maintenance facilities.

**C302001 1.2 CERAMIC MOSAIC UNGLAZED FLOOR TILES**

Ceramic Mosaic unglazed floor tiles must be a minimum of 1/4 inch (6 mm) thick with a maximum of 1/16 inch (1.6 mm) grout width with cushioned edge. Tile must have less than a 0.5 percent water absorption rate, ASTM C373.

**C302001 1.3 PORCELAIN FLOOR TILE**

Porcelain floor tiles must be a minimum of 5/16 inch (8 mm) thick with a maximum of 1/4 inch (6 mm) grout width with cushioned edge. Tile must have a minimum breaking strength of 300 pounds (202 kg), ASTM C648 and a maximum absorption rate of 0.5%, ASTM C373. Tile must be color through, impervious, unglazed or glazed finish with an unpolished, semi-polished, polished, or textured surface.

**C302004 RESILIENT FLOOR FINISHES**

All resilient flooring must meet or exceed applicable Architectural Barriers Act (ABA) Standards horizontal requirements. Install each type of flooring with recommended adhesive in accordance with the manufacturers' written instructions. Installers must be approved by the manufacturer in writing and must have a minimum of 3 yrs experience for each type of flooring to be installed. Provide and store a minimum of 2% total quantity for each type flooring, color and pattern within each building for future replacement and patching. Provide manufacturers full line of color and pattern selections, including multi-color patterns. Use the resilient floor finishes as identified in the Project Program or as directed below.

**C302004 1.1 RESILIENT TILE FLOORING SYSTEM**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*   
NOTE: Use VCT flooring below in corridors, offices, classrooms, breakrooms, and other similar areas requiring floors with moderate durability, high maintenance, and low cost. Indicate VCT flooring in the Project Program if required.  
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**C302004 1.1.1**

Resilient solid vinyl tile/plank must be 0.1 inch (2.5 mm) thick, with a vinyl wear layer of 0.040 inches (1.mm) and must be planks or square tiles. It must include a protective urethane finish for ease of maintenance and conform to ASTM E648, Type III, Class 1 and ASTM F1700, Class III. Provide vinyl flooring that is easily cleaned with off-the-shelf products. Surface finishes requiring manufacturer supplied or special order cleaning solutions are not acceptable. Vinyl flooring must have a marble, granite, stone, terrazzo or wood grain pattern. A manufacturer's 25-year min warranty is required. Products must meet the Buy American Act and be manufactured in ISO 9001 and ISO 14001 compliant factories.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*   
NOTE: Use rubber tile flooring below in corridors, elevators, ramps, and high traffic areas, for floors with high durability, low maintenance, high slip-resistance requirements. Indicate resilient rubber tile flooring in the Project Program if required.  
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**C302004 1.1.2**

Resilient vinyl composition tile (VCT) must be commercial grade, asbestos free, with a nominal overall gauge of 1/8 inch (3 mm) and a wear layer thickness of 1/8 inch (3 mm) nominal. The tile must be manufactured in accordance with ASTM F 1066, Type II, Comp. 1, Class 2, through pattern. Tile must be finished in accordance with manufacturer’s written instructions.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*   
NOTE: Use static dissipative SDT flooring below in computer areas, or areas with sensitive electronic for floors with high durability, low maintenance, high slip-resistance requirements. Indicate SDT flooring in the Project Program if required.  
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**C302004 1.1.3**

Resilient linoleum tile must be made with natural raw materials including linseed oil, flour, and rosin or resin binders double calendared onto synthetic jute backing, ASTM F2034, Type I. Pattern and color must extend throughout thickness of material. Gage must be 0.10 inch (2.5 mm). Static load limit must be 250 psi per ASTM F970. Seal linoleum using manufacturer's recommended sealer for commercial application. The manufacturer's technical representative must review and approve each typical sample application on-site prior to resuming the installation and must spot check each 1,196 square yards (1000 square meters) for quality control. Work must not commence on any portion of work until the manufacturer's technical representative renders approval on site. A manufacturer's 5-year warranty is required.

**C302005 CARPETING**

**C302005 1.1 GENERAL**

Installer(s) must be approved by the manufacturer in writing. Carpet manufacturer must be established and in good standing with the industry. A minimum of 5% total quantity for each color and pattern must be provided and stored within the building for future replacement patching.

**C302005 1.2 CARPET PILE FIBER**

Provide one of the following:

a. 100% premium branded, yarn-dyed, Type 6.6 continuous hollow filament nylon

b. 100% premium branded, solution-dyed, Type 6 or Type 6.6 continuous hollow filament nylon

c. 100% premium branded, combination yarn dyed and solution-dyed, Type 6 or Type 6.6 continuous hollow filament nylon

**C302005 1.3 CARPET BACKING REQUIREMENTS**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*   
NOTE: Select the type carpet backing required for each of the areas within the facility according to the project requirements. Indicate the backing type in the Project Program.  
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a. Provide manufacturer's standard high performance carpet backing.

b. Moisture resistant carpet backing must pass the 24-hour British Spill Test.

c. Moisture proof carpet backing must pass the 10,000 Impacts Test.

d. Provide moisture resistant carpet backing with an attached urethane cushion, minimum 18 lb. density.

e. Provide moisture proof carpet backing with integral high density cushion of thermoplastic, urethane, or PVC.

**C302005 1.4 CARPET PERFORMANCE CHARACTERISTICS**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*   
NOTE: Select the appropriate choices from the following performance characteristics to suit the type carpet required for each of the areas within the facility. State these requirements in the Project Program.  
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a. Flammability: Carpet must meet the Critical Radiant Flux Classification of not less than 0.45 W/sq. cm. when tested in accordance with ASTM E648. Carpet must generate less than 450 rating when tested in accordance with ASTM E662

b. Static Control: Carpet must include a permanent static control system to control static build-up to less than 3.0 KV in accordance with AATCC-134.

c. Dimensional Stability: Carpet must be permanently dimensionally stable with no delamination of components or any edge raveling or zippering. Edge Ravel: Minimum 1 lb. loop pile only - ASTM D-7267; Delamination: Minimum 3.5 lb. per inch of width - ASTM D-3936; Tuft Bind: Minimum 10 lb. average tuft bind for loop pile - ASTM D-1335; Tuft Bind: Minimum 8 lb. average tuft bind for (Modular Tile) loop pile - ASTM D-1335.

d. Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC-165.

e. Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC-16.

f. Antimicrobial Activity: Not less than 0.08-inch (2-mm) halo of inhibition for gram-positive bacteria; not less than 0.04-inch (1-mm) halo of inhibition for gram-negative bacteria; no fungal growth, per AATCC-174.

g. Appearance Retention: Provide carpet with a medium scale (>3" repeat) or large scale (>6" repeat), multi-color pattern for excellent appearance retention and soil hiding characteristics. Heathered yarn without a pattern is unacceptable unless approved by the NAVFAC Interior Designer as an accent carpet.

h. Sustainability: Provide carpets with recycled fiber content, and renewable material content in the attached cushion or backing materials certified by an independent testing agency. Recycle Content of the Total Product Weight: Must be either Pre-consumer or Post-consumer content or a combination of these. Broadloom: minimum of 10%; Modular Tile: minimum of 30%.

i. Product Sustainability Certification: To achieve superior performance in multiple environmental attribute areas, carpet must have third party certification in accordance with NSF/ANSI 140 Sustainable Carpet Assessment Standard at a "Gold" level minimum. Carpet manufacturer must supply certificate as part of the procurement documentation.

j. Indoor Air Quality: Provide carpets that meet the criteria of the CRI "Green Label Plus" Indoor Air Quality Testing Program. Carpet adhesive VOC's must be less than 50 g/L..

k. Reclamation of existing carpet to be determined with potential vendor. When carpet is replaced, submit certification documentation from the reclamation facility to the Contracting Officer.

l. Written Warranty: Lifetime commercial warranty for texture retention and edge raveling, zippering, de-lamination is required. Seam preparation and adhesives must be recommended by the carpet manufacturer in accordance with the warranty. Submit a copy of the manufacturer's standard warranty to the Contracting Officer within 60 days of BOD. Government must be a beneficiary of the terms of this warranty.

m. Texture Appearance Retention Rating (TARR): The carpet should be evaluated using ASTM D-5252, Hexapod Drum Test, as the commercial carpet test procedure and TARR classification determined by ASTM D-7330. Carpet must meet TARR ratings specified below:

|  |  |  |
| --- | --- | --- |
| **Space Definition** | **Traffic  Classification** | **TARR  Classification** |
| Private Offices | Moderate | > 3.0 TARR |
| Training, Conference, etc. | Heavy | > 3.0 TARR |
| Open Office, Corridors, Lobbies, etc. | Severe | > 3.5 TARR |

**C302005 1.5 CARPET INSTALLATION**

Install carpet by one of the following methods in accordance the manufacturer's recommendations and in accordance with the Carpet and Rug Institute, CRI-104, Standard for Installation Specification of Commercial Carpet, compatible with the construction, backing, and pattern characteristics of each carpet provided.

a. Direct Glue Down Carpet Installation

b. Double Glue Down Carpet and Pad Installation

c. Carpet with Attached-Cushion Installation

d. Preapplied releasable "dry" adhesive system installation.

e. Stretch-In Carpet Installation with tack strips and pad

**C302007 WALL BASE FINISHES**

Provide a wall base for transition between floor and wall finish. If no other type of base is required, provide rubber straight base at carpet installations, rubber cove base at exposed concrete or resilient tile floors, and a base to match the floor material at hard surface tile floors, or as required in the project program.

**C302007 1.1 RESILIENT WALL BASE FINISHES**

**C302007 1.1.1**

All rubber wall base must be 4 inch (100 mm) high and 1/8 inch (3.2 mm) thick as required unless indicated otherwise. The wall base must include inside and outside corners and must conform to ASTM F1861-98, Type TS. Provide wall base in rolls and not 4 foot lengths.

**C302007 1.2 TILE BASE FINISHES**

Coordinate tile base with ceramic wall and floor tile for color, material match and modularity. Include all pre-manufactured trim pieces, special shapes, caps, stops, and returns to provide a complete installation. Provide coordinating wall, base and floor tile for curb construction at showers.

**C302008 STAIR FINISHES**

**C302008 1.1 RESILIENT STAIR TREADS, RISERS AND LANDINGS**

Refer to C302004 for resilient landing finishes. Provide rubber risers to match treads or one-piece tread/risers. Provide treads with raised patterns and visually impaired nosing inserts as required.

**C302010 HARDENERS AND SEALERS**

**C302010 1.1 HARDENED AND SEALED CURE CONCRETE FLOORS**

Harden and seal concrete floors in accordance with the finished floor manufacture requirements. Utilize other methods of concrete curing if the floor finish manufacturer does not recommend a chemical hardener or sealer. Concrete floors that can utilize a hardener-sealer and will be exposed to traffic must receive a minimum of two coats of hardener-sealer curing agent for dust protection. These hardener-sealer-cured floors must be finished with a curing agent that must penetrate the concrete to permanently seal the floor against moisture and the penetration of contaminants. The curing agent must be non-toxic, non-flammable, and non-combustible and must be installed in accordance with the manufacturer’s printed instructions. The finished floor must be dust-free.

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NOTE: If pigmented or colored concrete is desired, indicate requirement in the Project Program. Coordinate concrete mix design, choose topical dye method, integral color topping, or dry shake pigment application. If multiple colors are used, coordinate structural joints with color change joints.  
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**C302010 1.2 COLORED CONCRETE FLOORS**

Colored concrete floors must have a concrete topping with integral color pigment. Concrete floor must be trowel applied in a pattern, or must include grit for slip resistance.

**C3030 CEILING FINISHES**

Refer to C3040 "INTERIOR PAINTING AND SPECIAL COATINGS" for painted ceiling finishes.

**C303002 GYPSUM WALLBOARD CEILING FINISHES**

Conform to specifications, standards and requirements in accordance with Gypsum Association GA 214, GA 216 and GA 224. Provide asbestos free materials only. Provide featured edge gypsum board on all gypsum surfaces that flatness of joints will be visible, such as up-lighted ceilings, window lighted ceilings, and as recommended by the manufacturer. Provide Type X gypsum board in fire rated assemblies.

**C303002 1.1 REGULAR GYPSUM BOARD**

ASTM C36/C36M and ASTM C1396/C1396M, 1/2 or 5/8 inch (12.7 mm or 15.9 mm) thick, tapered edge. Provide 5/8 inch (15.9 mm) for all projects except for single family residential, which may utilize 1/2 inch (12.7 mm) if other requirements, such as sound control, are met.

**C303002 1.2 MOISTURE RESISTANT GYPSUM BOARD**

ASTM C630/C630M, 5/8 inch (15.9 mm) thick, tapered edges. Use for ceilings in humid areas. Do not use as a substrate in tiled areas where tile ceiling will be exposed to direct moisture contact or condensation accumulation. Support moisture resistant gypsum board at 12 inches (305 mm) on center. Provide 5/8 inch (15.9 mm) for all other projects.

**C303002 1.3 CEMENTITIOUS BACKING UNITS**

ANSI A108.11 and ANSI A118.9, 1/2 or 5/8 inch (12.7 mm or 15.9 mm) thick; use for adhesive applied ceramic tile in wet areas (tubs, shower enclosures, saunas, steam rooms, gang shower rooms, or for shower areas with a veneer plaster finish. Support cementitious backing units at 12 inches (305 mm) on center. Provide screws specifically designed for use with cement panels.

**C303002 1.4 JOINT TREATMENT**

ASTM C475, Joint compound must be specifically formulated and manufactured for use with and compatible with tape, substrate and fasteners as recommended by the manufacturer. Tape and finish gypsum board in accordance with ASTM C840, GA 214 and GA 216. Provide premanufactured joints at all structural expansion joints, crack control joints, and change of materials as recommended by the manufacturer and in accordance with GA 216.

**C303002 1.5 FASTENERS**

ASTM C514, Fasteners must be compatible with each type of gypsum board material as recommended by the gypsum board manufacturer and in accordance with GA 216 and GA 224.

**C303002 1.6 ACCESSORIES**

ASTM C1047, Fabricate from corrosion protected steel or plastic designed for intended use. Accessories manufactured with paper flanges are not acceptable. Flanges must be free of dirt, grease, and other materials that may adversely affect bond of joint treatment. Provide prefinished or job decorated materials. Install as recommended by GA 214, GA 216 and GA 224.

**C303002 1.7 LEVEL OF FINISH**

**C303002 1.7.1**

Tape and finish gypsum board in accordance with ASTM C840, GA 214 and GA 216. Ceilings to receive a heavy-grade wall covering or heavy textured finish before painting must be finished to GA 214, Level 3. Ceilings without critical lighting to receive flat paints, light textures, or wall coverings must be finished to GA 214, Level 4. Unless otherwise specified, all gypsum board walls, partitions and ceilings must be finished to GA 214, Level 5. Provide joint, fastener depression, and corner treatment. Do not use fiberglass mesh tape with conventional drying type joint compounds; use setting or hardening type compounds only. Provide treatment for water-resistant gypsum board as recommended by the gypsum board manufacturer.

**C303002 1.7.2**

Wherever gypsum board is to receive eggshell, semigloss or gloss paint finish, or where severe, up or down lighting conditions occur, finish gypsum wall surface to GA 214 Level 5. In accordance with GA 214 Level 5, apply a thin skim coat of joint compound to the entire gypsum board surface, after the two-coat joint and fastener treatment is complete and dry.

**C303003 PLASTER CEILING FINISHES**

**C303003 1.1 VENEER PLASTER CEILING FINISHES SYSTEM**

Veneer plaster ceilings must be gypsum plaster veneer finish to gypsum base finishes. Refer to Section C3040 for paint system and gloss level. Provide gypsum neat plaster, gypsum ready-mixed plaster, or high strength gypsum plaster base coat conforming to ASTM C28. High strength gypsum plaster must have a compressive strength of not less than 2,500 psi, when tested dry in accordance with ASTM C472.

**C3040 INTERIOR COATINGS AND SPECIAL FINISHES**

Apply coatings directly to all non-prefinished surfaces of the interior construction. Comply with Master Painters Institute requirements for surface degradation analysis, surface preparation, paint and coating selection, paint application restrictions for substrate materials, and paint application.

**C304001 GENERAL REQUIREMENTS**

All paint must be suitable in accordance with the Master Painter Institute (MPI) standards for the interior architectural surface being finished. The current MPI, "Approved Product List" as of the date of contract award, will be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use a more current MPI "Approved Product List"; however, only one list may be used for the entire contract. All coats on a particular substrate, or a paint system, must be from a single manufacturer. No variation from the MPI Approved Products List is acceptable.

Select paint systems for the project in accordance with the MPI Architectural Painting Decision Tree available on the Whole Building Design Guide. Use this interactive MPI Decision Tree website to identify applicable paint system(s) for the project. The MPI Decision Tree identifies paint systems for each interior or exterior coated surface in "Normal" or "Aggressive" environmental conditions and generally lists the applicable paint systems in descending order of performance. The paint system at the top of each substrate list generally indicates the highest performing acceptable coating system.

Choose the "Aggressive" environmental conditions in the MPI Decision Tree for exterior systems that are used in moist humid conditions, abrasive conditions, chemical exposure conditions, or within five miles proximity of the ocean or a body of water. Also use "Aggressive " environmental conditions in interior spaces that are exposed to in moist humid conditions, abrasive conditions, chemical exposure conditions, such as bathrooms, shower rooms, kitchens, chemical storage area, swimming pools, laundry, sanitary areas, commercial kitchens, industrial production areas, and hospital operating rooms provide paint systems that comply with the MPI Decision Tree "Aggressive" environmental conditions.

Comply with the following rules when determining the appropriate paint or coating system from the MPI Decision Tree:

a. Some of these paint systems are identified with a "NAVFAC Anchor". This "NAVFAC Anchor" indicates the minimum performing system that NAVFAC will accept for that substrate and environmental conditions.

b. When multiple "NAVFAC Anchors" are indicated on a certain substrate and environmental condition, provide the "NAVFAC Anchor" paint or coating system that is most appropriate for the facility use.

c. If only one MPI Decision Tree choice is available for a certain substrate and environmental condition with no indicated NAVFAC preference, provide that sole option for NAVFAC projects.

d. If the MPI Decision Tree provides multiple choices and no NAVFAC preference is denoted**,** refer to the Additional RFP Requirements below to determine level of performance.

e. If the MPI Decision Tree does not identify all paint system applicable to the facility, utilize the *MPI Architectural Painting, Exterior Systems Manual* to identify other appropriate paint systems for the project. Utilize the "Premium Grade" systems and comply with all limitations stated in the MPI "Approved Product List" for each paint product. Products having an MPI VOC Range E3 must be given preferential consideration over lower VOC Ranges. Use higher performing paint systems unless the lower performing paint system can be justified based on a lifecycle cost to include surface preparation, application, disposal, environmental impact, and required recoating cycles. Only use paint products that have been tested for MPI'S "DETAILED PERFORMANCE" or "EVALUATED PERFORMANCE ". Do not use products that have only been tested for "INTENDED USE".

f. If an "Aggressive" environmental condition option is not available in the MPI Decision Tree for a certain substrate, use the "Normal" environmental condition option.

g. Refer to the Additional Exterior Paint and Coating System Requirements below for further system requirements.

Paints and coatings must comply with Master Painters Institute Green Performance Standard GPS-1-12 which is available at the following website; <http://www.specifygreen.com/EvrPerf/EnvironmentalPerformance.html> . Provide Interior flat intermediate and topcoats of a maximum of 50 g/L VOC and interior non-flat intermediate and topcoats of a maximum 150 g/L VOC. Choose paints that provide performance and are environmentally friendly by using total VOC budgeting to analyze the total impact of all flat, non-flat and special purpose coatings on the project.

**C304001 1.1 MPI GLOSS LEVELS**

Gloss levels must comply with the MPI system of determining gloss as defined in the Evaluation sections of the MPI Manuals. Utilize the performance characteristics of the paint gloss and sheen to categorize paint rather than manufactures' description of his product. The MPI Gloss Levels are indicated by the notation G1, G2, G3, G4, G5, G6, or G7. G1 is not used by Navy.

The MPI Decision Tree indicates a default gloss level for each paint system, however consider the appearance, anticipated conditions, and need for cleaning when choosing the correct gloss level for each coated surface of the project. Comply with the following guidance in choosing the appropriate gloss level.

a. Use G2 "Velvet-like" Flat for ceilings, residential walls away from human contact and low traffic areas.

b. Use G3 "Eggshell-like" in high traffic areas for ceilings and walls, when human contact with the wall is expected but limited, and for dark accent colors.

c. Use G5 Semigloss for walls, doors and trim for high durability and clean ability and when a surface is expected to have routine human contact.

d. Use G6 Gloss only in special situations such as piping identification or special effects.

The MPI Gloss and Sheen Standard values are measured per ASTM D523, and are as follows:

**Gloss Level Number Gloss@ 60 Degrees Sheen@85 Degrees**  
Gloss Level 1(G1) – Matte or Flat Max.5 units Max.10 units  
Gloss Level 2(G2) – "Velvet-like" Flat Max. 10 units 10-35 units  
Gloss Level 3(G3) – "Eggshell-like" Max. 10-25 units 10-35 units  
Gloss Level 4(G4) - "Satin-like" Max. 20-35 units Min. 35 units  
Gloss Level 5(G5) - Semi-Gloss 35-70 units  
Gloss Level 6(G6) – Gloss 70-85 units  
Gloss Level 7(G7) – High Gloss More than 85 units

**C304001 1.2 MPI SYSTEM DESIGNATIONS AND ABBREVIATIONS**

The MPI coating system number in each Division is found in either the *MPI Architectural Painting Specification Manual* or the *Maintenance Repainting Manual* and defined as an interior system (INT/RIN).

a. INT designates an interior coating system for new surfaces.

b. RIN designates an interior coating system used in repainting projects or over existing coating systems.

c. DSD – the MPI short-term designation for Degree of Surface Degradation as defined in the Assessment sections in the *MPI Maintenance Repainting Manual*. Degree of Surface Degradation designates the MPI Standard for description and appearance of existing condition of surfaces to be painted. This DSD classification is used to determine the proper surface preparation necessary for painting.

**C304001 1.3 SURFACE PREPARATION**

Comply with the "Interior Surface Preparation" section of the *MPI Architectural Painting Specification Manual* or the "Interior Surface Preparation” section of the *MPI Maintenance Repainting Manual*. All suggestive language such as "may" or "should" are deleted from the standard and "must" inserted in its place. Suggestive language such as "recommended" or "advisable" is deleted from the standard and "require" or 'required" inserted in its place. The results of these wording substitutions change this document to required procedures. For surface preparation, determine a MPI DSD Assessment of each surface and comply with the MPI Surface Preparation Requirements relating to the assessments. Notwithstanding MPI requirements, clean interior ferrous metal to a SSPC SP 10 level (near white) that have aggressive chemical environments (SSPC Zones 3A, 3B, 3C, 3D, and 3E) or waterfront exposure to open structures (SSPC Zones 2A or 2B). Examples of these types of facilities are indoor water training facilities, indoor swimming pools, and open or mostly open waterfront maintenance buildings/ waterfront warehouses/ canopies.

Remove dirt, splinters, loose particles, grease, oil, and other foreign matter and substances deleterious to coating performance as specified for each substrate before application of paint or surface treatments. For existing buildings, use MPI *Maintenance Repainting Manual* to determine the coatings that need to be removed. Remove deteriorated or loose coatings before repainting begins. Oil and grease must be removed prior to mechanical cleaning. Cleaning must be programmed so that dust and other contaminants will not fall on wet, newly painted surfaces. Exposed ferrous metals such as nail heads on or in contact with surfaces to be painted with water-thinned paints, must be spot-primed with a suitable corrosion-inhibitive primer capable of preventing flash rusting and compatible with the coating specified for the adjacent areas.

**C304001 1.4 ADDITIONAL INTERIOR PAINT AND COATING SYSTEMS**

In addition to the MPI Decision Tree, comply with the following paint system requirements:

**C304001 1.4.1 PAVEMENT COATINGS**

(1) INT 3.2 Concrete Horizontal Surfaces

Normal Environmental Conditions; Pigmented

Provide road and parking lot pavement marking in accordance with UFGS Section 32 17 23, *Pavement Markings*.