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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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NOTE: The following Table of Contents is for navigation purposes within the document and is not intended to be part of the final edited documents  
  
TABLE OF CONTENTS  
  
C30 GENERAL  
C30 1.1 DESIGN GUIDANCE  
C30 1.2 QUALITY ASSURANCE  
C30 1.3 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING  
C30 1.4 DESIGN SUBMITTALS  
C30 1.5 CONSTRUCTION SUBMITTALS  
C3010 WALL FINISHES  
C301001 CONCRETE WALL FINISHES  
C301001 1.1 SPECIAL OR ARCHITECTURAL FINISHES ON INTERIOR CONCRETE WALLS  
C301002 PLASTER WALL FINISHES  
C301002 1.1 GYPSUM PLASTER  
C301002 1.2 CEMENT PLASTER  
C301003 GYPSUM WALLBOARD FINISHES  
C301003 1.1 REGULAR GYPSUM BOARD  
C301003 1.2 MOISTURE RESISTANT GYPSUM BOARD  
C301003 1.3 CEMENTITIOUS BACKING UNITS  
C301003 1.4 IMPACT RESISTANT GYPSUM BOARD  
C301003 1.5 JOINT TREATMENT  
C301003 1.6 FASTENERS  
C301003 1.7 ACCESSORIES  
C301003 1.8 LEVEL OF FINISH  
C301004 TILE AND TERRAZZO WALL FINISHES  
C301004 1.1 CERAMIC TILE WALL SYSTEM FINISHES  
C301005 WALL COVERINGS  
C301005 1.1 VINYL WALL COVERING  
C301005 1.2 FABRIC WALL COVERING  
C301005 1.3 WALLCOVERING BORDER  
C301005 1.4 SURFACE PREPARATION FOR UNEVEN WALLS  
C301005 1.5 CORNER GUARDS  
C301005 1.6 WAINSCOT CAP  
C301006 ACOUSTICAL PANELS ADHERED TO WALLS  
C301006 1.1 ACOUSTICAL FABRIC COVERED WALL PANELS  
C301006 1.2 ACOUSTICAL WALL PANELS  
C301090 OTHER WALL FINISHES  
C301090 1.1 SOLID SURFACING WALL FINISHES  
C301090 1.2 PLASTIC LAMINATE WALL FINISHES  
C301090 1.3 DECORATIVE PANELING SYSTEM  
C301090 1.4 WOOD TRIM AND DETAILING FINISHES  
C301090 1.5 IMPACT RESISTANT PANEL OR WAINSCOT WALL FINISHES  
C301090 1.6 CORNER AND WALL GUARDS  
C3020 FLOOR FINISHES  
C302001 TILE FLOOR FINISHES  
C302001 1.1 CERAMIC GLAZED FLOOR TILES  
C302001 1.2 CERAMIC MOSAIC UNGLAZED FLOOR TILES  
C302001 1.3 PORCELAIN FLOOR TILE  
C302001 1.4 QUARRY FLOOR TILE  
C302002 TERRAZZO FLOOR FINISHES  
C302002 1.1 BONDED TERRAZZO  
C302002 1.2 RESINOUS TERRAZZO  
C302003 WOOD FLOORING  
C302003 1.1 WOOD FLOORING SYSTEM  
C302004 RESILIENT FLOOR FINISHES  
C302004 1.1 RESILIENT SHEET FLOORING SYSTEMS  
C302004 1.2 RESILIENT TILE FLOORING SYSTEM  
C302005 CARPETING  
C302005 1.1 GENERAL  
C302005 1.2 CARPET CONSTRUCTION  
C302005 1.3 CARPET SEVERE WEAR SPECIFICATIONS  
C302005 1.4 CARPET PILE FIBER  
C302005 1.5 CARPET BACKING REQUIREMENTS  
C302005 1.6 CARPET PERFORMANCE CHARACTERISTICS  
C302005 1.7 CARPET INSTALLATION  
C302006 MASONRY AND STONE FLOORING  
C302006 1.1 UNIT MASONRY FLOORING SYSTEM  
C302006 1.2 STONE FLOOR AND BASE FINISHES  
C302007 WALL BASE FINISHES  
C302007 1.1 RESILIENT WALL BASE FINISHES  
C302007 1.2 CARPET WALL BASE FINISHES  
C302007 1.3 WOOD BASE FINISHES  
C302007 1.4 STONE AND MARBLE BASE FINISHES  
C302007 1.5 TILE BASE FINISHES  
C302008 STAIR FINISHES  
C302008 1.1 RESILIENT STAIR TREADS, RISERS AND LANDINGS  
C302008 1.2 PORCELAIN AND STONE STAIR TREADS, RISERS AND LANDINGS  
C302008 1.3 CARPETED STAIR TREADS, RISERS AND LANDINGS  
C302009 FLOOR TOPPINGS AND TRAFFIC MEMBRANES  
C302009 1.1 REFLECTIVE, CHEMICAL AND SLIP RESISTANT FLOOR SYSTEMS  
C302010 HARDENERS AND SEALERS  
C302010 1.1 Hardened and Sealed Cure Concrete Floors  
C302010 1.2 Colored Concrete Floors  
C302011 RAISED ACCESS FLOORING  
c302011 1.1 FLOORING SUPPORT SYSTEM  
C302011 1.2 FLOOR PANELS  
C302011 1.3 GROUNDING  
C302011 1.4 THRESHOLD(S)  
C302011 1.5 RAMPS  
C3030 CEILING FINISHES  
C303001 ACOUSTICAL CEILING TILES AND PANELS  
C303001 1.1 ACOUSTICAL CEILING PANELS  
C303002 GYPSUM WALLBOARD CEILING FINISHES  
C303002 1.1 REGULAR GYPSUM BOARD  
C303002 1.2 MOISTURE RESISTANT GYPSUM BOARD  
C303002 1.3 CEMENTITIOUS BACKING UNITS  
C303002 1.4 IMPACT RESISTANT GYPSUM BOARD  
C303002 1.5 TEXTURED CEILING FINISH SYSTEM  
C303002 1.6 JOINT TREATMENT  
C303002 1.7 FASTENERS  
C303002 1.8 ACCESSORIES  
C303002 1.9 LEVEL OF FINISH  
C303003 PLASTER CEILING FINISHES  
C303003 1.1 VENEER PLASTER CEILING FINISHES SYSTEM  
C303004 WOOD CEILINGS  
C303005 SUSPENSION SYSTEMS  
C303005 1.1 EXPOSED SUSPENDED ACOUSTICAL CEILING GRID  
C303005 1.2 CONCEALED SUSPENDED ACOUSTICAL CEILING GRID  
C303005 1.3 SUSPENDED AND FURRED CEILING SYSTEMS  
C303006 METAL STRIP CEILINGS  
C303090 OTHER CEILING AND CEILING FINISHES  
C3040 INTERIOR PAINTING AND SPECIAL FINISHES  
C304001 GENERAL REQUIREMENTS  
C304001 1.1 MPI Gloss Levels  
C304001 1.2 MPI System Designations and Abbreviations  
C304001 1.3 Surface Preparation  
C304002 ADDITIONAL INTERIOR PAINT AND COATING SYSTEM REQUIREMENTS  
C304002 1.1 PAVEMENT COATINGS  
C304002 1.2 DRESSED LUMBER  
C304003 SPECIAL COATINGS TO WALLS  
C304003 1.1 HIGH PERFORMANCE ARCHITECTURAL COATING (HIPAC)  
C304003 1.2 IMPACT RESISTANT WALL FINISHES  
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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 QUALITY ASSURANCE**

**C30 1.3 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING**

Provide verification of satisfactory interior finish assemblies' performance via Performance Verification Testing, as detailed in this section of the RFP.

**C30 1.4 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 1.5 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.

**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 REGULAR GYPSUM BOARD**

ASTM C36/C36M and ASTM C1396/C1396M 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, tapered edges for exposed layers, square edges for concealed backer layers.

**C301003 1.2 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 1.3 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 1.4 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 1.5 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. For predecorated gypsum board provide prefinished metal or plastic trim to match predecorated gypsum board. Install as recommended by GA 214, GA 216 and GA 224.

**C301003 1.6 LEVEL OF FINISH**

**C301003 1.6.1**

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. 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. 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 1.6.2**

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.

**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.

**C301005 WALL COVERINGS**

Wall coverings must be material designed specifically for the specified use. The wallcovering must contain a non-mercury based anti-microbial. The wallcovering must be the type made without the use of cadmium-based stabilizers. Wallcovering must have a Class A flame spread rating of 0-25 and smoke development rating of 0-50 when tested in accordance with ASTM E84. The wall preparation, trimming, adhesive and application must be according to the manufacturer’s printed directions. The manufacturer must approve the installers in writing. The material must be easily cleaned by traditional methods such as washing, wiping, or vacuuming. Primer and adhesive must be of a type recommended by the wallcovering manufacturer and must contain a non-mercury based anti-microbial. Adhesive must be strippable type. Do not apply wall coverings to the interior surface of exterior walls.

**C301005 1.1 CORNER GUARDS**

**C301005 1.1.1**

Corner guards must be 3/32 inch thick and must cover 2-1/2 inches (64 mm) each side of corner at right angles. Corner guards must be through color polycarbonate or rubber. Use in corridors or other high traffic areas.

**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 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 1.2 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.

**C302001 1.3 QUARRY FLOOR TILE**

Quarry floor tiles must be a minimum of 1/2 inch (12.7 mm) thick tiles with a maximum of 1/4 inch (6 mm) grout width. Tile must have a minimum breaking strength of 350 pounds (158 kg), ASTM C648 and a maximum absorption rate of 3%, ASTM C373. Use grout release for darker pigmented grout colors. Tile must have a maximum of 3.0 percent water absorption rate when tested in accordance with ASTM C373. Non-slip, abrasive grain or textured surface required for tile in areas where there is excessive water or grease and oils. Tile must consist of semi-vitreous, vitreous or clay material with smooth or textured surface and unglazed finish.

**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**

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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 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.

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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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**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 or vinyl straight base at carpet installations, rubber or vinyl 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 1.1.2**

Flash-coved integral resilient sheet wall bases must be installed in accordance with the manufacturers' printed instructions to include a cove stick having a minimum radius of 3/4 inch (19 mm) and finished with an approved cap strip.

**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.

**C302009 FLOOR TOPPINGS AND TRAFFIC MEMBRANES**

Assemblies include floor toppings and membrane systems.

**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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**C3030 CEILING FINISHES**

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

**C303001 ACOUSTICAL CEILING TILES AND PANELS**

**C303001 1.1 ACOUSTICAL CEILING PANELS**

All acoustical ceiling panels must be 24 inch by 24 inch (610 mm by 610 mm), with a minimum light reflectance of .75 (except as noted), Class A, flame spread 25 or less and smoke development of 50 or less, ASTM E84. All acoustical ceiling panels must have minimum 60% recycled content except as noted. Acoustical ceiling panels must conform to ASTM E1264. Provide square edge except as noted.

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NOTE: Select square edge ceiling tile for basic building types and spaces. Select reveal edge for an upgraded look in areas noted. Indicate specific areas in the Project Program.  
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**C303001 1.1.1**

For typical open office areas, conference rooms, executive offices, provide non-asbestos mineral composition acoustical ceiling panels of Type III with factory-applied standard washable painted finish or Type IV with factory-applied plastic membrane-faced vinyl, Form: 1, 2, or 3. Provide reveal edge tiles unless otherwise noted.

**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, 1/2 or 5/8 inch (12.7 mm or 15.9 mm) thick, tapered edges. Use for ceilings in humid areas. Do not use as a substrate in tiled areas where tile will be exposed to direct moisture contact or condensation accumulation. Support moisture resistant gypsum board at 12 inches (305 mm) on center. Provide 1/2 inch (12.7 mm) for single-family residential projects only. Provide 5/8 inch (15.9 mm) for all other projects.

**C303002 1.3 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 1.4 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 1.5 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 1.6 LEVEL OF FINISH**

**C303002 1.6.1**

Tape and finish gypsum board in accordance with ASTM C840, GA 214 and GA 216. 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 1.6.2**

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.

**C303005 SUSPENSION SYSTEMS**

**C303005 1.1 EXPOSED SUSPENDED ACOUSTICAL CEILING GRID**

Provide 24 inch by 24 inch (610 mm by 610 mm) aluminum or steel non-corroding intermediate-duty standard grid system for lay-in acoustical panels (ASTM C635). Finish must be factory applied white baked enamel. Provide manufacturer's hold down clips for fire rated assemblies and wall or edge molding. Hang grid system as recommended by manufacturer but with no less than 0.106 inch (2.7 mm) diameter wires (ASTM A641A, A641M, Class 1), or with one by 3/16 inch (4.76 mm) galvanized steel straps conforming to ASTM A653A, A653M (for light commercial zinc coating) or ASTM A366A, A366M (with an electrodeposited zinc coating, Type RS). Use ASTM A580/A580M, composition 302 or 304, condition annealed stainless steel, 0.106 inches (2.7 mm) in diameter over high humidity areas such as commercial kitchens and pools. Install suspended grid system with acoustical sealant (ASTM C843, nonstaining and ASTM C636). Recycled content must be a minimum of 25%.

**C303005 1.2 SUSPENDED AND FURRED CEILING SYSTEMS**

ASTM C841 (for lath); ASTM C645 (for GWB).

Provide steel materials for metal support systems with galvanized coating per ASTM A653/A653M, G60; aluminum coating ASTM A463/A463M, T1-25; or a 55% aluminum-zinc coating. Provide suspended ceiling framing in accordance with ASTM C754, except framing members must be 16 inches (400mm) unless otherwise noted.

**C303090 OTHER CEILING AND CEILING FINISHES**

**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*.

**C304007 SPECIAL COATINGS TO WALLS**

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NOTE: Use for hallways, kitchens, bathrooms, laundries and hospitals where maintenance of sanitary conditions is an important requirement. Select special coating for utilitarian and industrial spaces that would usually have ceramic tile but ceramic tile is not required by RFP and according to characteristics provided by each coating system. Indicate Special Coatings in the Project Program if required.  
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**C304007 1.1 CMU Application**

High Performance 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, flame spread 15 or less per ASTM-E84 and have a minimum final film thickness of 7 mils.

**C304007 1.2 Gypsum Wallboard Application**

High Performance seamless interior acrylic coating system must be used as an interior wall finish over gypsum wallboard. Do not prime or seal the drywall except as specifically recommended by the texture acrylic coating manufacturer. Coating system to be mold and mildew resistant, flame spread 8.5 or less per ASTM-E84 and have a minimum final film thickness of 20 mils.

**C304007 1.3 Installation**

Finish may only be installed by factory-qualified applicators in accordance with the manufacturer's printed instructions and recommendations, to fulfill warranty requirements. All coating system components must be products of the same manufacturer.

A minimum of one sample wall application must be provided. Edges at door and window frames must be feathered; hard edges are unacceptable. Upon approval of the sample wall by the project manager, the application must serve as a standard for the remaining work.

The manufacturer's certified representative shall provide an on-site training demonstration of the application and care of the finish for the end-user's facility manager or other representatives.

-- End of Section --

**C304007 1.4 HIGH PERFORMANCE ARCHITECTURAL COATING (HIPAC)**

HIPAC must be a durable, organic system applied to a continuous (seamless) high-build film and cure to a hard glaze finish. They must be resistant to continuous heat and humidity, abrasion, staining, chemicals, and biological growth. Coating must be installed as a complete system, and as recommended by the manufacturer and have a flame spread index of not more than 25 and a smoke developed index of not more than 50 when tested in accordance with ASTM E84.

**C304007 1.4.1**

Two-component, epoxy-polyamide must be chemical and corrosion-resistant, adhesive, alkali-resistant, and water-tolerant for metal, wood, concrete, masonry surfaces, and painted surfaces where high gloss or glaze type finish, extreme workability and resistance to abrasion and stains is required. Minimum dry film thickness is 3 mils for each of two coats. Furnish Gloss or Semigloss finish. Maximum volatile organic compounds (VOC) must be 340 grams/liter.

**C304007 1.4.2**

Single Component, Moisture-Curing Urethane must be a flexible, abrasion- and impact-resistant, use for floors, walls, machinery, equipment and other surfaces where good abrasion resistance, color retention, gloss retention, graffiti resistance and good resistance to acids, alkalis, solvents, strong cleaners and sanitizers, fuel and chemicals are necessary. Can also be used on concrete floors, brick and masonry surfaces (properly conditioned), metals (properly primed), and wood (properly prepared and sealed.) Minimum dry film thickness is 3 mils for each of 3 coats. Use Type I, Aliphatic, for exterior use except for oily or resinous exterior wood surfaces. Use Type II, Aromatic, for interior use.

-- End of Section --