

SECTION 09255 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Non-load-bearing steel framing members for gypsum board assemblies.
 - 2. Gypsum board assemblies attached to steel framing.

1.3 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms related to gypsum board assemblies not defined in this Section or in other referenced standards.

1.4 SUBMITTALS

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Product certificates signed by manufacturers of gypsum board assembly components certifying that their products comply with specified requirements.

1.5 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Where fire-rated gypsum board assemblies are indicated, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Fire Resistance Ratings: As indicated by reference to GA File Numbers in GA-600 "Fire Resistance Design Manual" or to design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.

- B. **Single-Source Responsibility for Steel Framing:** Obtain steel framing members for gypsum board assemblies from a single manufacturer.
- C. **Single-Source Responsibility for Panel Products:** Obtain each type of gypsum board and other panel products from a single manufacturer.
- D. **Single-Source Responsibility for Finishing Materials:** Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.
- E. **Field Samples:** On actual gypsum board assemblies, prepare field samples of at least 100 sq. ft. in surface area for the following applications. Simulate finished lighting conditions for review of in-place unit of Work.
 - 1. Wall surfaces indicated to receive nontextured paint finishes.
 - 2. Ceiling surfaces indicated to receive nontextured paint finishes.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.
- C. Handle gypsum board to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.7 PROJECT CONDITIONS

- A. **Environmental Conditions, General:** Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.
- B. **Room Temperatures:** For nonadhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously after until dry. Do not exceed 95 deg F (35 deg C) when using temporary heat sources.
- C. **Ventilation:** Ventilate building spaces, as required, for drying joint treatment materials. Avoid drafts during hot dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

1. Steel Framing and Furring:

- a. Clark Steel Framing.
- b. Consolidated Systems, Inc.
- c. Dale Industries, Inc.
- d. Dietrich Industries, Inc.
- e. Marino Industries Corp.
- f. Gold Bond Building Products Div., National Gypsum Co.
- g. Unimast Inc.

2. Gypsum Board and Related Products:

- a. Domtar Gypsum.
- b. Georgia-Pacific Corp.
- c. Gold Bond Building Products Div., National Gypsum Co.
- d. United States Gypsum Co.

2.2 STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS

- A. General: Provide components of sizes indicated but not less than that required to comply with ASTM C 754 for conditions indicated.

- B. Cast-In-Place and Postinstalled Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials, with holes or loops for attaching hanger wires, and with capability to sustain, without failure, a load equal to 5 times that imposed by ceiling construction, as determined from testing per ASTM E 488 conducted by a qualified independent testing agency.

1. Expansion anchor.

- C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.

- D. Hanger Rods: Mild steel and zinc-coated or protected with rust-inhibitive paint. Hot-dipped galvanized in pool atmosphere areas.

- E. Flat Hangers: Mild steel and zinc-coated or protected with rust-inhibitive paint. Hot-dipped galvanized in pool atmosphere areas.

- F. Channels: Cold-rolled steel, 0.05980-inch-minimum thickness of base (uncoated) metal and 7/16-inch-wide flanges, and as follows:

1. Carrying Channels: 1-1/2 inch deep, 475 lb per 1000 feet, unless otherwise indicated.
 2. Finish: Rust-inhibitive paint, unless otherwise indicated. Hot-dipped galvanized in pool atmosphere areas.
- G. Steel Studs for Furring Channels: ASTM C 645, with flange edges bent back 90 deg and doubled over to form 3/16-inch minimum lip (return), minimum thickness of base (uncoated) metal and minimum depth as follows:
1. Thickness: 0.0179 inch, unless otherwise indicated.
 2. Protective Coating: G40 hot-dip galvanized coating per ASTM A 525 for framing for exterior soffits and ceiling suspension members in areas within 10 feet of exterior walls, and in pool atmosphere areas.
- H. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth of 7/8 inch, and minimum thickness of base (uncoated) metal as follows:
1. Thickness: 0.0179 inch, unless otherwise indicated.
 2. Protective Coating: G40 hot-dip galvanized coating per ASTM A 525 for framing for exterior soffits and ceiling suspension members in areas within 10 feet of exterior walls, and in pool atmosphere areas.

2.3 STEEL FRAMING FOR WALLS AND PARTITIONS

- A. General: Provide steel framing members complying with the following requirements:
1. Component Sizes and Spacings: As indicated but not less than that required to comply with ASTM C 754 under the following maximum deflection and lateral loading conditions:
 - a. Maximum Deflection: $L/240$ at 5 lbf per sq. ft.
 2. Protective Coating: G40 hot-dip galvanized coating per ASTM A 525 for framing members attached to and within 10 feet of exterior walls, and in pool atmosphere areas.
- B. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 deg and doubled over to form 3/16-inch-wide minimum lip (return) and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
1. Thickness: 0.0179 inch, unless otherwise indicated.
- C. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.

2.4 GYPSUM BOARD PRODUCTS

- A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end butt joints.
 - 1. Thickness: Provide gypsum board in thicknesses indicated or, if not otherwise indicated, in either 1/2 inch or 5/8 inch thicknesses to comply with ASTM C 840 for application system and support spacing indicated.
- B. Gypsum Wallboard: ASTM C 36 and as follows:
 - 1. Type: Regular for vertical surfaces, unless otherwise indicated.
 - 2. Type: Sag-resistant type for ceiling surfaces.
 - 3. Edges: Tapered.
 - 4. Thickness: 1/2 inch, unless otherwise indicated.
 - 5. Available Products: Subject to compliance with requirements, manufacturers whose products may be incorporated in the Work where proprietary gypsum wallboard is indicated include, but are not limited to, the following:
 - a. Domtar Gypsum.
 - b. Georgia-Pacific Corp.
 - c. Gold Bond Building Products Div., National Gypsum Co.
 - d. United States Gypsum Co.

2.5 TRIM ACCESSORIES

- A. Accessories for Interior Installation: Corner beads, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:
 - 1. Material: Formed metal, plastic, or metal combined with paper, with metal complying with the following requirement:
 - a. Sheet steel zinc-coated by hot-dip process.
 - 2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:
 - a. Cornerbead on outside corners, unless otherwise indicated.
 - b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim unless otherwise indicated.
 - c. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.

2.6 JOINT TREATMENT MATERIALS

- A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
- B. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.

- C. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
 - 1. Ready-Mixed Formulation: Factory-mixed product.
 - 2. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
 - 3. Topping compound formulated for fill (second) and finish (third) coats.
 - 4. All-purpose compound formulated for both taping and topping compounds.

2.7 ACOUSTICAL SEALANT

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:
 - 1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E 90.
- B. Acoustical Sealant for Concealed Joints: Manufacturer's standard nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.
- C. Available Products: Subject to compliance with requirements, acoustical sealants that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Acoustical Sealant:
 - a. AC-20 FTR Acoustical and Insulation Sealant, Pecora Corp.
 - b. SHEETROCK Acoustical Sealant, United States Gypsum Co.
 - 2. Acoustical Sealant for Concealed Joints:
 - a. BA-98, Pecora Corp.
 - b. Tremco Acoustical Sealant, Tremco, Inc.

2.8 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.
- B. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot grouting hollow metal door frames.
- C. Fastening Adhesive for Metal: Special adhesive recommended for laminating gypsum panels to steel framing.
- D. Steel drill screws complying with ASTM C 1002 for the following applications:

1. Fastening gypsum board to steel members less than 0.03 inch thick.
 2. Fastening gypsum board to gypsum board.
- E. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0.112 inch thick.
- F. Corrosion-resistant-coated steel drill screws of size and type recommended by board manufacturer for fastening cementitious backer units.
- G. Gypsum Board Nails: ASTM C 514.
- H. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
- I. Sound Attenuation Blankets: Unfaced mineral-fiber blanket insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing):
1. Mineral-Fiber Type: Fibers manufactured from glass or slag.
 - a. Flame-spread and smoke-developed ratings of 75 and 450, respectively, per ASTM E 84.
- J. Polyethylene Vapor Retarder: ASTM D 4397, thickness and maximum permeance rating as follows:
1. 6.0 mils, 0.13 perms.
- K. Vapor Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Ceiling Anchorages: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.

1. Furnish concrete inserts and other devices indicated to other trades for installation well in advance of time needed for coordination with other construction.

3.3 INSTALLING STEEL FRAMING, GENERAL

- A. **Steel Framing Installation Standard:** Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer.
- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement. Comply with details shown on Drawings.
 1. Where building structure abuts ceiling perimeter or penetrates ceiling.
 2. Where partition framing and wall furring abut structure except at floor.
 - a. Provide slip- or cushioned-type joints as detailed to attain lateral support and avoid axial loading.
- D. Do not bridge building expansion and control joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.

3.4 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

- A. Suspend ceiling hangers from building structural members and as follows:
 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 4. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and

fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.

5. Do not support ceilings directly from permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 6. Do not attach hangers to steel deck tabs.
 7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 8. Do not connect or suspend steel framing from ducts, pipes or conduit.
- C. Sway-brace suspended steel framing with hangers used for support.
- D. Install suspended steel framing components in sizes and at spacings indicated but not less than that required by the referenced steel framing installation standard.
1. Wire Hangers: 0.1620-inch (8-gage) diameter, 4 feet o.c.
 2. Carrying Channels (Main Runners): 1-1/2 inch, 4 feet o.c.
 3. Rigid Furring Channels (Furring Members): 16 inches o.c.
- E. Installation Tolerances: Install steel framing components for suspended ceilings so that cross-furring members or grid suspension members are level to within 1/8 inch in 12 feet as measured both lengthwise on each member and transversely between parallel members.
- F. Wire-tie or clip furring members to main runners and to other structural supports as indicated.
- G. For exterior soffits, install cross-bracing and additional framing to resist wind uplift according to details on Drawings.

3.5 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.
1. Where studs are installed directly against exterior walls, install asphalt felt strips between studs and wall.
- B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from the plane formed by the faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Cut studs 1/2 inch short of full height. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
- D. Install steel studs and furring in sizes and at spacings indicated but not less than that required by the referenced steel framing installation standard to comply with maximum deflection and minimum loading requirements specified:

1. Single-Layer Construction: Space studs at 16 inches o.c.
- E. Install steel studs so that flanges point in the same direction and so that leading edges or ends of each gypsum board can be attached to open (unsupported) edges of stud flanges first.
- F. Frame door openings to comply with details indicated, with GA-219, and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 1. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- G. Frame openings other than door openings to comply with details indicated or, if none indicated, in same manner as required for door openings. Install framing below sills of openings to match framing required above door heads.
- H. Install polyethylene vapor retarder where indicated to comply with the following requirements:
 1. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with mechanical fasteners or adhesives. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose mineral-fiber insulation.
 2. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studs. Fasten vapor retarders to framing at top, end, and bottom edges, at perimeter of wall openings, and at lap joints; space fasteners 16 inches o.c.
 3. Seal joints in vapor retarders caused by pipes, conduits, electrical boxes and similar items penetrating vapor retarders with vapor retarder tape.
 4. Repair any tears or punctures in vapor retarder immediately before concealing it with the installation of gypsum board or other construction.

3.6 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

- A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.
- B. Install sound attenuation blankets where indicated prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- D. Install wall/partition board panels to minimize the number of abutting end joints or avoid them entirely. Stagger abutting end joints not less than one framing member in alternate courses of board. At stairwells and other high walls, install panels horizontally with end abutting joints over studs and staggered.

- E. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- F. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position adjoining panels so that tapered edges abut tapered edges, and field-cut edges abut field-cut edges and ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions. Avoid joints at corners of framed openings where possible.
- G. Attach gypsum panels to steel studs so that the leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- H. Attach gypsum panels to framing provided at openings and cutouts.
- I. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors, and doors over 32 inches wide. Apply spot grout at each jamb anchor clip and immediately insert gypsum panels into frames.
- J. Form control joints and expansion joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.
- K. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chase walls that are braced internally.
 - 1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect open concrete coffers, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow 1/4-to-1/2-inch-wide joints to install sealant.
- L. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4-inch-to-1/2-inch-wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- M. Floating Construction: Where feasible, including where recommended by manufacturer, install gypsum panels over wood framing, with floating internal corner construction.
- N. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.

3.7 GYPSUM BOARD APPLICATION METHODS

- A. **Single-Layer Application: Install gypsum wallboard panels as follows:**
 - 1. On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless parallel application is required for fire-resistive-rated assemblies. Use maximum-length panels to minimize end joints.
- B. **Single-Layer Fastening Methods: Apply gypsum panels to supports as follows:**
 - 1. Fasten with screws.

3.8 INSTALLING TRIM ACCESSORIES

- A. **General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.**
- B. **Install corner beads at external corners.**
- C. **Install edge trim where edge of gypsum panels would otherwise be exposed or semiexposed. Provide edge trim type with face flange formed to receive joint compound except where other types are indicated.**
 - 1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
 - 2. Install L-bead where edge trims can only be installed after gypsum panels are installed.
- D. **Install control joints at locations indicated, and where not indicated according to ASTM C 840, and in locations approved by Architect for visual effect.**
- E. **Install H-molding in exterior gypsum board assemblies where control joints are indicated. Install on cut or ends of gypsum panels, not on tapered edges.**

3.9 FINISHING GYPSUM BOARD ASSEMBLIES

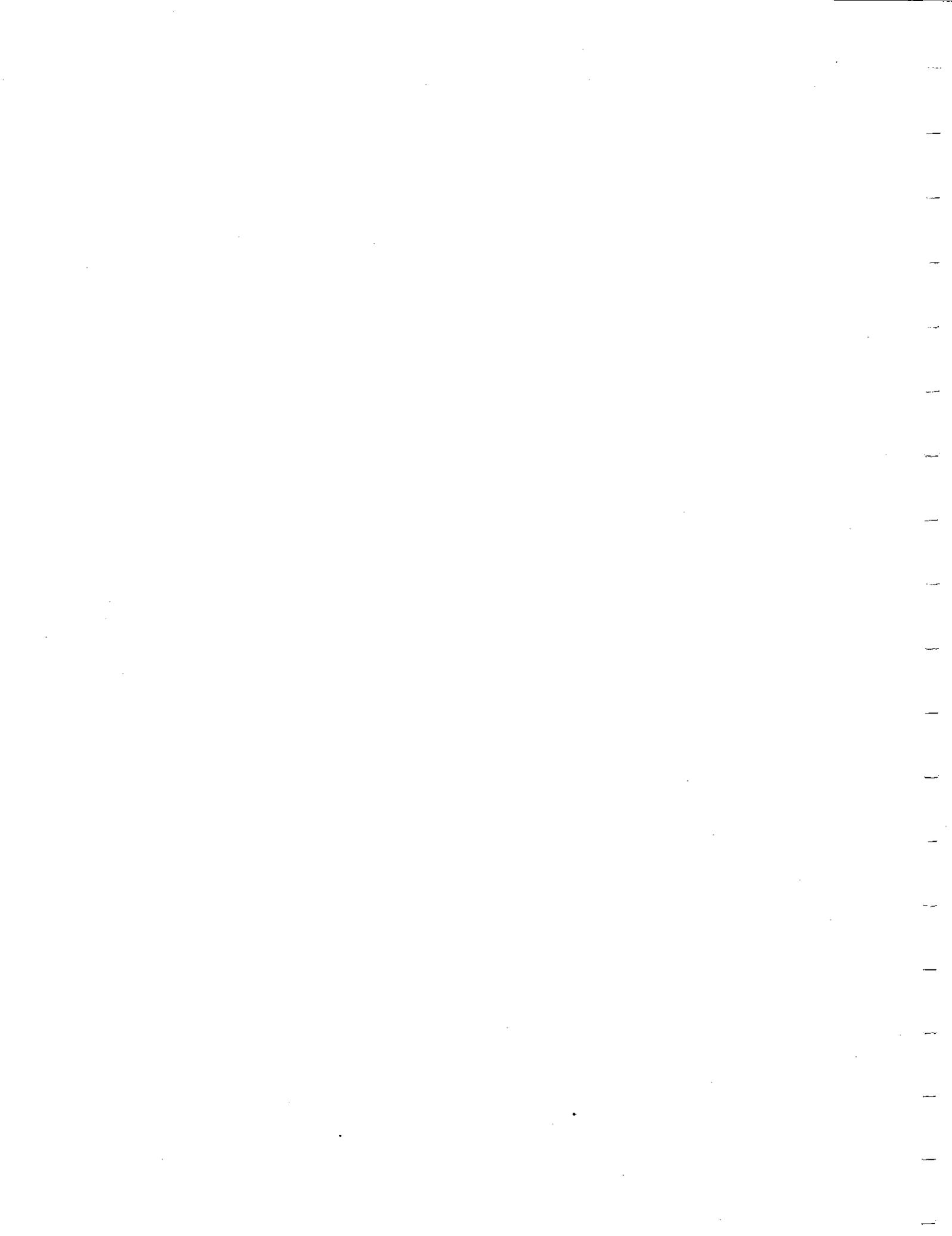
- A. **General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration and levels of gypsum board finish indicated.**
- B. **Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.**

- C. Apply joint tape over gypsum board joints except those with trim accessories having concealed face flanges not requiring taping to prevent cracks from developing in joint treatment at flange edges.
- D. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
 - 1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.
 - 2. Level 4 for gypsum board surfaces unless otherwise indicated.
- E. For level 4 gypsum board finish, embed tape in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads, and accessories plus a thin uniform coat of joint compound over entire surface. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration. Use the following joint compound combination:
 - 1. Embedding and First Coat: Ready-mixed, drying-type, all-purpose or taping compound.
 - 2. Fill (Second) Coat: Ready-mixed, drying-type, all-purpose or topping compound.
 - 3. Finish (Third) Coat: Ready-mixed, drying-type, all-purpose or topping compound.
 - 4. Skim (Fourth) Coat: Ready-mixed, drying-type, all purpose or typing compound.
- F. Where level 1 gypsum board finish is indicated, apply joint compound specified for embedding coat.

3.10 CLEANING AND PROTECTION

- A. Promptly remove any residual joint compound from adjacent surfaces.
- B. Provide final protection and maintain conditions, in a manner suitable to Installer, that ensures gypsum board assemblies remain without damage or deterioration at time of Substantial Completion.

END OF SECTION 09255



SECTION 09511 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes acoustical panel ceilings installed with exposed suspension systems.
- B. Related Sections: The following sections contain requirements that relate to this section:
1. Division 15 Section "Fire Protection" for sprinkler heads in acoustical ceilings.
 2. Division 15 Section "Air Outlets and Inlets" for grilles, registers, and diffusers in acoustical ceilings.
 3. Division 16 Section "Interior Lighting Fixtures" for lighting fixtures in acoustical ceilings.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
1. Product data for each type of product specified.
 2. Coordination drawings for reflected ceiling plans drawn accurately to scale and coordinating penetrations and ceiling-mounted items. Show the following:
 - a. Ceiling suspension members.
 - b. Method of attaching hangers to building structure.
 - c. Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinkler heads; and special moldings at walls, column penetrations, and other junctures with adjoining construction.
 - d. Scale: 1/8 inch = 1'-0".

3. Samples for verification purposes of each type of exposed finish required, prepared on samples of size indicated below and of same thickness and material indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected.
 - a. 6-inch-square samples of each acoustical panel type, pattern, and color.
 - b. Set of 12-inch-long samples of exposed suspension system members, including moldings, for each color and system type required.
4. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.
5. Product test reports from qualified independent testing laboratory that are based on its testing of current products for compliance of acoustical ceiling systems and components with requirements.

1.4 QUALITY ASSURANCE

- A. **Installer Qualifications:** Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design, and extent to those indicated for Project.
- B. **Fire-Performance Characteristics:** Provide acoustical ceilings that are identical to those tested for the following fire-performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 1. **Surface Burning Characteristics:** As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
 - a. Flame Spread: 25 or less.
 - b. Smoke Developed: 50 or less.
- C. **Single-Source Responsibility for Ceiling Units:** Obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- D. **Single-Source Responsibility for Suspension System:** Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

- E. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components (if any), and partition system (if any).

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

1.6 PROJECT CONDITIONS

- A. Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

1.7 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with appropriate labels.
 - 1. Acoustical Ceiling Units: Furnish quantity of full-size units equal to 2.0 percent of amount installed.
 - 2. Exposed Suspension System Components: Furnish quantity of each exposed component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the following:

1. (ATC 'A') Mineral Composition - with Standard Washable Painted Finish, Fissured Pattern, Non-Fire Resistance Rated:
 - a. Traverton Fissured Tegular Lay-in Armstrong World Industries, Inc.
 - b. Safetone White Natural Fissured, Celotex Corp.
 - c. Acoustone "F" Fissured Regular SL, USG Acoustical Products Co.
 2. (ATC 'B') High Density Ceramic Composition Units with Scrubbable Finish:
 - a. Eurostone Ceiling Panels - Terric, Dontar Gypsum
 3. (ATC 'C') Metal Panel Units.
 - a. Steel Ceilings, Inc.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Fire-Resistance-Rated Narrow-Face Double-Web Steel Suspension Systems:
 - a. Armstrong World Industries, Inc.
 - b. Chicago Metallic Corporation.
 - c. National Rolling Mills, Inc.
 - d. USG Interiors, Inc.
 2. Non-Fire-Resistance-Rated Extruded Aluminum Suspension Systems:
 - a. Alumax, Magnolia Div.
 - b. Bonn Corporation
 - c. Technical Ceiling Systems, Inc.
 3. Edge Moldings:
 - a. Armstrong World Industries, Inc.
 - b. Chicago Metallic Corporation.
 - c. Fry Reglet Corp.
 - d. National Rolling Mills, Inc.
 - e. USG Interiors, Inc.

2.2 ACOUSTICAL CEILING UNITS, GENERAL

- A. Standard for Acoustical Ceiling Units: Provide manufacturers' standard units of configuration indicated that comply with ASTM E 1264 classifications as designated

by reference to types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.

1. Mounting Method for Measuring NRC: Type E-400 (plenum mounting in which face of test specimen is 15-3/4 inches [400 mm] away from the test surface) per ASTM E 795.

B. Colors and Patterns: Provide products to match appearance characteristics indicated under each product type.

2.3 MINERAL-BASE ACOUSTICAL PANELS - NODULAR, CAST OR MOLDED (ATC 'A')

A. Type, Form, and Finish: Provide Type III, Form 1 units per ASTM E 1264 with painted finish that comply with pattern and other requirements indicated.

B. Fissured Pattern: Units fitting ASTM E 1264 pattern designation D, with other characteristics as follows:

1. Color/Light Reflectance Coefficient: White/LR 0.80.
2. Color: To be chosen from manufacturers' standard color options.
3. Noise Reduction Coefficient: NRC 0.65.
4. Ceiling Sound Transmission Class: CSTC 35.
5. Edge Detail: Reveal sized to fit flange of exposed grid members.
6. Size: 24 inches by 24 inches by 3/4 inch.

2.4 HIGH-DENSITY CERAMIC BASE PANELS WITH SCRUBBABLE FINISH (ATC "B")

A. Type: Provide Type XX units per ASTM E 1264 that are resistant to heat, moisture, and corrosive fumes and that comply with pattern and other requirements indicated.

B. Perforated and Fissured Pattern: Units fitting ASTM E 1264 pattern designations C and D, with other panel characteristics as follows:

1. Color/Light Reflectance Coefficient: White/LR 0.80.
2. Noise Reduction Coefficient: NRC 0.60.
3. Ceiling Sound Transmission Class: CSTC 40.
4. Edge Detail: Square.
5. Size: 24 inches by 24 inches by 5/8 inch.

2.5 METAL PANEL CEILING

- A. Type: Stainless steel 26 gauge, brushed with perforation M pattern.

2.6 METAL SUSPENSION SYSTEMS, GENERAL

- A. Standard for Metal Suspension Systems: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.
- B. Finishes and Colors: Provide manufacturer's standard factory-applied finish for type of system indicated.
 - 1. High-Humidity Finish: Comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high-humidity finishes are indicated (at all pool atmosphere areas).
- C. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
 - 1. Cast-In-Place and Postinstalled Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials, with holes or loops for attachment of hangers of type indicated and with capability to sustain, without failure, a load equal to 5 times that imposed by ceiling construction, as determined by testing per ASTM E 488, conducted by a qualified independent testing laboratory.
 - a. Cast-in-place anchors.
 - b. Chemical anchors.
 - c. Expansion anchors.
 - 2. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attachment of hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing laboratory.
- D. Wire for Hangers and Ties: ASTM A 641, stainless steel wire, soft temper prestretched.
 - 1. Gage: Provide wire sized so that stress at 3 times hanger design load (ASTM C 635, Table 1, Direct-Hung), will be less than yield stress of wire, but provide not less than 0.106-inch diameter (12 gage).

- E. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit type of edge detail and suspension system indicated.
 - 1. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
 - 2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
 - 3. For narrow faced suspension systems, provide suspension system manufacturer's standard edge moldings that match width and configuration of exposed runners.
- F. Hold-Down Clips for Non-Fire-Resistance-Rated Ceilings: For interior ceilings composed of lay-in panels weighing less than 1 lb per sq. ft., provide hold-down clips spaced 2'-0" o.c. on all cross-tees.
- G. Impact Clips: AT (ATC-B), provide manufacturer's standard impact clip system design to absorb impact forces against lay-in panels.

2.7 NON-FIRE-RESISTANCE-RATED DIRECT-HUNG SUSPENSION SYSTEMS

- A. Wide-Face Single-Web Steel Suspension System (ATC-A): Main and cross-runners roll-formed from prepainted or electrolytic zinc-coated cold-rolled steel sheet, with prepainted 15/16-inch-wide flanges; other characteristics as follows:
 - 1. Structural Classification: Intermediate-Duty System.
 - 2. Finish: Painted, white.
- B. Non-Fire-Resistance-Rated Extruded Aluminum Suspension System: (ATC-B) Manufacturer's standard system fabricated from aluminum extrusions of profile indicated; other characteristics as follows:
 - 1. Face Design: Flush exposed faces without slot or reveal.
 - 2. Structural Classification: Light-Duty System.
 - 3. Finish: Painted, white.

2.8 MISCELLANEOUS MATERIALS

- A. Concealed Acoustical Sealant: Nondrying, nonhardening, nonskinning, nonstaining, nonbleeding, gunnable sealant complying with requirement specified in Division 7 Section "Joint Sealers."

- B. Lighting Cove - Parabolic Louver: Provide a 1/2" x 1/2" x 1/2" aluminum louver with baked white enamel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and structural framing to which ceiling system attaches or abuts, with Installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
 - 1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.
- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half-width units at borders, and comply with reflected ceiling plans.

3.3 INSTALLATION

- A. General: Install acoustical ceiling systems to comply with installation standard referenced below, per manufacturer's instructions and CISCA "Ceiling Systems Handbook."
 - 1. Standard for Installation of Ceiling Suspension Systems: Comply with ASTM C 636.
- B. Arrange acoustical units and orient directionally patterned units in a manner shown by reflected ceiling plans.
- C. Suspend ceiling hangers from building structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions

- and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 4. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices that are secure and appropriate for structure to which hangers are attached as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
 5. Do not support ceilings directly from permanent metal forms; furnish cast-in-place hanger inserts that extend through forms.
 6. Do not attach hangers to steel deck tabs.
 7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 8. Space hangers not more than 4'-0" o.c. along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.
- D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical units.
1. Sealant Bed: Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings.
 2. Screw-attach moldings to substrate at intervals not over 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0". Miter corners accurately and connect securely.
- E. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.
1. Install hold-down clips in areas indicated and in areas where required by governing regulations or for fire-resistance ratings; space as recommended by panel manufacturer, unless otherwise indicated or required.

3.4 CLEANING

- A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09511

SECTION 09678 - RESILIENT WALL BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Resilient wall base.
 - 2. Resilient carpet accessories.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 9 Section "Resilient Tile Flooring."

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Samples for initial selection purposes of manufacturer's standard sample sets in form of pieces cut from each type of product specified showing full range of colors and patterns available.
- D. Samples for verification purposes in manufacturer's standard sizes, but not less than 12 inches long, of each different color and pattern of product specified.
- E. Product certificates, in lieu of laboratory test reports when permitted by Architect, signed by manufacturer certifying that each product complies with requirements.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Products: Obtain each type and color of product specified from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

- B. Fire Performance Characteristics: Provide products with the following fire performance characteristics as determined by testing products per ASTM test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E 648.
 - 2. Smoke Density: Less than 450 per ASTM E 662.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to Project site in original manufacturer's unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.
- B. Store products in dry spaces protected from the weather with ambient temperatures maintained between 50 deg F (10 deg C) and 90 deg F (32 deg C).
- C. Move products into spaces where they will be installed at least 48 hours in advance of installation.

1.6 PROJECT CONDITIONS

- A. Maintain a minimum temperature of 70 deg F (21 deg C) in spaces to receive products specified in this Section for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55 deg F (13 deg C).
- B. Do not install products until they are at the same temperature as that of the space where they are to be installed.
- C. Close spaces to traffic during installation of products specified in this Section.

1.7 SEQUENCING AND SCHEDULING

- A. Sequence installing products specified in this Section with other construction to minimize possibility of damage and soiling during remainder of construction period.

1.8 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials matching products installed as described below, packaged with protective covering for storage, and identified with labels clearly describing contents.
 - 1. Furnish not less than 10 linear feet for each 500 linear feet or fraction thereof of each different type and color of resilient wall base installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products specified in each Product Data Sheet at the end of this section.

2.2 RESILIENT WALL BASE

- A. Rubber Wall Base: Products complying with FS SS-W-40, Type I, and requirements specified in the Rubber Wall Base Product Data Sheet at end of this Section.

2.3 RESILIENT ACCESSORIES

- A. Vinyl Accessories: Products complying with requirements specified in Vinyl Accessory Product Data Sheet at end of this Section.

2.4 INSTALLATION ACCESSORIES

- A. Adhesives: Water-resistant type recommended by manufacturer to suit resilient flooring product and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas where installation of products specified in this Section will occur, with Installer present, to verify that substrates and conditions are satisfactory for installation and comply with manufacturer's requirements and those specified in this Section.

3.2 PREPARATION

- A. General: Comply with manufacturer's installation specifications for preparing substrates indicated to receive products indicated.
- B. Use trowelable leveling and patching compounds per manufacturers directions to fill cracks, holes, and depressions in substrates.
- C. Broom or vacuum clean substrates to be covered immediately before installing products specified in this Section. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.

3.3 INSTALLATION

- A. General: Install products specified in this Section using methods indicated according to manufacturer's installation directions.
- B. Apply resilient wall base to walls, columns, pilasters, casework, and other permanent fixtures in rooms and areas where base is required. Install wall base in lengths as long as practicable. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
 - 1. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
 - 2. Install inside and exterior corners before installing straight pieces.
- C. Place resilient accessories so they are butted to adjacent materials of type indicated and bond to substrates with adhesive. Install reducer strips at edges of flooring that otherwise would be exposed.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing installation:
 - 1. Remove visible adhesive and other surface blemishes using cleaner recommended by manufacturers of resilient product involved.
 - 2. Sweep or vacuum floor thoroughly.
 - 3. Do not wash floor until after time period recommended by manufacturer.
 - 4. Damp-mop resilient accessories to remove black marks and soil.
- B. Clean products specified in this Section not more than 4 days prior to dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products using method recommended by manufacturer.

PART 4 - RUBBER WALL BASE PRODUCT DATA SHEET

Rubber Wall Base Designation: RWB-1

Style: Cove with top-set toe.

Minimum Nominal Thickness: 1/8 inch.

Height: 4 inches

Lengths: Cut lengths 4 feet long.

Exterior Corners: Premolded or formed on job.

Interior Corners: Premolded or formed on job.

Color and Pattern: As selected by Architect from manufacturer's full range of colors and patterns produced for rubber wall base complying with requirements indicated.

Available Products: Flex-Cove, Flexco Company; Rubber Cove Base, Johnsonite; Rubbermyte, Mercer Products Co., Infinity Roll Cove Base, Roppe Corp.; Series 700 Cove Base, Vinyl Plastics, Inc.

VINYL ACCESSORY PRODUCT DATA SHEET

Vinyl Accessory Designation: VA-1

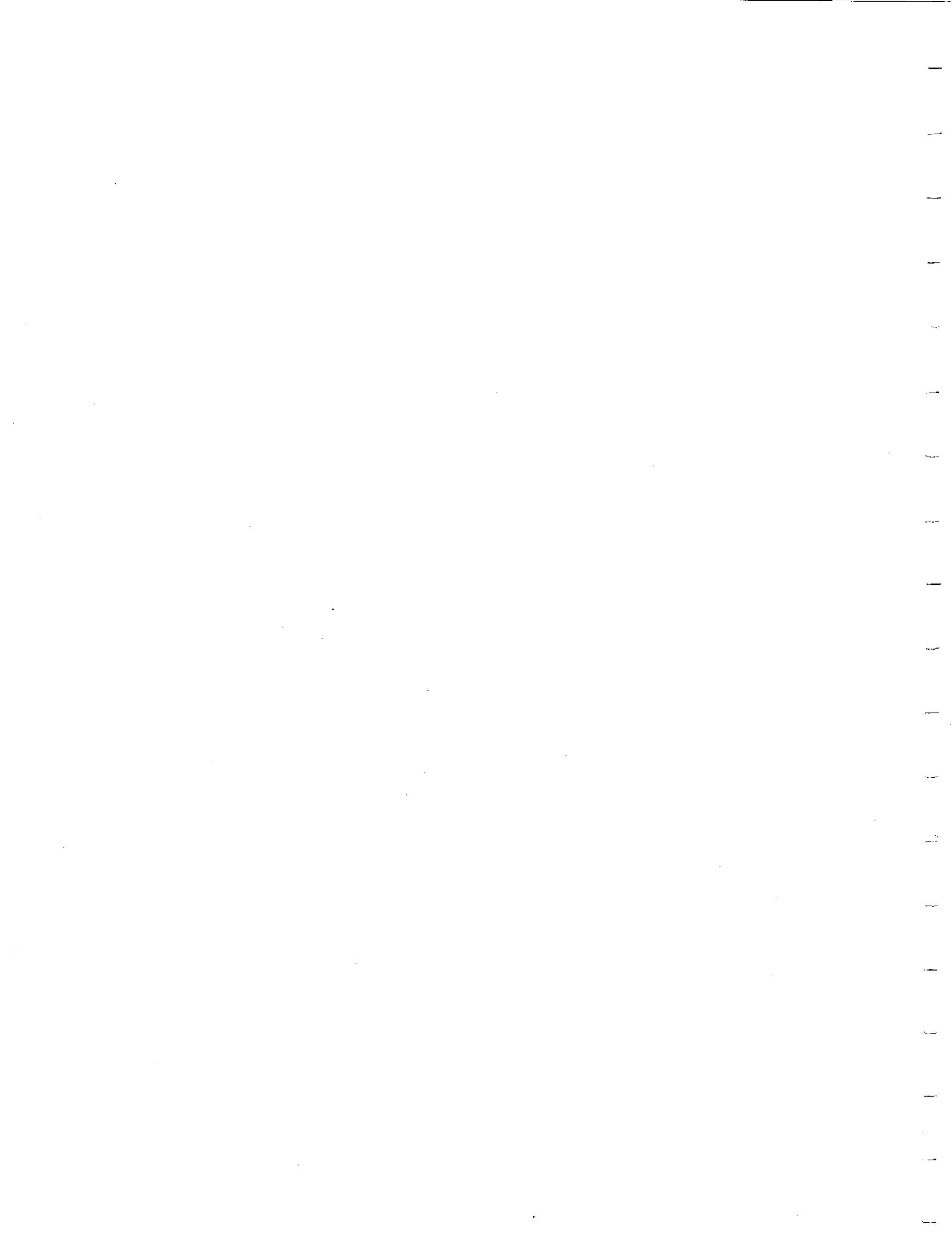
Product Description: Cap for cove carpet. Carpet edge of glue down applications. Carpet nosing. Nosing for resilient floor covering.

Profile and Dimensions: As indicated.

Color: As selected by Architect from manufacturer's full range of colors Produced for vinyl accessories complying with requirements indicated.

Available Products: AFCO, Azrock, Johnson, Merser and Roppe.

END OF SECTION 09678



SECTION 09680 - CARPET

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes carpet, installation, accessories, and cushion, if any.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of carpet material and installation accessory required. Submit written data on physical characteristics, durability, resistance to fading, and flame resistance characteristics.
- C. Shop drawings showing layout and seaming diagrams. Indicate pile or pattern direction and locations and types of edge strips. Indicate columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet. Show installation details at special conditions.
- D. Samples for verification purposes in manufacturer's standard size, showing full range of color, texture, and pattern variations expected. Prepare samples from same material to be used for the Work. Submit the following:
 - 1. 12-inch-square samples of each type of carpet material required.
 - 2. 12-inch-long samples of each type exposed edge stripping and accessory item.
 - 3. 6-inch-square samples of each type of carpet cushion.

1.4 QUALITY ASSURANCE

- A. Manufacturer's Qualification: Firm whose carpet materials comply with "Use of Materials Bulletin UM-44C" published by U.S. Department of Housing and Urban Development (HUD) and are currently listed in HUD "Certified Products Directory" and so identified by imprint on back of carpet.
- B. Carpet Surface Burning Characteristics: Provide carpet identical to that tested for the following fire performance characteristics, per test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having

jurisdiction. Identify carpet with appropriate markings of applicable testing and inspecting organization.

1. Test Method: DOC FF 1-70.
2. Rating: Pass.
3. Test Method: ASTM E 84.
4. Flame Spread: 25 or less.
5. Smoke Developed: 450 or less.

1.5 GUARANTEE

- A. Lifetime Guarantee: Manufacturer shall provide a lifetime guarantee for the following:
1. Dimensional stability
 2. Edge and seam ravel
 3. Impervious to water damage
 4. Will not mildew
 5. Will not delaminate

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.
- B. Store materials in original undamaged packages and containers, inside well-ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity. Lay flat, blocked off ground. Maintain minimum temperature of 68 deg F (20 deg C) at least three days prior to and during installation in area where materials are stored.

1.7 PROJECT CONDITIONS

- A. Substrate Conditions: No condensation within 48 hours on underside of 4-foot by 4-foot polyethylene sheet, fully taped at perimeter to substrate.
- B. Substrate Conditions: pH of 9 or less when substrate wetted with potable water and pHydriion paper applied.

1.8 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials matching products installed as described below, packaged with protective covering for storage and identified with labels describing contents.
1. Carpet: Before installation begins, furnish quantity of full width for each type of material equal to 5 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

1. Carpet: See Data Sheets at the end of this Section.

2.2 ACCESSORIES

- A. Seaming Cement: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.
- B. Carpet Adhesive: Water resistant and nonstaining as recommended by carpet manufacturer to comply with flammability requirements for installed carpet.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clear away debris and scrape up cementitious deposits from concrete surfaces to receive carpet; apply sealer to prevent dusting.
- B. Patch holes and level to a smooth surface. If previous finish chemically stripped, reseal concrete. Seal powdery or porous surfaces with sealer recommended by carpet manufacturer.
- C. Patch holes and cracks. Sand to level. Remove wax. Seal surface with sealer recommended by carpet manufacturer.

3.2 INSTALLATION

- A. Comply with manufacturer's recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position; do not place seams perpendicular to door frame, in direction of traffic through doorway. Do not bridge building expansion joints with continuous carpet.
- B. Extend carpet under removable flanges and furnishings and into alcoves and closets of each space.
- C. Provide cutouts where required, and bind cut edges where not concealed by protective edge guards or overlapping flanges.

- D. Install carpet edge guard where edge of carpet is exposed; anchor guards to substrate.
- E. Install with pattern parallel to walls and borders.
- F. Install carpet by trimming edges, butting cuts with seaming cement, and taping and/or sewing seams to provide sufficient strength for stretching and continued stresses during life of carpet.
- G. Stretch carpet to provide smooth, ripple-free, taut, trim edges; secure to stripping and conceal behind edge of stripping. Use power stretcher where carpet length is greater than 20 feet.
- H. Fit sections of carpet prior to application of adhesive. Trim edges and butt cuts with seaming cement.
- I. Apply adhesive uniformly to substrate in accordance with manufacturer's instructions. Butt edges tight to form seams without gaps. Roll entire area lightly to eliminate air pockets and ensure uniform bond.

3.3 CLEANING

- A. Remove adhesive from carpet surface with manufacturer's recommended cleaning agent.
- B. Remove and dispose of debris and unusable scraps. Vacuum with commercial machine with face-beater element. Remove soil. Replace carpet where soil cannot be removed. Remove protruding face yarn.
- C. Vacuum carpet.

3.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, to ensure carpet is not damaged or deteriorated at time of Substantial Completion.

3.5 CARPET SCHEDULE

- A. Provide carpet as scheduled on the following "Data Sheets." Each Data Sheet begins with a new page.

PRODUCT DATA SHEET 1 - CARPET

Carpet Designation: C-5.

Fiber Content: 100% nylon.

Face Construction: Tufted loop.

Gauge: 8 ends per inch

Stitches 8.3 per inch.

Pile Height: .187 in. avg. for finished carpet per ASTM D 418.

Total Weight: 68.6 oz./sq. yd. for finished carpet.

Performance Characteristics: As follows:

Critical Radiant Flux classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

Dry Breaking Strength: Not less than 100 lbf (445 N) ASTM D 2646.

Delamination Strength of Secondary Backing: Not less than 2.5 lbf/inch (11.1 N/25./4 mm) per ASTM D 3936.

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

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

Color: 217 Seaside.

Product: DV246, Boucle, Lees.

PRODUCT DATA SHEET 2 - CARPET

Carpet Designation: C-6.

Fiber Content: 100% nylon.

Face Construction: Tufted loop.

Gauge: 8 ends per inch

Stitches 8.3 per inch.

Pile Height: .187 in. avg. for finished carpet per ASTM D 418.

Total Weight: 26 oz./sq. yd. for finished carpet.

Performance Characteristics: As follows:

Critical Radiant Flux classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

Dry Breaking Strength: Not less than 100 lbf (445 N) ASTM D 2646.

Delamination Strength of Secondary Backing: Not less than 2.5 lbf/inch (11.1 N/25./4 mm) per ASTM D 3936.

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

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

Color: 201 Bayberry.

Product: D5296, check up.

END OF SECTION 09680

SECTION 09690 - CARPET TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes carpet tile and installation.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 3 Sections for curing compounds and other concrete treatments compatibility with carpet tile and adhesives.
 - 2. Division 9 Section "Resilient Wall Base and Accessories" for materials and installation.
 - 3. Division 16 Section "Interior Lighting" for floor reflectance factors required in designing and selecting lighting fixtures.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of carpet tile material and installation accessory specified. Submit manufacturer's printed data on physical characteristics, durability, fade resistance, and fire-test-response characteristics. Submit methods of installation for each type of substrate.
- C. Shop Drawings showing columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tile. Indicate the following:
 - 1. Carpet tile type, color, and dye lot.
 - 2. Seam locations, types, and methods.
 - 3. Type of subfloor.
 - 4. Type of installation.
 - 5. Pattern type, location, and direction.
 - 6. Pile direction.
 - 7. Type, color, and location of insets and borders.
 - 8. Type, color, and location of edge, transition, and other accessory strips.
 - 9. Transition details to other flooring materials.

- D. Samples for initial selection in the form of manufacturer's color charts or Samples of materials showing the full range of colors, textures, and patterns available for each type of carpet tile indicated.
- E. Samples for verification of the following products, in manufacturer's standard sizes, showing the full range of color, texture, and pattern variations expected. Prepare Samples from the same material to be used for the Work. Label each sample with the manufacturer's name, material type, color, pattern, and designation indicated on Drawings and carpet tile schedule. Submit the following:
 - 1. Full-size sample of each type of carpet tile required.
 - 2. 12-inch (300-mm) Samples of each type of exposed edge stripping and accessory item.
- F. Schedule of carpet tile using same room designations indicated on Drawings.
- G. Maintenance data for carpet tile to include in the operation and maintenance manual specified in Division 1. Include the following:
 - 1. Methods for maintaining carpet tile, including manufacturer's recommended frequency for maintaining carpet tile.
 - 2. Precautions for cleaning materials and methods that could be detrimental to finishes and performance. Include cleaning and stain-removal products and procedures.

1.4 QUALITY ASSURANCE

- A. **Installer Qualifications:** Engage an experienced Installer who is certified by the Floor Covering Installation Board (FCIB) or who can demonstrate compliance with FCIB certification program requirements.
- B. **Single-Source Responsibility:** Obtain each type of carpet tile from one source and by a single manufacturer.
- C. **Fire-Test-Response Characteristics:** Provide carpet tile with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify carpet tile with appropriate markings of applicable testing and inspecting agency.
 - 1. **Surface Flammability:** Passes CPSC 16 CFR, Part 1630.
 - 2. **Critical Radiant Flux Classification:** Class I, not less than 0.45 W/sq. cm per ASTM E 648.
 - 3. **Flame Spread:** 25 or less per ASTM E 84.
 - 4. **Smoke Developed:** 450 or less per ASTM E 84.
- D. **Mockups:** Prior to installing carpet tile, construct mockups for each form of construction and finish required to verify selections made under Sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.

1. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Architect.
2. Notify Architect one week in advance of the dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before start of final unit of Work.
5. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - a Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with the Carpet and Rug Institute's CRI 104, Section 5: "Storage and Handling."
- B. Deliver materials to Project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.
- C. Store materials on-site in original undamaged packages, inside well-ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity. Lay flat, with continuous blocking off ground.

1.6 PROJECT CONDITIONS

- A. General: Comply with CRI 104, Section 6: "Site Conditions."
- B. Space Enclosure and Environmental Limitations: Do not install carpet tile until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.
- C. Subfloor Moisture Conditions: Moisture emission rate of not more than 3 lb/1000 sq. ft./24 hours (14.6 kg/1000 sq. m/24 hours) when tested by calcium chloride moisture test in compliance with CRI 104, 6.2.1, with subfloor temperatures not less than 55 deg F (12.7 deg C).
- D. Subfloor Alkalinity Conditions: A pH range of 5 to 9 when subfloor is wetted with potable water and pHydriion paper is applied.

1.7 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

- B. **Special Carpet Tile Warranty:** Submit a written warranty executed by carpet tile manufacturer and Installer agreeing to repair or replace carpet tile that does not meet requirements or that fails in materials or workmanship within the specified warranty period. Failures include, but are not limited to, more than 10 percent loss of face fiber, tile curling, snags, runs, and delamination.
- C. **Warranty Period:** 5 years from date of Substantial Completion.

1.8 EXTRA MATERIALS

- A. **Furnish extra materials** described below that match products installed, are packaged with protective covering for storage, and are identified with labels clearly describing contents.
 - 1. **Carpet Tile:** Before installation begins, furnish quantity of full-size units equal to 5 percent of amount installed.

PART 2 - PRODUCTS

2.1 CARPET TILE

- A. **Products:** Subject to compliance with requirements, provide one of the products specified in each carpet tile Product Data sheet at end of this Section.

2.2 INSTALLATION ACCESSORIES

- A. **Concrete-Slab Primer:** Nonstaining type as recommended by carpet tile manufacturer.
- B. **Trowelable Underlayments and Patching Compounds:** As recommended by carpet tile manufacturer.
- C. **Adhesives:** Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated and to comply with flammability requirements for installed carpet tile as recommended by carpet tile manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. **Examine subfloors and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting performance of carpet tile. Do not proceed with installation until unsatisfactory conditions have been corrected.**
- B. **Verify that subfloors and conditions are satisfactory for carpet tile installation and comply with requirements specified in this Section and those of carpet tile manufacturer.**

3.2 PREPARATION

- A. General: Comply with carpet tile manufacturer's installation recommendations to prepare substrates indicated to receive carpet tile installation.
- B. Level subfloor within 1/4 inch in 10 feet (6 mm in 3 m), noncumulative, in all directions. Sand or grind protrusions, bumps, and ridges. Patch and repair cracks and rough areas. Fill depressions.
 - 1. Use leveling and patching compounds to fill cracks, holes, and depressions in subfloor as recommended by carpet tile manufacturer.
- C. Remove subfloor coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone.
- D. Broom or vacuum clean subfloors to be covered with carpet tile. Following cleaning, examine subfloors for moisture, alkaline salts, carbonation, or dust.
- E. Concrete-Subfloor Preparation: Apply concrete-slab primer, according to manufacturer's directions, where recommended by carpet tile manufacturer.

3.3 INSTALLATION

- A. General: Comply with CRI 104, Section 13: "Carpet Modules (Tiles)."
- B. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings.
- C. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- D. Install borders parallel to walls.

3.4 CLEANING

- A. Perform the following operations immediately after completing installation:
 - 1. Remove visible adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove protruding yarns from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.

3.5 PROTECTION

- A. General: Comply with CRI 104, Section 15: "Protection of Indoor Installation."
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure carpet tile is without damage or deterioration at the time of Substantial Completion.

PRODUCT DATA SHEET 1 - CARPET TILE

- A. Carpet Tile Designation: C-1.
- B. Fiber Content: 100 percent nylon.
- C. Face Construction: Tufted.
- D. Gauge: 8 ends per inch.
- E. Stitches: 8.7 per inch.
- F. Pile Height: 0.22 inch for finished carpet tile per ASTM D 418.
- H.. Total Weight: 148.45 oz./sq.yd. for finished carpet tile.
- I. Performance Characteristics: As follows:
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.
 - 2.. Dry Breaking Strength: Not less than 100 lbf per ASTM D 2646.
 - 5. Delamination Strength of Secondary Backing: Not less than 2.5 lbf/inch per ASTM D 3936.
 - 7. Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC-165.
 - 8. Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC-16.
- L. Color and Pattern: 302 Cinnibark
- M. Product: Essence DV 072, Lees

PRODUCT DATA SHEET 2 - CARPET TILE

- A. Carpet Tile Designation: C-2.
- B. Fiber Content: 100 percent nylon.
- C. Face Construction: Tufted.
- D. Gauge: 8 ends per inch.
- E. Stitches: 8.7 per inch.
- F. Pile Height: 0.22 inch for finished carpet tile per ASTM D 418.
- H.. Total Weight: 148.45 oz./sq.yd. for finished carpet tile.
- I. Performance Characteristics: As follows:
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.
 - 2.. Dry Breaking Strength: Not less than 100 lbf per ASTM D 2646.
 - 5. Delamination Strength of Secondary Backing: Not less than 2.5 lbf/inch per ASTM D 3936.
 - 7. Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC-165.
 - 8. Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC-16.
- L. Color and Pattern: 204 Birch.
- M. Product: Essence DV 072, Lees

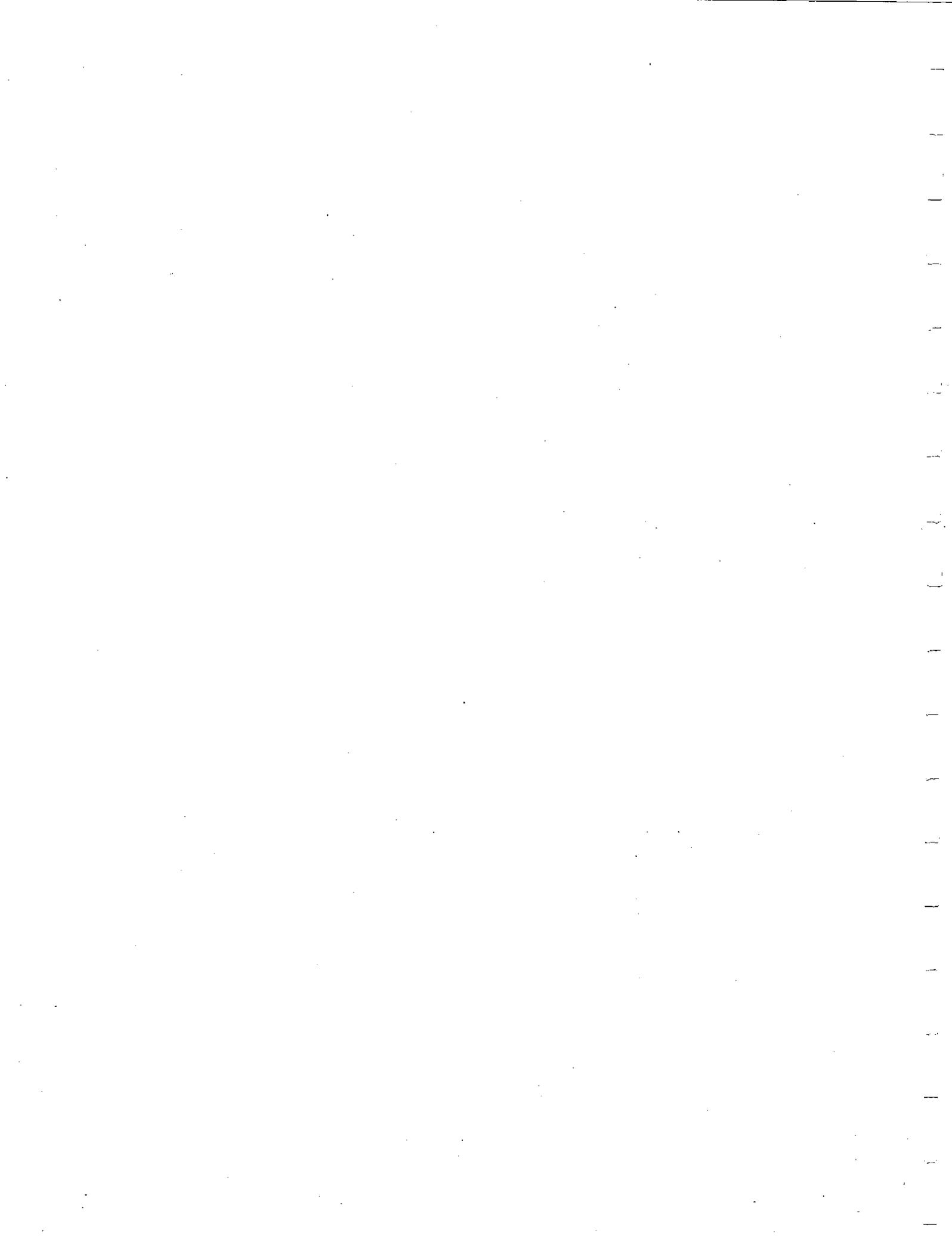
PRODUCT DATA SHEET 3 - CARPET TILE

- A. Carpet Tile Designation: C-3.
- B. Fiber Content: 100 percent nylon.
- C. Face Construction: Tufted.
- D. Gauge: 8 ends per inch.
- E. Stitches: 8.7 per inch.
- F. Pile Height: 0.22 inch for finished carpet tile per ASTM D 418.
- H.. Total Weight: 148.45 oz./sq.yd. for finished carpet tile.
- I. Performance Characteristics: As follows:
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.
 - 2.. Dry Breaking Strength: Not less than 100 lbf per ASTM D 2646.
 - 5. Delamination Strength of Secondary Backing: Not less than 2.5 lbf/inch per ASTM D 3936.
 - 7. Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC-165.
 - 8. Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC-16.
- L. Color and Pattern: 307 Glacier Bark.
- M. Product: Essence DV 072, Lees

PRODUCT DATA SHEET 4 - CARPET TILE

- A. Carpet Tile Designation: C-4.
- B. Fiber Content: 100 percent nylon.
- C. Face Construction: Tufted.
- D. Gauge: 8 ends per inch.
- E. Stitches: 8.7 per inch.
- F. Pile Height: 0.22 inch for finished carpet tile per ASTM D 418.
- H.. Total Weight: 148.45 oz./sq.yd. for finished carpet tile.
- I. Performance Characteristics: As follows:
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.
 - 2.. Dry Breaking Strength: Not less than 100 lbf per ASTM D 2646.
 - 5. Delamination Strength of Secondary Backing: Not less than 2.5 lbf/inch per ASTM D 3936.
 - 7. Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC-165.
 - 8. Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC-16.
- L. Color and Pattern: 513 Fallen Leaves.
- M. Product: Essence DV 072, Lees

END OF SECTION 09690



SECTION 09900 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces.
 - 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop-priming and surface treatment specified under other Sections.
- B. Paint exposed surfaces whether or not colors are designated in schedules, except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.
 - 1. Painting includes field-painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.
- C. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.
 - 1. Prefinished items not to be painted include the following factory-finished components:
 - a. Metal toilet enclosures.
 - b. Acoustic materials.
 - c. Architectural woodwork and casework.
 - d. Elevator entrance doors and frames.
 - e. Elevator equipment.
 - f. Finished mechanical and electrical equipment.
 - g. Light fixtures.
 - h. Switchgear.
 - i. Distribution cabinets.
 - 2. Concealed surfaces not to be painted include wall or ceiling surfaces in the following generally inaccessible areas:
 - a. Foundation spaces.

- b. Furred areas.
 - c. Utility tunnels.
 - d. Pipe spaces.
 - e. Duct shafts.
 - f. Elevator shafts.
3. Finished metal surfaces not to be painted include:
- a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper.
 - e. Bronze.
 - f. Brass.
4. Operating parts not to be painted include moving parts of operating equipment, such as the following:
- a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
5. Labels: Do not paint over Underwriters Laboratories, Factory Mutual or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- D. Related Sections: The following Sections contain requirements that relate to this Section:
1. Division 5 Section "Structural Steel" for shop-priming structural steel.
 2. Division 5 Section "Metal Fabrications" for shop-priming ferrous metal.
 3. Division 6 Section "Interior Architectural Woodwork" for shop-priming interior architectural woodwork.
 4. Division 8 Section "Standard Steel Doors and Frames" for shop-priming steel doors and frames.
 5. Division 9 Section "Special Coatings" for special coatings.
 6. Divisions 15 and 16: Painting mechanical and electrical work is specified in Divisions 15 and 16, respectively.

1.3 SUBMITTALS

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each paint system specified, including block fillers and primers.
1. Provide the manufacturer's technical information including label analysis and instructions for handling, storage, and application of each material proposed for use.

2. List each material and cross-reference the specific coating, finish system, and application. Identify each material by the manufacturer's catalog number and general classification.
 3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
- C. Samples for initial color selection in the form of manufacturer's color charts.
1. After color selection, the Architect will furnish color chips for surfaces to be coated.
- D. Samples for Verification Purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.
1. Provide stepped samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved.
 2. Provide a list of material and application for each coat of each sample. Label each sample as to location and application.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to those indicated for the Project that have resulted in a construction record of successful in-service performance.
- B. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.
- C. Field Samples: On wall surfaces and other exterior and interior components, duplicate finishes of prepared samples. Provide full-coat finish samples on at least 100 sq. ft. of surface until required sheen, color, and texture are obtained; simulate finished lighting conditions for review of in-place work.
1. Final acceptance of colors will be from job-applied samples.
 2. The Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted. Apply coatings in this room or surface according to the schedule or as specified.
 - a. After finishes are accepted, this room or surface will be used to evaluate coating systems of a similar nature.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
1. Product name or title of material.

2. Product description (generic classification or binder type).
 3. Manufacturer's stock number and date of manufacture.
 4. Contents by volume, for pigment and vehicle constituents.
 5. Thinning instructions.
 6. Application instructions.
 7. Color name and number.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.
1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.6 JOB CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F (32 deg C).
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C).
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
1. Duron
 2. Devoe and Reynolds Co. (Devoe).
 3. Fuller O'Brien (Fuller).
 4. The Glidden Company (Glidden).
 5. Benjamin Moore and Co. (Moore).
 6. PPG Industries, Pittsburgh Paints (PPG).
 7. Pratt and Lambert (P & L).
 8. The Sherwin-Williams Company (S-W).

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, finish coat materials, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.
- B. Material Quality: Provide the manufacturer's best-quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.
 - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish the manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Match colors indicated by reference to the manufacturer's standard color designations.

2.3 MASONRY BLOCK FILLER

- A. Filler Coat Materials: Provide the manufacturer's recommended factory-formulated, latex-type concrete masonry block fillers that are compatible with the finish materials indicated.
- B. Available Products: Subject to compliance with requirements, block fillers that may be incorporated in the Work include, but are not limited to, the following:
 - 1. High-Performance Latex Block Filler:
 - a. Duron Block Kote Latex Block Filler, 08-126
 - b. Devoe: 52901 Bloxfil Interior/Exterior Acrylic Latex Block Filler.
 - c. Fuller: 280-00 Interior/Exterior Latex Block Filler.
 - d. Clidden: 5317 Ultra-Hide Acrylic Latex Block Filler.
 - e. Moore: Moorcraft Interior & Exterior Block Filler #173.
 - f. PPG: 6-7 Latex Masonry Block Filler.
 - g. P & L: Pro-Hide Plus Block Filler.
 - h. S-W: Heavy-Duty Block Filler B42W46.

2.4 PRIMERS

- A. Primers: Provide the manufacturer's recommended factory-formulated primers that are compatible with the substrate and finish coats indicated.
- B. Products: Subject to compliance with requirements, provide one of the following:

1. Concrete and Masonry Primers: Interior, flat, latex-based paint.
 - a. Duron: Ultra Deluxe Interior Drywall Vinyl Primer Sealer
 - b. Devoe: 51701 Wonder-Prime Interior All Purpose Latex Primer Sealer & Vapor Barrier.
 - c. Fuller: 202-XX Interior - Exterior Acrylic Latex Wall Paint.
 - d. Glidden: 5300 Ultra-Hide Flat Wall Paint.
 - e. Moore: Moore's Latex Quick-Dry Prime Seal #201.
 - f. PPG: 80 Line Wallhide Flat Latex Paint.
 - g. P & L: Vapex Latex Flat Wall Finish.
 - h. S-W: ProMar 200 Latex Flat B30W200.

2. Gypsum Drywall Primer: White, interior, latex-based primer.
 - a. Duron: Drywall Vinyl Primer, Sealer, 18-004
 - b. Devoe: 50801 Wonder-Tones Latex Primer and Sealer.
 - c. Fuller: Pro-Tech Interior Latex Wall Primer and Sealer.
 - d. Glidden: 5019 PVA Primer.
 - e. Moore: Moore's Latex Quick-Dry Prime Seal #201.
 - f. PPG: 6-2 Quick-Dry Latex Primer Sealer.
 - g. P & L: Latex Wall Primer Z30001.
 - h. S-W: ProMar 200 Latex Wall Primer B28W200.

3. Ferrous Metal Primers: Synthetic, quick-drying, rust-inhibiting primers.
 - a. Duron: Dura Clad Damp Proof Redoxide Metal Primer, 33-015
 - b. Devoe: 13101 Mirrolac Cover Up Rust Penetrating Primer.
 - c. Fuller: 621-04 Blox-Rust Alkyd Metal Primer.
 - d. Glidden: 5210 Glid-Guard Universal Fast-Dry Metal Primer.
 - e. Moore: IronClad Retardo Rust-Inhibitive Paint #163.
 - f. PPG: 6-208 Red Inhibitive Metal Primer.
 - g. P & L: Effecto Rust-Inhibiting Primer.
 - h. S-W: Kem Kromik Metal Primer B50N2/B50W1.

4. Galvanized Metal Primers:
 - a. Duron: Dura Clad Acrylic Galvanized Metal Primer, 33-100
 - b. Devoe: 13201 Mirrolac Galvanized Metal Primer.
 - c. Fuller: 621-05 Blox-Rust Latex Metal Primer.
 - d. Glidden: 5229 Glid-Guard All-Purpose Metal Primer.
 - e. Moore: IronClad Galvanized Metal Latex Primer #155.
 - f. PPG: 6-215/216 Speedhide Galvanized Steel Primer.
 - g. P & L: P & L Interior Trim Primer.
 - h. S-W: Galvite B50W3.

5. Aluminum Primers:

- a. Duron: Dura Clad Acrylic Galvanized Metal Primer, 33-100
- b. Devoe: 41820 Bar-Ox Alkyd Shop/Field Primer Grey.
- c. Fuller: 621-05 Blox-Rust Latex Metal Primer.
- d. Glidden: 5229 Glid-Guard All-Purpose Metal Primer.
- e. Moore: No Primer Required.
- f. PPG: 6-712 Speedhide Inhibitive Metal Primer, White.
- g. P & L: Effecto Primer Red or White.
- h. S-W: No Primer Necessary.

2.5 UNDERCOAT MATERIALS

- A. Undercoat Materials: Provide the manufacturer's recommended factory-formulated undercoat materials that are compatible with the substrate and finish coats indicated.
- B. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Interior Enamel Undercoat: Ready-mixed enamel.
 - a. Duron: Alkyd Enamel Undercoater, 04-124
 - b. Devoe: 8801 Velour Alkyd Enamel Undercoat.
 - c. Fuller: 220-07 Interior Alkyd Enamel Undercoat.
 - d. Glidden: 4500 Glid-Guard Alkyd Enamel.
 - e. Moore: Moore's Alkyd Enamel Underbody #217.
 - f. PPG: 6-6 Speedhide Quick-Dry Enamel Undercoater.
 - g. P & L: Interior Trim Primer.
 - h. S-W: ProMar 200 Alkyd Enamel Undercoater B49W200.

2.6 EXTERIOR FINISH PAINT MATERIAL

- A. Finish Paint: Provide the manufacturer's recommended factory-formulated finish-coat materials that are compatible with the substrate and undercoats indicated.
- B. Available Products: Subject to compliance with requirements, finish coat materials that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Exterior Acrylic Emulsion: Quick-drying, flat, acrylic paint.
 - a. Duron: DuraKote Exterior Acrylic Flat House Paint, 09 Series
 - b. Devoe: 15XX Wonder-Shield Exterior Acrylic Latex Flat House Paint.
 - c. Fuller: 262-XX 100% Acrylic Exterior Flat Finish.
 - d. Glidden: 3525 Spred Glide-On.
 - e. Moore: Moore's Flat Exterior Latex Masonry & House Paint #105.
 - f. PPG: 72 Line Sun-Proof Acrylic Latex House Paint.
 - g. P & L: Vapex Latex Flat House Paint.

- h. S-W: A-100 Acrylic Latex Flat Exterior Finish A-6 Series.
- 2. Exterior, Polyvinyl Acetate Emulsion: Quick-drying, flat, polyvinyl acetate (PVA) paint.
 - a. Duron: Deluxe Vinyl Latex Masonry Flat, 18-916
 - b. Devoe: 20XX Wonder Guard Exterior Acrylic Latex Flat Masonry Paint.
 - b. Fuller: 263-XX Flat Latex House Paint.
 - c. Glidden: 3525 Spred Glide-On.
 - d. Moore: Moore's Flat Exterior Latex Masonry & House Paint #105.
 - e. PPG: 37 Line Cementside Latex Masonry Paint.
 - f. P & L: Pro-Hide Plus Interior/Exterior Vinyl-Acrylic Flat Paint Z3400 Series.
 - g. S-W: Weather Perfect Acrylic Latex Flat Exterior Finish B-36 Series.
- 3. Alkyd Gloss Enamel: Weather-resistant, air-drying, high-gloss enamel.
 - a. Duron: Dura Clad Alkyd Gloss Enamel, 12 Series
 - b. Devoe: 70XX Mirrolac Interior/Exterior Alkyd-Urethane Gloss Enamel.
 - c. Fuller: 312-XX EPA Compliant Heavy Duty Enamel.
 - d. Clidden: 4500 Glid-Guard Industrial Enamel.
 - e. Moore: Impervo High-Gloss Enamel #133.
 - f. PPG: 54 Line Quick-Dry Enamel.
 - g. P & L: Effecto Enamel.
 - h. S-W: Industrial Enamel B-54 Series.

2.7 INTERIOR FINISH PAINT MATERIAL

- A. Finish Paint: Provide the manufacturer's recommended factory-formulated finish-coat materials that are compatible with the substrate and undercoats indicated.
- B. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Interior, Flat, Latex-Based Paint: Ready-mixed, latex-based paint for a flat finish.
 - a. Duron: Vinyl Plastic Flat, 17 Series
 - b. Devoe: 36XX Wonder-Tones Latex Flat Wall Paint.
 - c. Fuller: 602XX Liquid Velvet Latex Wall Paint.
 - d. Glidden: 3400 Spred Satin Latex Wall Paint.
 - e. Moore: Regal Wall Satin #215.
 - f. PPG: 50-35 Latex Ceiling Paint.
 - g. P & L: Vapex Latex Flat Wall Finish.
 - h. S-W: Classic 99 Wall and Trim Paint A27W10.

2. Interior, Semigloss, Odorless Alkyd Enamel: Semigloss, low-odor, alkyd enamel.
 - a. Duro: Ultra Deluxe Interior Vinyl Acrylic Semi-gloss Enamel, 35 Series
 - b. Devco: 26XX Velour Alkyd Semigloss Enamel.
 - c. Fuller: 110XX Fullerglo Alkyd Semigloss Enamel.
 - d. Glidden: 4200 Spread Ultra Semigloss Enamel.
 - e. Moore: Moore's Satin Impervo Enamel #235.
 - f. PPG: 27 Line Wallhide Semigloss Enamel.
 - g. P & L: Cellu-Tone Alkyd Satin Enamel.
 - h. S-W: Classic 99 Semigloss Enamel A40 Series.

3. Low-luster (eggshell or satin), acrylic-latex, interior enamel; Satin finish, latex based enamel.
 - a. Duro: Fill and Finish Latex Eggshell 16-121.
 - b. Devco: 34XX Wonder-Tones Interior Latex Eggshell Enamel.
 - c. Fuller: 212XX AA Enamel Interior Acrylic Latex Eggshell Enamel.
 - d. Moore: Moore's Regal Aqua Velvet #319.
 - e. PPG: 89 Line Manor Hall Eggshell Latex Wall and Trim Enamel.
 - f. P & L: Z/F 4000 Series Accolade Interior Velvet.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions under which painting will be performed for compliance with paint application requirements. Surfaces receiving paint must be thoroughly dry before paint is applied.
 1. Do not begin to apply paint until unsatisfactory conditions have been corrected.
 2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. **General:** Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items, if necessary, to completely paint the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.
- B. **Cleaning:** Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. **Surface Preparation:** Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified.
 1. Provide barrier coats over incompatible primers or remove and reprime. Notify Architect in writing about anticipated problems using the specified finish-coat material with substrates primed by others.
 2. **Cementitious Materials:** Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen, as required, to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
 - a. Use abrasive blast-cleaning methods if recommended by the paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
 - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.
 3. **Wood:** Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
 - c. When transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately upon delivery.

4. Ferrous Metals: Clean ungalvanized ferrous metal surfaces that have not been shop-coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council (SSPC).
 - a. Blast steel surfaces clean as recommended by the paint system manufacturer and according to requirements of SSPC specification SSPC-SP 10.
 - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as the shop coat.
 5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Materials Preparation: Carefully mix and prepare paint materials according to manufacturer's directions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
 3. Use only thinners approved by the paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
1. Paint colors, surface treatments, and finishes are indicated in the schedules.
 2. Provide finish coats that are compatible with primers used.
 3. The number of coats and the film thickness required are the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce a smooth even surface according to the manufacturer's directions.

4. Apply additional coats if undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.
 5. The term exposed surfaces includes areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
 6. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 7. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.
 8. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
 10. Finish exterior doors on tops, bottoms, and side edges same as exterior faces.
 11. Sand lightly between each succeeding enamel or varnish coat.
 12. Omit primer on metal surfaces that have been shop-primed and touch-up painted.
- C. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- D. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to the manufacturer's directions.
1. Brushes: Use brushes best suited for the material applied.
 2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.
- E. Minimum Coating Thickness: Apply materials no thinner than the manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- F. Mechanical and Electrical Work: Painting mechanical and electrical work is limited to items exposed in mechanical equipment rooms and in occupied spaces.
- G. Mechanical items to be painted include, but are not limited to, the following:
1. Piping, pipe hangers, and supports.
 2. Heat exchangers.

3. Tanks.
 4. Ductwork.
 5. Insulation.
 6. Supports.
 7. Motors and mechanical equipment.
 8. Accessory items.
- H. Electrical items to be painted include, but are not limited to, the following:
1. Conduit and fittings.
 2. Switchgear.
- I. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- J. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime-coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- K. Pigmented (Opaque) Finishes: Completely cover to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- L. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with specified requirements.

3.4 FIELD QUALITY CONTROL

- A. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:
1. The Owner will engage the services of an independent testing agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.
 2. The testing agency will perform appropriate tests for the following characteristics as required by the Owner:
 - a. Quantitative materials analysis.
 - b. Abrasion resistance.
 - c. Apparent reflectivity.
 - d. Flexibility.
 - e. Washability.
 - f. Absorption.
 - g. Accelerated weathering.
 - h. Dry opacity.
 - i. Accelerated yellowness.
 - j. Recoating.

- k. Skinning.
- l. Color retention.
- m. Alkali and mildew resistance.

- 3. If test results show material being used does not comply with specified requirements, the Contractor may be directed to stop painting, remove noncomplying paint, pay for testing, repaint surfaces coated with rejected paint, and remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

- A. Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
 - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.7 EXTERIOR PAINT SCHEDULE

- A. General: Provide the following paint systems for the various substrates indicated.
- B. Concrete, Stucco, and Masonry (other than concrete masonry units):
 - 1. Lusterless (Flat) Acrylic Latex Finish: Two coats with total dry film thickness not less than 2.5 mils.
 - a. First and Second Coats: Exterior, polyvinyl acetate emulsion.
- C. Concrete Masonry Units:
 - 1. Lusterless (Flat) Acrylic Finish: Two coats over block filler with total dry film thickness not less than 2.5 mils, excluding the block filler.
 - a. Block Filler: High-performance, latex block filler.

- b. First and Second Coats: Exterior acrylic emulsion.
- D. Ferrous Metal: Primer is not required on shop-primed items.
 - 1. Full-Gloss Alkyd Enamel: Two finish coats over primer.
 - a. Primer: Synthetic rust-inhibiting primer.
 - b. First and Second Coats: Gloss alkyd enamel.
- E. Zinc-Coated Metal:
 - 1. High-Gloss Alkyd Enamel: Two finish coats over primer.
 - a. Primer: Galvanized metal primer.
 - b. First and Second Coats: Gloss alkyd enamel.
- F. Aluminum:
 - 1. High-Gloss Alkyd Enamel: Two finish coats over primer.
 - a. Primer: Alkyd-type primer.
 - b. First and Second Coats: Gloss alkyd enamel.

3.8 INTERIOR PAINT SCHEDULE

- A. General: Provide the following paint systems for the various substrates, as indicated.
- B. Concrete and Masonry (other than concrete masonry units):
 - 1. Lusterless (Flat) Latex Finish: Two coats.
 - a. First and Second Coats: Interior, flat, latex-based paint.
- C. Concrete Masonry Units:
 - 1. Lusterless (Flat) Emulsion Finish: Two finish coats over filled surface.
 - a. Block Filler: High-performance latex block filler.
 - b. First and Second Coats: Interior, flat, odorless, alkyd paint.
 - 2. Low-Luster, Acrylic-Enamel Finish: 2 finish coats over a block filler.

- a. Block Filler: High-performance latex block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 5.0 mils (0.13 mm).
 - 1.) Devco: 52902 Bloxfil 200 Interior/Exterior Latex Block Filler.
 - 2.) Fuller: 280-00 Interior/Exterior Latex Block Filler.
 - 3.) Glidden: 5317 Ultra-Hide Block Filler, Latex Interior-Exterior.
 - 4.) Moore: Moorcraft Interior & Exterior Masonry Latex Block Filler.
 - 5.) PPG: 6-7 Speedhide Interior/Exterior Masonry Latex Block Filler.
 - 6.) P & L: Z 98 Pro-Hide Plus Latex Block Filler.
- b. First and Second Coats: Low-luster (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils (0.071 mm).
- c. Finish Coat: Interior, semigloss, odorless, alkyd enamel.

D. Gypsum Drywall Systems:

1. Lusterless (Flat) Emulsion Finish: Two coats.
 - a. Primer: White, interior, latex-based primer.
 - b. Finish Coat: Interior, flat, latex-based paint.

E. Ferrous Metal:

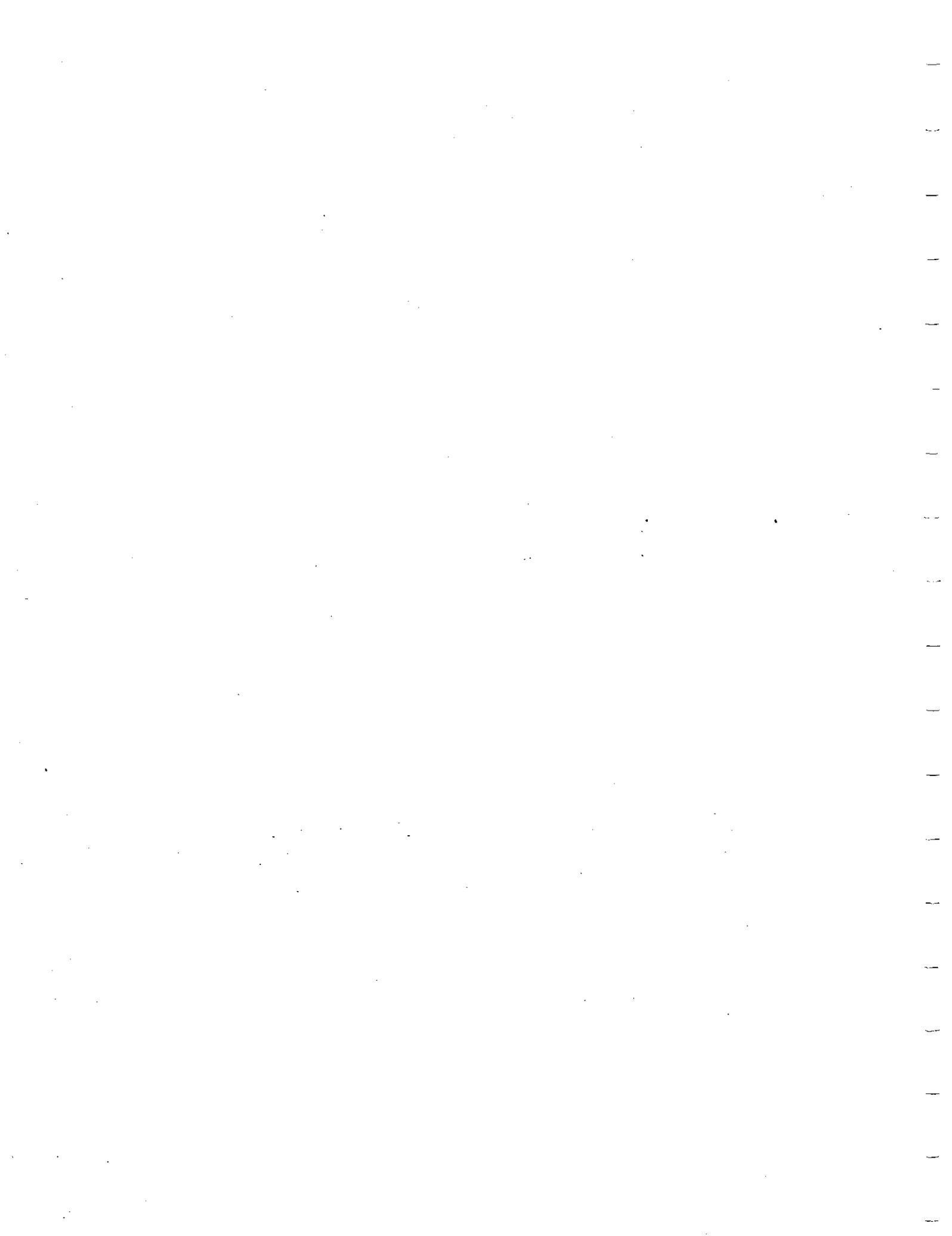
1. Semigloss Enamel Finish: Two coats over primer with total dry film thickness not less than 2.5 mils.
 - a. Primer: Synthetic, quick-drying, rust-inhibiting primer.
 - b. Undercoat: Interior enamel undercoat.
 - c. Finish Coat: Interior, semigloss, odorless, alkyd enamel.

F. Zinc-Coated Metal:

1. Lusterless (Flat) Finish: Two finish coats over primer with total dry film thickness not less than 2.5 mils.
2. Semigloss Finish: Two coats over primer, with total dry film thickness not less than 2.5 mils.
 - a. Primer: Galvanized metal primer.
 - b. Undercoat: Interior enamel undercoat.

- c. Finish Coat: Interior, semigloss, odorless, alkyd enamel.
- G. Cotton or Canvas Covering over Insulation:
- 1. Flat Latex Emulsion Size: Two coats. Add fungicidal agent to render fabric mildewproof.
 - a. First and Second Coats: Interior, flat, latex-based paint.

END OF SECTION 09900



SECTION 10650 - OPERABLE PANEL PARTITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Manually operated, paired panel partitions.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Concrete floor tolerances are specified in Division 3 Section "Cast-in-Place Concrete."
 - 2. Metal framing and supports are specified in Division 5 Section "Metal Fabrications."
 - 3. Wood framing and supports are specified in Division 6 Section "Miscellaneous Carpentry."
 - 4. Plenum barriers are specified in a Division 9 Section.
 - 5. Special finishes are specified in a Division 9 Section.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. Acoustical Performance: Provide operable panel partitions tested by a qualified independent testing agency for the following acoustic properties according to following test method:
 - 1. Sound Transmission Requirements: Operable panel partition assembly tested in a full-scale opening (14 feet by 9 feet) for laboratory sound transmission loss performance according to ASTM E 90, determined by ASTM E 413 and rated for an STC plus or minus 1 as follows:
 - a. Sound Transmission Class (STC): 43.

1.4 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data on physical characteristics, durability, and surface-burning characteristics for each type of operable panel partition and accessory specified.
- C. Shop drawings showing location and extent of operable panel partitions. Include plans, elevations, large-scale details of anchorages, and accessory items. Indicate unit conditions at openings, location and installation requirements for hardware, and direction of travel.
- D. Template drawings prepared by manufacturer showing location of items supported or anchored by permanent construction.
- E. Samples for initial selection purposes in the form of manufacturer's color charts showing a full range of colors, textures, and patterns available for each type panel finish face indicated.
 - 1. Include similar samples of material for panel edges and accessories involving color selection.
- F. Samples for verification purposes of each type of panel finish face indicated; in sets for each color, texture, and pattern specified, showing a full range of variations expected in these characteristics.
 - 1. Finish Face Fabric: Full-width sample, not less than 36 inches long, with specified treatments applied. Show complete pattern repeat.
 - 2. Panel Finish Face: Manufacturer's standard size unit, not less than 3 inches square.
 - 3. Panel Edge Material: Manufacturer's standard size unit, not less than 3 inches square.
- G. Product certificates signed by manufacturers of operable panel partitions certifying that their products comply with specified requirements.
- H. Maintenance data for panel finish face to include in the "Operating and Maintenance Manual" specified in Division 1.
 - 1. Precautions for cleaning materials and methods that could be detrimental to finishes and performance.
 - 2. Instructions for restretching sagging or distorted finish face.
- I. Acoustical test reports from and based on tests performed by a qualified independent testing agency certifying that the product and materials furnished comply with specified requirements.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who is certified in writing by the operable panel partition manufacturer as qualified to install the manufacturer's partition systems.
- B. Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to the Architect's satisfaction, based on an evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying progress of the Work.
- C. Surface-Burning Characteristics: Provide panel finish face with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or other testing and inspecting agencies acceptable to authorities having jurisdiction.
 - 1. Flame Spread: 25 or less.
 - 2. Smoke Developed: 50 or less.

1.6 EXTRA MATERIALS

- A. Extra Materials: Furnished from same production run as materials installed. Package materials with protective covering and identify with labels describing contents. Deliver extra materials to Owner.
 - 1. Finish Face Material: Furnish quantity of full-width, equal to 5 percent of linear yards installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Hufcor/AirWall.
 - 2. Modernfold, Inc.
 - 3. Panelfold, Inc.

2.2 OPERABLE PANEL PARTITIONS

- A. Panel Configuration: Operable panels as follows:
 - 1. Manually operated, paired panels.
- B. Panel Construction: Top reinforcing as required to support suspension components and as follows:
 - 1. Steel Frame: Particle board face sheets.
 - a. Steel Channel Frame: Not less than 0.0478 inch (18 gage).
- C. Panel Thickness: 2-3/4 inches.
- D. Hardware: Manufacturer's standard, finished to match exposed hardware on partition.

2.3 SUSPENSION SYSTEMS

- A. Carriers: Steel trolley system as required for type, size, and weight of partition for ease of operation.
- B. Suspension Tracks: Steel or aluminum with overhead supports of adjustable steel hanger rods designed for size and type of operable panel partition assembly indicated. Track deflection shall be no more than 0.10 inch between bracket supports.

2.4 FINISH SURFACE

- A. Materials: Manufacturer's standard mildew-resistant vinyl, complying with CFFA-W-101-A for Type II material.

2.5 SEALS

- A. Vertical Seals: Deep nesting, interlocking astragals mounted on each edge of panel with continuous vinyl acoustical seal.
- B. Horizontal Top Seals: Continuous-contact extruded vinyl or mechanical retractable vinyl-faced seal exerting consistent pressure on track when extended.
- C. Horizontal Bottom Seals: Retractable seal exerting positive pressure downward ensuring horizontal and vertical sealing and resisting panel movement.

1. Extension/retraction of bottom seal automatically actuated by movement of partition. Clearance between retracted seal and floor finish shall be not less than 1 inch.
- D. Final Closure: Positive lever activated mechanical closure expanding from panel edge to create a positive acoustical seal.
 1. Hinged communicating panel.

2.6 ACCESSORIES

- A. Pass Door: Built into panel. Hinges in finish to match other exposed hardware.
 1. Single Pass Door: 3'-0" by 6'-8", with the following options:
 - a. Door Seals: Sweep seals.
 - b. Concealed door closer.
 - c. Keyed lock.
- B. Surface-mounted work surfaces in quantities, placement, and size indicated. Color of surface as selected by Architect from manufacturer's standard color selections.
 1. Surface: Porcelain steel marker/projection surface.
 2. Surface: Vinyl-covered natural cork tackboard.
 3. Size: 4'-0" by 4'-0".

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine flooring, structural support, and opening for compliance with requirements for installation tolerances and other conditions affecting performance of operable panel partitions.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install operable panel partitions and accessories complying with ASTM E 557 after other finishing operations including painting, have been completed.

- B. Install operable panel partitions that conform to Drawings and approved shop drawings and in strict compliance with manufacturer's written installation instructions.
- C. Match operable panel partitions for color and pattern by installing partitions from cartons in same sequence as manufactured and packaged, if so numbered. Broken, cracked, chipped, or deformed panels are not acceptable.

3.3 ADJUSTING

- A. Lubricate bearings and sliding parts; adjust to ensure smooth, easy operation.

3.4 DEMONSTRATION

- A. Startup Services: Provide the services of a factory-authorized service representative to provide start-up service and to demonstrate and train Owner's representative.
 - 1. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.
 - 2. Train Owner's representative on procedures and schedules related to startup and shutdown, troubleshooting, servicing, and preventative maintenance.
 - 3. Review data in the "Operating and Maintenance Manual."

END OF SECTION 10650

SECTION 11132 - PROJECTION SCREENS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Electrically operated front projection screens.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 5 Section "Metal Fabrications" for suspension systems for projection screens.
 - 2. Division 16 Sections for electrical wiring, connections, and installation of remote control switches for electrically operated projection screens.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of screen specified.
- C. Wiring diagram for electrically operated units.
- D. Shop drawings showing layout and types of projection screens. Show the following:
 - 1. Location of screen centerline.
 - 2. Location of wiring connections.
 - 3. Connections to suspension systems for pendant-mounted and recess-mounted screens.
 - 4. Anchorage details.
 - 5. Accessories.
 - 6. Frame details for front projection screens.

1.4 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain each type of projection screen required from a single manufacturer as a complete unit, including necessary mounting hardware and accessories.
- B. Coordination of Work: Coordinate layout and installation of projection screens with other construction supported by, or penetrating through, ceilings, including light fixtures, HVAC equipment, fire-suppression system, and partitions.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver projection screens until building is enclosed, other construction within spaces where screens will be installed is substantially complete, and installation of screens is ready to take place.
- B. Protect screens from damage during delivery, handling, storage, and installation.

PART 2 - PRODUCTS

2.1 PROJECTION SCREEN SURFACES, GENERAL

- A. Measurement of Gain of Screen Viewing Surface: Measure gain of screen viewing surface against that of a magnesium carbonate surface by means of a photogoniometer using test methods and test apparatus per FS GG-S-00172D(1) for determining effect of reflected light at various viewing angles on screen surfaces. Ratings of 1.0 refer to those viewing surfaces having a reflectivity equal to the magnesium carbonate surface.
- B. Material and Viewing Surface of Front Projection Screens: Obtain screens manufactured from mildew- and flame-resistant fabric of type indicated for each type of screen specified and complying with the following requirements:
 - 1. Glass beaded viewing surface with minimum gain characteristics complying with FS GG-S-00172D(1) for Type C screen surface.
 - a. Application: Provide glass beaded surfaces where indicated.
 - 2. Seamless Construction: Provide screens in sizes indicated without seams.
 - 3. Mildew Resistance: Provide mildew-resistant screen fabrics as determined by Federal Standard 191A/5760.
 - 4. Fire Performance Characteristics: Provide projection screen fabrics identical to those materials that have undergone testing and passed requirements for flame resistance as indicated below:
 - a. NFPA 701 per small-scale test.
 - b. Federal Standard 191A/5903 for test method. FS GG-S-00172D(1) for flame resistance.

2.2 ELECTRICALLY OPERATED FRONT PROJECTION SCREENS

- A. General: Provide manufacturer's standard UL-listed and UL-marked units consisting of case, screen, motor, controls, mounting accessories, and other components required for a complete installation and to comply with requirements indicated for screen surface and controls and for case, motor, and screen under description of operation and type. Remotely control operation of each screen to comply with the following:
1. Single Station Control: Three-position, UL-listed control switch for each screen with metal device box and cover plate for flush wall mounting and for connection to 120 V a.c. power supply.
- B. End-Mounted-Motor-Operated Screens with Automatic Ceiling Closure: Units designed and fabricated for recessed installation in ceiling with bottom of case composed of two panels fully enclosing screen and motor, one panel hinged and connected to drive mechanism to open and close automatically when screen is lowered and fully raised and the other panel removable or openable for access to interior of case; and complying with the following requirements:
1. Screen Case: Wood sides and top with metal-lined motor compartment and wood or aluminum bottom panels, factory-primed and constructed as follows:
 - a. Offset mount bottom panels to case in position where their bottom surfaces will align flush with finished surface of adjoining ceiling and the bottom edges of case surrounding panels will be recessed by the depth of, and concealed behind, overlapping ceiling finish.
 - b. Provide single or double top as standard with manufacturer.
 2. Motor: Instant reversing, gear drive motor of size and capacity recommended by screen manufacturer with permanently lubricated ball bearings, automatic thermal overload protection, preset limit switches to automatically stop screen in "up" and "down" positions, and positive stop action to prevent coasting. Locate motor in its own compartment as follows:
 - a. On right end of screen, unless otherwise indicated.
 3. Screen: As indicated below, with top edge mounted on, and securely anchored to, rigid metal roller supported by self-aligning bearings in brackets.
 - a. Material: Vinyl-coated glass fiber fabric.
 - b. Size of Viewing Surface: 6' x 8'
 - c. Provide extra drop length of 2 feet to comply with the following requirements for fabric color and location of drop length:
 - 1) Color: Same as viewing surface.
 - 2) Location: At top of screen.
- C. Products: Subject to compliance with requirements, provide one of the following:
1. End-Mounted-Motor-Operated Screens with Automatic Ceiling Closure:

- a. "Executive Electrol," Da-Lite Screen Co., Inc.
- b. "Ambassador," Draper Shade & Screen Co., Inc.
- c. "Series 900," Bret Ford.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install projection screens at locations indicated in compliance with screen manufacturer's instructions.
 1. Test electrically operated units to verify that screen, controls, limit switches, closure and other operating components are in optimum functioning condition.

3.2 PROTECTION AND CLEANING

- A. Protect projection screens after installation from damage during construction. If despite such protection damage occurs, remove and replace damaged components or entire unit as required to provide units in their original, undamaged condition.

END OF SECTION 11132