

**SECTION 09 21 16****GYPSUM BOARD ASSEMBLIES****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Performance criteria for gypsum board assemblies.
- B. Metal stud wall framing.
- C. Metal channel ceiling framing.
- D. Acoustic insulation.
- E. Gypsum wallboard.
- F. Joint treatment and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Wood blocking product and execution requirements.
- B. Section 07 90 05 - Joint Sealers: Acoustic sealant.

**1.03 REFERENCE STANDARDS**

- A. AISI SG02-1 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute. (replaced SG-971)
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- C. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- D. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members.
- E. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- F. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- G. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.
- H. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
- I. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- J. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- K. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
- L. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- M. ASTM E413 - Classification for Rating Sound Insulation.
- N. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association.

- O. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc..

#### **1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.
- C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.
- D. Control Joint Layout: Submit plan for approval prior to beginning ceiling soffit installation.

#### **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum 5 years of documented experience.

### **PART 2 PRODUCTS**

#### **2.01 GYPSUM BOARD ASSEMBLIES**

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
- B. Interior Partitions: Provide completed assemblies with the following characteristics:
  - 1. Acoustic Attenuation: STC of 55-59 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- C. Fire Rated Assemblies: Provide completed assemblies with the following characteristics:
  - 1. Fire Rated Partitions: UL listed assembly No. U419; 1 and 2 hour rating.
  - 2. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL Fire Resistance Directory.

#### **2.02 METAL FRAMING MATERIALS**

- A. Manufacturers - Metal Framing, Connectors, and Accessories:
  - 1. Clarkwestern Dietrich Building Systems LLC: [www.clarkdietrich.com](http://www.clarkdietrich.com).
  - 2. Dietrich Metal Framing: [www.dietrichindustries.com](http://www.dietrichindustries.com).
  - 3. MarinoWare: [www.marinoware.com](http://www.marinoware.com).
  - 4. Substitutions: Refer to General Conditions section for substitution procedures..
- B. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
  - 1. Studs: "C" shaped with flat or formed webs with knurled faces.
  - 2. Runners: U shaped, sized to match studs.
  - 3. Ceiling Channels: C shaped.
  - 4. Furring: Hat-shaped sections, minimum depth of 7/8 inch.
- C. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
- D. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
  - 1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.

2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.

### 2.03 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
  1. American Gypsum: [www.americangypsum.com](http://www.americangypsum.com).
  2. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
  3. Georgia-Pacific Gypsum LLC: [www.gp.com/gypsum](http://www.gp.com/gypsum).
  4. National Gypsum Company: [www.nationalgypsum.com](http://www.nationalgypsum.com).
  5. USG Corporation: [www.usg.com](http://www.usg.com).
  6. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
  1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
  2. Thickness:
    - a. Vertical Surfaces: 5/8 inch.
    - b. Ceilings: 5/8 inch.
    - c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
  3. Paper-Faced Products:
    - a. American Gypsum; EagleRoc Regular Gypsum Wallboard and FireBloc Type X Gypsum Wallboard.
    - b. CertainTeed Corporation; ProRoc Brand Gypsum Board.
    - c. Georgia-Pacific Gypsum LLC; ToughRock Gypsum Wallboard.
    - d. National Gypsum Company; Gold Bond Brand Gypsum Wallboard.
    - e. USG Corporation; Sheetrock Brand Gypsum Panels.
    - f. Substitutions: Refer to General Conditions section for substitution procedures..
- C. Ceiling Board: Special sag-resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
  1. Application: Ceilings, unless otherwise indicated.
  2. Thickness: 5/8 inch.
  3. Edges: Tapered.
  4. Products:
    - a. American Gypsum; Interior Ceiling Board.
    - b. CertainTeed Corporation; ProRoc Interior Ceiling.
    - c. Georgia-Pacific Gypsum LLC; ToughRock CD Ceiling Board.
    - d. National Gypsum Company; High Strength Brand Ceiling Board.
    - e. USG Corporation; Sheetrock Brand Sag-Resistant Interior Gypsum Ceiling Board.
    - f. Substitutions: Refer to General Conditions section for substitution procedures..

### 2.04 ACCESSORIES

- A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Thickness: 3 inch.
- B. Acoustic Sealant: As specified in Section 07 90 05.
- C. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless otherwise indicated.
  1. Types: As detailed or required for finished appearance.
  2. Special Shapes: In addition to conventional cornerbead and control joints, provide U-bead at exposed panel edges.
  3. Manufacturers - Finishing Accessories:
    - a. Same manufacturer as framing materials.
    - b. Substitutions: Refer to General Conditions section for substitution procedures..

- D. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
  - 1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
  - 2. Ready-mixed vinyl-based joint compound.
- E. Screws for Attachment to Steel Members Less Than 0.03 inch In Thickness, to Wood Members, and to Gypsum Board: ASTM C1002; self-piercing tapping type; cadmium-plated for exterior locations.
- F. Screws for Attachment to Steel Members From 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws for application of gypsum board to loadbearing steel studs.
- G. Nails for Attachment to Wood Members: ASTM C514.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that project conditions are appropriate for work of this section to commence.

#### **3.02 FRAMING INSTALLATION**

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
  - 1. Level ceiling system to a tolerance of 1/1200.
  - 2. Laterally brace entire suspension system.
- C. Studs: Space studs as indicated.
  - 1. Extend partition framing to structure where indicated and to ceiling in other locations.
  - 2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
  - 3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
- D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs. Diagonally brace jack studs to structure from top of ceiling.
- E. Standard Wall Furring: Install at masonry walls scheduled to receive gypsum board, not more than 4 inches from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 16 inches on center.
- F. Blocking: Install wood blocking for support of:
  - 1. Wall mounted cabinets.
  - 2. Wall mounted door hardware.
  - 3. Wall mounted shelf standards.
  - 4. Wall mounted equipment including but not limited to Whiteboards, coat hooks, acoustic panels, fire extinguisher cabinets, electronic display units, etc. and furnishings and equipment items provided by the Owner.

#### **3.03 ACOUSTIC ACCESSORIES INSTALLATION**

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
  - 1. Place one bead continuously on substrate before installation of perimeter framing members.
  - 2. In non-fire-rated construction, seal around all penetrations by conduit, pipe, ducts, and rough-in boxes.

### 3.04 BOARD INSTALLATION

- A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
  - 1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- C. Double-Layer Non-Rated: Use gypsum board for first layer, placed parallel to framing or furring members, with ends and edges occurring over firm bearing. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.
- D. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- E. Installation on Wood Framing: For rated assemblies, comply with requirements of listing authority. For non-rated assemblies, install as follows:
  - 1. Single-Layer Applications: Screw attachment.

### 3.05 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
  - 1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
  - 2. Submit control joint plan for approval before beginning installation.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

### 3.06 JOINT TREATMENT

- A. Paper Faced Gypsum Board: Use paper joint tape, bedded with ready-mixed vinyl-based joint compound and finished with ready-mixed vinyl-based joint compound.
- B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
  - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
- C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.

### 3.07 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

**END OF SECTION**



**SECTION 09 51 00****ACOUSTICAL CEILINGS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 90 05 - Joint Sealers: Acoustical sealant.
- B. Section 23 37 00 - Registers, Grilles and Diffusers: Air diffusion devices in ceiling.
- C. Section 23 37 13 - Louvers: Air diffusion devices in ceiling.
- D. Section 26 51 00 - Lighting Fixtures: Light fixtures in ceiling system.

**1.03 REFERENCE STANDARDS**

- A. ASTM C635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
- C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.
- D. ASTM E1264 - Standard Classification for Acoustical Ceiling Products.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

**1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on suspension system components.
- C. Samples: Submit two samples 6x6 inch in size illustrating material and finish of acoustical units.
- D. Manufacturer's Installation Instructions: Indicate special procedures.
- E. Maintenance Materials: Furnish the following for Marysville Public Library's use in maintenance of project.
  - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
  - 2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

**1.06 QUALITY ASSURANCE**

- A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

### 1.07 FIELD CONDITIONS

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

## PART 2 PRODUCTS

### 2.01 ACOUSTICAL UNITS

- A. Manufacturers:
  - 1. Armstrong World Industries, Inc: [www.armstrong.com](http://www.armstrong.com).
- B. Acoustical Units - General: ASTM E1264, Class A.
  - 1. Acoustical Tile Type APC-1: Painted mineral fiber, ASTM E1264 Type III, with to the following characteristics:
    - a. Size: 24 x 24 inches.
    - b. Thickness: 3/4 inches.
    - c. Composition: Mineral Fiber.
    - d. Light Reflectance: 0.86 percent.
    - e. NRC Range: .70 to .74.
    - f. Ceiling Attenuation Class (CAC): 35.
    - g. Edge: Square Tegular for interface with 15/16" exposed tee support grid..
  - 2. Surface Color: White
    - a. Surface Pattern: Fine Smooth.
    - b. Product: Cirrus Tegular, No. 589, match existing by Armstrong World Industries.
    - c. Suspension System: Exposed Tee grid Type 1.

### 2.02 SUSPENSION SYSTEM(S)

- A. Manufacturers:
  - 1. Armstrong World Industries, Inc: [www.armstrong.com](http://www.armstrong.com).
- B. Suspension Systems - General: ASTM C635; die cut and interlocking components, with stabilizer bars, clips, splices, and perimeter moldings as required.
- C. Exposed Steel Suspension System Type 1: Formed steel, commercial quality cold rolled; intermediate-duty.
  - 1. Profile: Tee; 9/16 inch wide face.
  - 2. Construction: Double web.
  - 3. Finish: White painted.

### 2.03 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Perimeter Moldings: Same material and finish as grid.
  - 1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.
- C. Touch-up Paint: Type and color to match acoustical and grid units.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

### 3.02 INSTALLATION - SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Locate system on room axis according to reflected plan.
- D. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
- E. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.
- F. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- G. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- I. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- J. Do not eccentrically load system or induce rotation of runners.
- K. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
  - 1. Use longest practical lengths.
  - 2. Overlap and rivet corners.

### 3.03 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Lay directional patterned units with pattern parallel to longest room axis.
- D. Fit border trim neatly against abutting surfaces.
- E. Install units after above-ceiling work is complete.
- F. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- G. Cutting Acoustical Units:
  - 1. Cut to fit irregular grid and perimeter edge trim.
  - 2. Make field cut edges of same profile as factory edges.
  - 3. Double cut and field paint exposed reveal edges.

### 3.04 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

**END OF SECTION**



**SECTION 09 65 00****RESILIENT FLOORING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Resilient tile flooring.
- B. Resilient base.
- C. Installation accessories.

**1.02 REFERENCE STANDARDS**

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
- B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- C. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile.
- D. ASTM F1861 - Standard Specification for Resilient Wall Base.
- E. ASTM F1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing.
- F. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; National Fire Protection Association.
- G. RFCI - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute.

**1.03 SUBMITTALS**

- A. Refer to General Conditions section for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Selection Samples: Submit manufacturer's complete set of color samples for GPDGroup/Jester Jones Schifer Architects's initial selection.
- D. Verification Samples: Submit two samples, 4x4 inch in size illustrating color and pattern for each resilient flooring product specified.
- E. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- F. Maintenance Materials: Furnish the following for Marysville Public Library's use in maintenance of project.
  - 1. Refer to General Conditions section for required maintenance material allowance guidelines.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Protect roll materials from damage by storing on end.

**1.05 FIELD CONDITIONS**

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

**PART 2 PRODUCTS****2.01 TILE FLOORING**

- A. Luxury Vinyl Tile: Printed film type, with transparent or translucent wear layer, and backing:
  - 1. Minimum Requirements: Comply with ASTM F1700, of Class corresponding to type specified.
  - 2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
  - 3. Size: 18x18 inch.
  - 4. Total Thickness: 0.118 inch min.
  - 5. Pattern: Match existing.
  - 6. Manufacturers:
    - a. Gerflor; Product Pattern Mineral, Trendy, 0298, Concrete Teramo

**2.02 RESILIENT BASE**

- A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
  - 1. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
  - 2. Height: 4" inch.
  - 3. Thickness: 0.125 inch thick.
  - 4. Finish: Satin.
  - 5. Length: Roll.
  - 6. Color: Color as selected from manufacturer's complete range of available colors.
  - 7. Manufacturers:
    - a. Roppe Corp; Product Pinnacle Plus #20: [www.roppe.com](http://www.roppe.com). Match existing.

**2.03 ACCESSORIES**

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
- C. Moldings, Transition and Edge Strips: Same material as flooring.

**PART 3 EXECUTION****3.01 EXAMINATION**

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Verify that concrete sub-floor surfaces are dry enough and ready for resilient flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F710; obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
- D. Verify that required floor-mounted utilities are in correct location.

**3.02 PREPARATION**

- A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI Recommended Work Practices for Removal of Resilient Floor Coverings.
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

- C. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
- D. Prohibit traffic until filler is cured.
- E. Clean substrate.
- F. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed. Apply primer to \_\_\_\_\_ surfaces.

### 3.03 INSTALLATION

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's instructions.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.
- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
  - 1. Resilient Strips: Attach to substrate using adhesive.
- H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- I. Install flooring in recessed floor access covers, maintaining floor pattern.
- J. Install feature strips where indicated.

### 3.04 TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.
- B. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

### 3.05 RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 48 inches between joints.
- B. Miter internal corners. At external corners, 'V' cut back of base strip to 2/3 of its thickness and fold. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

### 3.06 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's instructions.

### 3.07 PROTECTION

- A. Prohibit traffic on resilient flooring for 48 hours after installation.

**END OF SECTION**



**SECTION 09 68 13****TILE CARPETING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Carpet tile, fully adhered.
- B. Removal of existing carpet tile.

**1.02 REFERENCE STANDARDS**

- A. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.
- B. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
- C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- D. CRI (CIS) - Carpet Installation Standard; Carpet and Rug Institute.
- E. CRI (GLA) - Green Label Testing Program - Approved Adhesive Products; Carpet and Rug Institute.
- F. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; National Fire Protection Association.

**1.03 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- C. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.
- D. Submit two, 6 inch long samples of edge strip.
- E. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
- F. Maintenance Materials: Furnish the following for Marysville Public Library's use in maintenance of project.
  - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
  - 2. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum ten years documented experience.
- B. Installer Qualifications: Company specializing in installing carpet with minimum 3 years experience.

**1.05 FIELD CONDITIONS**

- A. Store materials in area of installation for minimum period of 24 hours prior to installation.

**PART 2 PRODUCTS****2.01 MANUFACTURERS**

- A. CPT-1; Product Patcraft Razzle Dazzle.

## 2.02 MATERIALS

- A. Carpet Tile Type CPT-1: Modular, manufactured in one color dye lot.
  - 1. Product: Razzle Dazzle manufactured by Patcraft.
  - 2. Tile Size: 24" x 24" inch, nominal.
  - 3. Thickness: 6/32 inch.
  - 4. Construction: Multi-Level Pattern Loop
  - 5. Dye Method: 81% Solution Dyed, 19% Yarn Dyed
  - 6. Protective Treatments: SSP Shaw Soil Protection
  - 7. Color: Match existing carpet tiles.
  - 8. Pattern: No repeat.
  - 9. Critical Radiant Flux: Class I, Minimum of 0.22 watts/sq cm, when tested in accordance with ASTM E648 or NFPA 253.
  - 10. Surface Flammability Ignition: Pass ASTM D2859 (the "pill test").
  - 11. Static Control Fiber: AATCC - 134.
  - 12. Max. Electrostatic Charge: Less than 3.5 Kv. at 20 percent relative humidity.
  - 13. Gage: 1/12 inch.
  - 14. Stitches: 10.0 Oz.
  - 15. Pile Weight: 20.
  - 16. Pile Density: 6,316
  - 17. Yarn System: 82.5% Nylon, 17.5% Polyester
  - 18. Primary Backing Material: Non-Woven Synthetic.
  - 19. Secondary Backing Material: Eco Worx tile.

## 2.03 ACCESSORIES

- A. Sub-Floor Filler: White premix latex; type recommended by flooring material manufacturer.
- B. Edge Strips: Embossed aluminum, color as selected by Architect.
- C. Adhesives: Acceptable to carpet tile manufacturer, compatible with materials being adhered; maximum VOC of 50 g/L; CRI Green Label certified; in lieu of labeled product, independent test report showing compliance is acceptable.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
- B. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
- C. Verify that concrete sub-floor surfaces are dry enough and ready for flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F710; obtain instructions if test results are not within limits recommended by carpet tile manufacturer and adhesive materials manufacturer.

### 3.02 PREPARATION

- A. Remove existing carpet, carpet cushion, and any other floor finishes including adhesives and properly prepare for new floor finishes.
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- C. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
- D. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.

- E. Vacuum clean substrate.

### **3.03 INSTALLATION**

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install carpet tile in accordance with manufacturer's instructions and CRI Carpet Installation Standard.
- C. Blend carpet from different cartons to ensure minimal variation in color match.
- D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- E. Lay carpet tile in alternating pattern, with pile direction alternating 90 degrees to next unit, set edges parallel to building lines.
- F. Locate change of color or pattern between rooms under door centerline.
- G. Fully adhere carpet tile to substrate.
- H. Trim carpet tile neatly at walls and around interruptions.
- I. Complete installation of edge strips, concealing exposed edges.

### **3.04 CLEANING**

- A. Remove excess adhesive without damage, from floor, base, and wall surfaces.
- B. Clean and vacuum carpet surfaces.

**END OF SECTION**



**SECTION 09 90 00****PAINTING AND COATING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints, stains, varnishes, and other coatings.
- C. Materials for backpriming woodwork.
- D. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
  - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
  - 2. Exposed surfaces of steel lintels and ledge angles.
  - 3. Mechanical and Electrical:
    - a. In finished areas, paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
    - b. In finished areas, paint shop-primed items.
    - c. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
    - d. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- E. Do Not Paint or Finish the Following Items:
  - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
  - 5. Stainless steel, anodized aluminum, bronze, terne, and lead items.
  - 6. Marble, granite, slate, and other natural stones.
  - 7. Floors, unless specifically so indicated.
  - 8. Ceramic and other tiles.
  - 9. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
  - 10. Glass.
  - 11. Acoustical materials, unless specifically so indicated.
  - 12. Concealed pipes, ducts, and conduits.

**1.02 RELATED REQUIREMENTS**

- A. Section 05 50 00 - Metal Fabrications: Shop-primed items.

**1.03 DEFINITIONS**

- A. Conform to ASTM D16 for interpretation of terms used in this section.

**1.04 REFERENCE STANDARDS**

- A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.
- B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.

**1.05 SUBMITTALS**

- A. Refer to General Conditions section for submittal procedures.
- B. Product Data: Provide data on all finishing products, including VOC content.
- C. Samples: Submit two paper chip samples, 3 x 3 inch in size illustrating range of colors and textures available for each surface finishing product scheduled.
- D. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.
- E. Manufacturer's Instructions: Indicate special surface preparation procedures.
- F. Maintenance Materials: Furnish the following for Marysville Public Library's use in maintenance of project.
  - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
  - 2. Extra Paint and Coatings: 1 gallon of each color; store where directed.
  - 3. Label each container with color in addition to the manufacturer's label.

**1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

**1.08 FIELD CONDITIONS**

- A. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- B. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- C. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

**PART 2 PRODUCTS****2.01 MANUFACTURERS**

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Provide all paint and coating products from the same manufacturer to the greatest extent possible.
- C. Paints:
  - 1. Benjamin Moore & Co: [www.benjaminmoore.com](http://www.benjaminmoore.com).
  - 2. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com).
  - 3. Sherwin Williams: [www.sherwinwilliams.com](http://www.sherwinwilliams.com).
- D. Transparent Finishes:
  - 1. Benjamin Moore & Co.: [www.benjaminmoore.com](http://www.benjaminmoore.com).
  - 2. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com).
  - 3. Sherwin Williams: [www.sherwinwilliams.com](http://www.sherwinwilliams.com).

- E. Stains:
  1. Benjamin Moore & Co.: [www.benjaminmoore.com](http://www.benjaminmoore.com).
  2. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com).
  3. Sherwin Williams: [www.sherwinwilliams.com](http://www.sherwinwilliams.com).
- F. Primer Sealers:
  1. Benjamin Moore & Co.: [www.benjaminmoore.com](http://www.benjaminmoore.com).
  2. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com).
  3. Sherwin Williams: [www.sherwinwilliams.com](http://www.sherwinwilliams.com).
- G. Block Fillers:
  1. Benjamin Moore & Co.: [www.benjaminmoore.com](http://www.benjaminmoore.com).
  2. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com).
  3. Sherwin Williams: [www.sherwinwilliams.com](http://www.sherwinwilliams.com).
- H. Refer to General Conditions section for substitution procedures.

## 2.02 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
  1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
  3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
  4. Supply each coating material in quantity required to complete entire project's work from a single production run.
  5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Flammability: Comply with applicable code for surface burning characteristics.
- D. Colors: To be selected from manufacturer's full range of available colors.
  1. Selection to be made by GPDGroup/Jester Jones Schifer Architects after award of contract.
  2. Allow for minimum of ten colors for each system, unless otherwise indicated, without additional cost to Marysville Public Library.
  3. Extend colors to surface edges; colors may change at any edge as directed by GPDGroup/Jester Jones Schifer Architects.
  4. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

## 2.03 PAINT SYSTEMS - INTERIOR

- A. Paint WI-OP-3A - Wood, Opaque, Alkyd, 3 Coat:
  1. One coat alkyd primer sealer.
  2. Eggshell: Two coats of alkyd enamel; \_\_\_\_\_.
- B. Paint WI-TR-VS - Wood, Transparent, Varnish, Stain:
  1. Applications include but are not limited to trim.
  2. Filler coat (for open grained wood only).
  3. One coat of stain; MPI #90.
  4. Gloss: One coat of varnish; MPI #56.

5. Satin: One coat of varnish; MPI #57.
- C. Paint CI-OP-3L - Concrete/Masonry, Opaque, Latex, 3 Coat:
  1. One coat of block filler MPI #4.
  2. Semi-gloss: Two coats of latex enamel; MPI #53.
- D. Paint MI-OP-2L - Ferrous Metals, Primed, Latex, 2 Coat:
  1. Touch-up with latex primer MPI #19.
  2. Gloss: Two coats of latex enamel; MPI #154.
  3. Semi-gloss: Two coats of latex enamel; MPI #153.
- E. Paint Mgl-OP-3L - Galvanized Metals, Latex, 3 Coat:
  1. Applications include but are not limited to doors, frames, railings, and piping.
  2. One coat galvanize primer MPI #26.
  3. Semi-gloss: Two coats of latex enamel; MPI #11.
- F. Paint Mal-OP-3A - Aluminum, Unprimed, Alkyd, 3 Coat:
  1. Applications include but are not limited to frames, sash, sills, flashing, handrails, railings, and posts.
  2. One coat etching primer MPI #80.
  3. Semi-gloss: Two coats of alkyd enamel; MPI #47.
- G. Paint GI-OP-3LA - Gypsum Board/Plaster, Latex-Acrylic, 3 Coat:
  1. Applications include but are not limited to walls, ceilings, soffits, and bulkheads.
  2. One coat of MPI #50 primer sealer.
  3. Eggshell: Two coats of latex-acrylic enamel; MPI #139.
- H. Paint FI-OP-3A - Fabrics/Insulation Jackets, Alkyd, 3 Coat:
  1. One coat of MPI #50 primer sealer.
  2. Eggshell: Two coats of alkyd enamel; MPI #43.

#### **2.04 ACCESSORY MATERIALS**

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  1. Gypsum Wallboard: 12 percent.
  2. Plaster and Stucco: 12 percent.
  3. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
  4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

#### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- H. Insulated Coverings to be Painted: Remove dirt, grease, and oil from canvas and cotton.
- I. Concrete Floors and Traffic Surfaces to be Painted: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- J. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- K. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- L. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-PC 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).
- M. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- N. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
- O. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- P. Interior Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.
- Q. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.
- R. Metal Doors and Frames to be Painted: Prime metal door top and bottom edge surfaces.

**3.03 APPLICATION**

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's instructions.
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance.
- F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- G. Sand wood and metal surfaces lightly between coats to achieve required finish.
- H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- I. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- J. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

**3.04 FIELD QUALITY CONTROL**

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection.

**3.05 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

**3.06 PROTECTION**

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

**3.07 SCHEDULE - PAINT SYSTEMS**

- A. Concrete, Concrete Block, Brick Masonry: Finish all surfaces exposed to view.
  - 1. Interior: CI-OP-3L, semi-gloss.
- B. Gypsum Board: Finish all surfaces exposed to view.
  - 1. Interior Ceilings and Bulkheads: GI-OP-3L, flat.
  - 2. Interior Walls: GI-OP-3A, semi-gloss.
- C. Wood: Finish all surfaces exposed to view.
  - 1. Interior trim and frames: WI-OP-3A, semi-gloss.
- D. Wood Doors: WI-TR-VS. All surfaces and edges.
- E. Steel Doors and Frames: Finish all surfaces and edges; MI-OP-3A, gloss.
- F. Steel Fabrications: Finish all surfaces exposed to view.
- G. Aluminum: Finish all surfaces exposed to view.
- H. Galvanized Steel: Finish all surfaces exposed to view.

- I. Shop-Primed Metal Items: Finish all surfaces exposed to view.
- J. Pipe and Duct Insulation Jackets: Finish all surfaces exposed to view; FI-OP-2L, flat.
- K. Exterior Pavement Markings:

**END OF SECTION**

