

PRELIMINARY PROJECT DESCRIPTION

SAMUEL M. GANTNER ELEMENTARY SCHOOL

1305 E. Vine St., Lodi, CA 95240

3431010-100

Lodi Unified School District

1305 E. Vine St., Lodi, CA 95240



September 30, 2025

HMC Architects

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LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

TABLE OF CONTENTS

INTRODUCTION

10 - PROJECT DESCRIPTION

1030 - Project Criteria

A - SUBSTRUCTURE

A10 - FOUNDATIONS

A1010 - Standard Foundations

A40 - SLABS-ON-GRADE

A4010 - Standard Slabs-on-Grade

B - SHELL

B10 - SUPERSTRUCTURE

B1020 - Roof Construction

B20 - EXTERIOR VERTICAL ENCLOSURES

B2010 - Exterior Walls

B2020 - Exterior Windows

B2050 - Exterior Doors and Grilles

B30 - EXTERIOR HORIZONTAL ENCLOSURES

B3010 - Roofing

C - INTERIORS

C10 - INTERIOR CONSTRUCTION

C1010 - Interior Partitions

C1020 - Interior Windows

C1030 - Interior Doors

C1070 - Suspended Ceiling Construction

C1090 - Interior Specialties

C20 - INTERIOR FINISHES

C2010 - Wall Finishes

C2030 - Flooring

C2050 - Ceiling Finishes

D - SERVICES

D20 - PLUMBING

D2010 - Domestic Water Distribution

D2030 - Building Support Plumbing Systems

D30 - HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

D3020 - Heating Systems

D3050 - Facility HVAC Distribution Systems

D40 - FIRE PROTECTION

NOT USED

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Table of Contents
TOC - 1

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D50 - ELECTRICAL

D5020 - Electrical Service and Distribution
D5030 - General Purpose Electrical Power
D5040 - Lighting

D60 - COMMUNICATIONS

D6010 - Data Communications
D6020 - Voice Communications
D6030 - Audio-Video Communication

D70 - ELECTRONIC SAFETY AND SECURITY

D7010 - Access Control and Intrusion Detection
D7030 - Electronic Surveillance
D7050 - Detection and Alarm

D80 - INTEGRATED AUTOMATION

NOT USED

E - EQUIPMENT AND FURNISHINGS

E10 - EQUIPMENT

E1070 - Entertainment and Recreational Equipment

E20 - FURNISHINGS

E2010 - Fixed Furnishings

F - SPECIAL CONSTRUCTION AND DEMOLITION

NOT USED

G - BUILDING SITEWORK

NOT USED

Z - GENERAL

NOT USED

LUSD DESIGN SPECIFICATION GUIDELINES

LUSD TELECOMMUNICATIONS SPECIFICATIONS AND INSTALLATION STANDARDS

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

10 - PROJECT DESCRIPTION

1030 Project Criteria

1030.001 Preferred Products List

- A. Refer to Lodi USD Design Specification Guidelines for products and materials that establish a minimum level of quality for products that must be used. Use either the product or material listed in the Guidelines, or a comparable product from an approved manufacturer.

1030.002 Building Envelope Control Layers: Buildings shall be designed to ensure continuity within water, air, vapor diffusion, and thermal control layers and their continuity between assemblies.

1030.003 Energy Code Requirements

- A. Prescriptive Requirements: Where indicated, prescriptive energy code requirements are used throughout this document to define minimum energy performance requirements. Use prescriptive energy code requirements indicated or an alternate energy use compliance path as allowed in the California Energy Code.
- B. Air Barrier Continuity: Buildings shall be designed with a combination of interconnected materials and assemblies joined and sealed together to provide a continuous barrier to air leakage through the building envelope that separates conditioned from unconditioned space, or that separates adjoining conditioned spaces of different occupancies or uses in accordance with the California Energy Code.

1030.004 Sustainable Design Requirements

- A. CALGreen: Mandatory requirements.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

A 10 - FOUNDATIONS

A 1010 Standard Foundations

A 1010.001 Wall Foundations

- A. Description: Standard cast-in-place shallow, permanent foundation system at all exterior and interior structural walls.
- B. Functional Requirements:
 - 1. Foundation system to be designed to requirements of 2025 CBC with all amendments applicable to project under the jurisdiction of the California Division of the State Architect.
 - 2. Foundations and design thereof to meet all parameters set forth in project specific Geotechnical Report.
 - 3. Transfer roof and wall gravity loads to soil /building pad.
 - 4. Transfer loads from lateral system to soil / building pad.
 - 5. Limit differential deflection over length of building to limits set by Geotechnical Engineer of Record for project.
- C. Components:
 - 1. Continuous strip footings
 - a. Concrete with minimum 28-day strength of 4,000 psi.
 - b. Reinforced as required for building loads, 0.0018 minimum reinforcement ratio.
 - 2. Integral slab on grade (See A 40).

A 1010.002 Column Foundations

- A. Description: Standard cast-in-place shallow, permanent foundation system at all exterior and interior column locations as required.
- B. Functional Requirements:
 - 1. Foundation system to be designed to requirements of 2025 CBC with all amendments applicable to project under the jurisdiction of the California Division of the State Architect.
 - 2. Foundations and design thereof to meet all parameters set forth in project specific Geotechnical Report.
 - 3. Transfer roof and wall gravity loads to soil /building pad.
 - 4. Transfer loads from lateral system to soil / building pad.
 - 5. Limit differential deflection over length of building to limits set by Geotechnical Engineer of Record for project.
- C. Components:
 - 1. Isolated spread footings (if required for gravity or lateral system)
 - a. Concrete with minimum 28-day strength of 4,000 psi.

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Standard Foundations
A1 01 0 -2

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- b. Reinforced as required for building loads, 0.0018 minimum reinforcement ratio.
- 2. Integral slab on grade (See A 40).

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

A 40 - SLABS-ON-GRADE

A 4010 Standard Slabs-on-Grade

A 4010.001 Standard Slabs-on-Grade

- A. Description: Conventionally reinforced slabs on grade.
- B. Functional Requirements:
 - 1. Slab to be designed to requirements of 2025 CBC with all amendments applicable to project under the jurisdiction of the California Division of the State Architect.
 - 2. Slabs on grade and design thereof to meet all parameters set forth in project specific Geotechnical Report.
 - 3. Support floor live loads of 50 psf minimum.
 - 4. Support floor live loads greater than 50 psf as required based upon occupancy of space per 2025 CBC and ASCE 7-22.
 - 5. Provide substrate adequate for specified architectural floor finishes.
 - 6. Constructed to resist moisture / vapor migration between soil and slab.
- C. Components:
 - 1. Slab thickness to be 5" minimum.
 - 2. Concrete with minimum 28-day strength of 4,000 psi.
 - 3. Maximum water to cement ratio of 0.45.
 - 4. Reinforced with #4 bars at 18"oc minimum.
 - 5. Reinforcing bars to be A615, 60 ksi.

A 4010.002 Standard Slabs-on-Grade Supplementary Components

- A. Description: Under slab vapor retarder.
- B. Functional Requirements: Resists vapor migration between soil and slab.
- C. Components:
 - 1. Vapor Retarder: ASTM E1745, Class A for puncture resistance.
 - 2. 15 mil minimum
 - 3. Placed over 5" minimum of clean crushed rock to provide capillary break

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LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

B 10 - SUPERSTRUCTURE

B 1020 Roof Construction

B 1020.001 Roof Structural Frame

- A. Description: Steel or wood framed roof system
- B. Functional Requirements:
 - 1. Roof system to be designed to requirements of 2025 CBC with all amendments applicable to project under the jurisdiction of the California Division of the State Architect
 - 2. System to provide clear spans as required to meet architectural floor plan / program requirements.
 - 3. All roof members to meet minimum deflection requirements of Span / 240 for live loads and span / 180 for dead plus live loads
 - 4. Stricter deflection requirements to apply to roof members as required for 2025 CBC for specific finish materials or other requirements.
- C. Components:
 - 1. Wood roofs
 - a. Sawn lumber members to be douglas fir-larch #1, minimum.
 - b. Engineered lumber (Structural Composite Lumber) to have current ICC ESR.
 - c. Glu-laminated members to be 24F-V4 typical and 24F-V8 for continuous spans and cantilevers.
 - 2. Steel roof
 - a. Steel cold formed framing members per AISI 100 and AISI 240.
 - b. Structural steel framing members per AISC 16th Edition.
 - c. Welding of sheet steel to be per AWS D.3/D1.3M.
 - d. Welding of structural steel to be per AWS D1.1/D1.3M.
 - e. Exposed structural steel to be hot-dipped galvanized per ASTM A653 and ASTM A123 with a minimum coating of Grade 80.

B 1020.002 Roof Decks and Sheathing

- A. Description: Structural wood sheathing or structural metal decking
- B. Functional Requirements:
 - 1. Roof system to be designed to requirements of 2025 CBC with all amendments applicable to project under the jurisdiction of the California Division of the State Architect.
 - 2. System to provide clear spans as required to meet architectural floor plan / program requirements.

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Roof Construction
B1 02 0 -2

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

3. All roof members to meet minimum deflection requirements of Span / 240 for live loads and span / 180 for dead plus live loads.
 4. Stricter deflection requirements to apply to roof members as required for 2025 CBC for specific finish materials or other requirements.
- C. Components:
1. Wood roofs
 - a. Structural wood sheathing per APA PS-1 or PS-2.
 - b. Sheathing to support total dead plus live load of 40 psf minimum.
 - c. Sheathing to be 15/32" minimum or thicker as required for attachment of specified architectural finishes.
 2. Steel roof
 - a. Sheet steel metal decking in conformance with ASTM A653.
 - b. Product to have current ICC ESR or IAPMO ER substantiating capacity for both gravity and lateral loading.
 - c. Welding of sheet steel decking to be per AWS D.3/D1.3M.

B 1020.003 Canopy Construction

- A. Description: Attached canopies at buildings
- B. Functional Requirements:
1. Canopy systems to be designed to requirements of 2025 CBC with all amendments applicable to project under the jurisdiction of the California Division of the State Architect.
 2. Canopy systems to be designed and constructed as integral parts of buildings.
- C. Components:
1. Canopy roof coverings to be translucent panels by "Kalwall" or equal.
 2. Canopies to have structural steel framed roof and column support systems per AISC 16th Edition.
 3. Structural steel roof systems to provide support for "Kalwall" panels such that panels are configured in "simple spans" within compliance of latest product ICC ESR.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

B 20 - EXTERIOR VERTICAL ENCLOSURES

B 2010 Exterior Walls

B 2010.001 Exterior Wall Veneer

- A. Cement Plaster
 - 1. Description: Three-coat cement plaster assembly consisting of scratch and brown coats with metal lath and stucco finish coat.
 - 2. Functional Requirements: Installed in accordance with ASTM C1063 and ASTM C926.
 - 3. Components:
 - a. Scratch and Brown Coats: Portland cement, sand, fiber reinforcement, and water.
 - b. Metal Lath: Expanded metal or wire-fabric.
 - c. Metal Trim: G90 galvanized and bonderized steel and pre-finished extruded aluminum.
 - d. Stucco Finish Coat: Acrylic-based stucco.

B 2010.002 Exterior Wall Construction

- A. Cold-Formed Metal Stud Framing
 - 1. Description: Exterior non-load-bearing cold-formed steel wall framing.
 - 2. Functional Requirements:
 - a. Performance Requirements: Horizontal deflection under wind loads as follows:
 - 1) At Cement Plaster: 1/360 of the wall height.
 - 2) Other Locations: 1/240 of the wall height.
 - 3. Components:
 - a. Cold-Formed Metal Studs: With G60 galvanized coating.

B 2010.003 Exterior Wall Supplementary Components

- A. Sheathing:
 - 1. Components: Gypsum sheathing.
 - 2. Functional Requirements:
 - a. Gypsum Sheathing: ASTM C1177 or ASTM C1278.
- B. Cladding Support Systems
 - 1. Description: Engineered systems designed to attach cladding to the building exterior while also addressing thermal performance, moisture management, and structural integrity.
 - 2. Functional Requirements:
 - a. Wall Assembly Thermal Transmittance (U-factor): Not more than 0.54 Btu/sq. ft. x h x deg F.

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Exterior Walls
B2 01 0 -3

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

3. Components: Metal girt or clip and rail system by Knight Wall Systems.
- C. Weather Barriers
 1. Description: Vapor permeable material within the exterior envelope assembly that performs as a water-resistive and air barrier, to manage bulk water intrusion through cladding systems and air movement through exterior wall assemblies.
 2. Functional Requirements:
 - a. Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft., when tested according to ASTM E2357.
 3. Components:
 - a. Fluid-Applied: Solvent free, fluid-applied, 100% silicone coating WRB system.
 - 1) Acceptable Product: GE; Elemax 2600, Dowsil Defendair.
- D. Vapor Retarders
 1. Description: Material that changes its water vapor permeability (how much it lets vapor pass through) based on humidity levels, becoming more vapor-open at high humidity to allow assemblies to dry, while restricting vapor diffusion in dry conditions to prevent moisture buildup.
 2. Functional Requirements:
 - a. Above-Grade Vapor Retarder: Variable permance rating of <1.0 perm when tested in accordance with ASTM E96, dry cup method, and >10 perms in accordance with ASTM E 96, wet cup method.
 - 1) Product: Certainteed; Membrain.
 - b. Underslab Vapor Retarder: ASTM E 1745, Class A.
- E. Thermal Insulation
 1. Description: Blanket and exterior continuous insulation.
 2. Functional Requirements:
 - a. Blanket Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.
 - b. Continuous Insulation:
 - 1) Foam Plastic: Complies with NFPA 285 for test method and required fire-test-response characteristics of exterior non-load-bearing wall assemblies.
 3. Components:
 - a. Blanket Insulation: Mineral fiber insulation friction fitted between stud framing in exterior wall cavities.
 - b. Exterior Continuous Insulation: Board insulation mechanically and adhesively attached to wall, beneath wall cladding.
 - 1) Foam Plastic: ASTM C1289 Type I, Class 1 and 2.
 - 2) Mineral Wool: ASTM C612, Types IA, IB, II, III, and IVA.
- F. Flashing And Sheet Metal

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

1. Description: Custom-fabricated, shop- and field-formed, roof-drainage sheet metal systems; low-slope roof sheet metal fabrications; steep-slope roof sheet metal fabrications; and wall flashing.
2. Functional Requirements:
 - a. Fabricate flashing and sheet metal to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, and metal thickness.
 - b. Exposed Finish: Factory applied 2-coat PVDF coating
3. Components:
 - a. Flashing exposed to view:
 - 1) Metallic-coated steel (galvanized steel and aluminum-zinc alloy-coated steel), prefinished.
 - 2) Aluminum, prefinished.
 - b. At through wall conditions, waterproofing system transitions and terminations, and at- or below-grade or otherwise in contact with soil.
 - 1) Stainless steel.

G. Joint Sealants

1. Description: Sealant and backing materials on and within buildings and related adjacent areas.
2. Functional Requirements:
 - a. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
3. Components:
 - a. Sealants:
 - 1) Silicone: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 2) Silicone, Mildew-resistant: Interior joints in vertical surfaces and horizontal nontraffic surfaces at joints between plumbing fixtures and adjoining walls, floors, and counters.
 - 3) Urethane: Interior joints in horizontal traffic surfaces, interior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 4) Acrylic Latex: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement.
 - 5) Acoustical Sealant: Interior joints integral to STC-Rated Assemblies.
 - b. Backing Material: Closed cell foam, unless otherwise required or allowed by sealant manufacturer.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

B 20 - EXTERIOR VERTICAL ENCLOSURES

B 2020 Exterior Windows

B 2020.001 Exterior Storefronts and Entrances

A. Aluminum Storefront

1. Description: Mechanically captured glazed aluminum storefront assembly.
2. Functional Requirements: Fixed aluminum storefront shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
 - a. Water Penetration under Static Pressure: ASTM E 331; No evidence of water penetration at a design pressure of 8 lbf/sq. ft.
 - b. Air Infiltration: ASTM E 283; not more than 0.06 cfm/sq. ft at a minimum static-air-pressure differential of 1.57 lbf/sq. ft.
 - c. Thermal Transmittance (U-factor): For fixed glazing and framing areas, not more than 0.41 Btu/sq. ft. x h x deg F according to NFRC 100.
 - d. Solar Heat Gain Coefficient (SHGC): For fixed glazing and framing areas, not more than 0.26 according to NFRC 200.
 - e. Visible Transmittance (VT): Fixed glazing and framing areas shall have a minimum VT of 0.46 as determined according to NFRC 200.
3. Components:
 - a. Framing Members: Manufacturer's extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
 - 1) Finish: Two -coat thermo-cured Polyvinylidene Fluoride (PVDF) coating.
 - b. Insulating Glazing Units:
 - 1) Glass Lites: Clear.
 - 2) Interspace: Air -filled.
 - 3) Low-E Coating: Sputtered, on surface #2.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

B 20 - EXTERIOR VERTICAL ENCLOSURES

B 2050 Exterior Doors and Grilles

B 2050.001 Exterior Entrance Doors

A. Aluminum-Framed Entrances

1. Description: Manual-swinging entrance doors and door-frame units with thermal break.
2. Functional Requirements:
 - a. Air Infiltration: ASTM E 283; not more than 1.0 cfm/sq. ft at a minimum static-air-pressure differential of 1.57 lbf/sq. ft.
 - b. Thermal Transmittance (U-factor): For fixed glazing and framing areas, not more than 0.60 Btu/sq. ft. x h x deg F according to NFRC 100.
 - c. Solar Heat Gain Coefficient (SHGC): For fixed glazing and framing areas, not more than 0.35 according to NFRC 200.
3. Components:
 - a. Framing: Extruded aluminum, with three-coat thermo-cured Polyvinylidene Fluoride (PVDF) coating.
 - b. Insulated Glazing Units:
 - 1) Glass Lites: Clear.
 - 2) Interspace: Air.
 - 3) Low-E Coating: Sputtered, on surface #2.
 - c. Automatic Door Operators: BHMA A156.19.

B 2050.002 Exterior Utility Doors

A. Hollow Metal Doors and Frames

1. Description: Hot dipped galvanized steel, fully welded frame construction.
2. Functional Requirements:
 - a. Duty Level: ANSI SDI A250.8, Level 3.
 - b. Thermal Transmittance (U-factor): Not more than 0.70 Btu/sq. ft. x h x deg F according to ASTM C 1363.

B 2050.003 Exterior Oversize Doors

A. Overhead Coiling Doors

1. Description: Motor-operated, insulated overhead coiling service doors.
2. Components:
 - a. Door Assembly: Curtain, jamb guides, hood.
 - b. Electric Door Operator: Standard duty, up to 25 cycles per hour and up to 90 cycles per day.

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

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Exterior Doors and Grilles
B2 05 0 -2

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

B 30 - EXTERIOR HORIZONTAL ENCLOSURES

B 3010 Roofing

B 3010.001 Steep-Slope Roofing

A. Standing Seam Metal Roofing

1. Description: Factory-formed metal roof panels designed to be installed by mechanically seaming standing seams over metal clips and bearing plates.
2. Functional Requirements:
 - a. Solar Reflectance Performance: Three-year-aged SRI not less than 32 or initial SRI not less than 39 when calculated according to ASTM E1980.
 - b. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
 - 1) Uplift Rating: UL 90 minimum.
3. Components:
 - a. Standing Seam Metal Roof Panels: Galvanized steel or aluminum sheet, 2-coat fluoropolymer coating.
 - b. Underlayment: Self-adhering, high-temperature sheet.
 - c. Air Barrier / Vapor Retarder Membrane: Self-adhering membrane designed to function as both a continuous air barrier and vapor retarder.
 - d. Substrate Board: Glass-mat-faced gypsum board.

B 3010.002 Low-Slope Roofing

A. Single Ply Roofing Assembly

1. Description: Fully adhered, felt-backed polyvinyl-chloride (PVC) roofing assembly.
2. Functional Requirements:
 - a. Wind Uplift Load Capacity: As required in accordance with ASCE-7, ASTM D6630, and NRCA wind uplift resistance recommendations, but not less than 60 psf.
 - b. Solar Reflectance Performance: Provide roofing system with aged solar reflectance of not less than 0.63 and thermal emittance of not less than 0.75.
 - c. Warranty: Manufacturer's standard 20-year system warranty.
3. Components:
 - a. Roofing Membrane: PVC sheet, 60 mils thick, minimum.
 - b. Cover Board: Glass-mat-faced gypsum board.
 - c. Insulation: Polyisocyanurate board.
 - d. Air Barrier / Vapor Retarder Membrane: Self-adhering membrane designed to function as both a continuous air barrier and vapor retarder.
 - e. Substrate Board: Glass-mat-faced gypsum board.

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

B 3010.003 Canopy Roofing

- A. Description: Translucent assemblies that are supported by aluminum framing and glazed with fiberglass-sandwich panels attached to structural supports.
- B. Functional Requirements:
 - 1. Functional Requirements:
 - a. Deflection: Limited to 1/60 of clear span for each assembly component.
 - b. Maximum Panel Deflection: 3-1/2 inches when a 4-by-12-foot panel is tested according to ASTM E72 at 34 lbf/sq. ft., with a maximum 0.090-inch set deflection after five minutes.
 - c. Panel Support Strength: Capable of supporting, without failure, a 300-lbf concentrated load when applied to a 3-inch- diameter disk according to ASTM E661.
- C. Components:
 - 1. Manufacturer's standard extruded-aluminum members of thickness required and reinforced as required to support imposed loads.
 - a. Finish: Two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin
 - 2. Panels: Uniformly colored, translucent, thermoset, fiberglass-reinforced-polymer face sheets bonded to both sides of a grid core.
 - a. Grid Core: Mechanically interlocked, extruded-aluminum I-beams, with a minimum flange width of 7/16 inch.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

C 10 - INTERIOR CONSTRUCTION

C 1010 Interior Partitions

C 1010.001 Interior Fixed Partitions

- A. Description: Gypsum board over non-structural metal stud framing.
- B. Components:
 - 1. Gypsum Board: 5/8-inch-thick Type X panels.
 - 2. Metal Studs: 25 gage minimum thickness.
 - 3. Acoustic Insulation: Mineral fiber or glass fiber blanket insulation.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

C 10 - INTERIOR CONSTRUCTION

C 1020 Interior Windows

C 1020.001 Interior Fixed Windows

- A. Description: Hollow metal framed borrowed lite units.
- B. Components:
 - 1. Frame: Steel, factory primed, field painted frames.
 - 2. Glazing: 1/4 inch thick, clear, laminated glazing.

C 1020.002 Interior Pass Windows

- A. Description: Metal framed, operable or fixed window with transaction pass functions.
- B. Functional Requirements:
- C. Components:
 - 1. Frame: Metal perimeter and mullion framing.
 - 2. Glazing: 1/4 inch thick, clear, fully tempered glass.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

C 10 - INTERIOR CONSTRUCTION

C 1030 Interior Doors

C 1030.001 Interior Swinging Doors

- A. Hollow Metal Doors and Frames
 - 1. Description: Steel, face-welded frame construction.
 - 2. Functional Requirements:
 - a. Performance Requirements: Complying with duty level SDI A250.8, Level 3.
 - 3. Components:
- B. Flush Wood Doors
 - 1. Description: Wood veneer-faced doors with transparent finish.
 - 2. Functional Requirements: Complying with WDMA I.S.1-A, Heavy Duty.
 - 3. Components:
 - a. Wood Veneer: Transparent finished wood species.
 - b. Transparent Finish: WDMA TR-4 conversion varnish or TR-6 catalyzed polyurethane.

C 1030.002 Interior Access Doors and Panels

- A. Description: Galvanized steel, factory primed access doors and panels, field painted to match adjacent wall color.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

C 10 - INTERIOR CONSTRUCTION

C 1070 Suspended Ceiling Construction

C 1070.001 Acoustical Suspended Ceilings

- A. Description: Acoustical panels and exposed suspension systems for ceilings.
- B. Components:
 - 1. Ceiling Panels: ASTM E 1264.
 - 2. Metal Suspension System: Heavy-duty, direct-hung metal suspension systems complying with ASTM C 635.

C 1070.002 Suspended Gypsum Board Ceilings

- A. Description: Gypsum board over grid suspension system.
- B. Components:
 - 1. Gypsum Board: 5/8-inch-thick Type X panels.
 - 2. Grid suspension system complying with ASTM C 635.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

C 10 - INTERIOR CONSTRUCTION

C 1090 Interior Specialties

C 1090.001 Interior Railings and Handrails

- A. Handrails:
 - 1. Description: Glass-supported railings.

C 1090.002 Information Specialties

- A. Visual Display Units:
 - 1. Markerboard:
 - a. Description: Porcelain-enamel marker board.
- B. Visual Display Wall Panels:
 - 1. Tackable Wall Panels:
 - a. Description: Consisting of tackboard panels with vinyl-fabric facing on core indicated, designed to be installed from floor to ceiling.
 - b. Components:
 - 1) Core: Manufacturer's standard.
 - 2) Mounting Method: Manufacturer's standard.
 - 3) Products: One of the following:
 - a) Chatfield Clarke; Vinyl Tackboard Panels.
 - b) Claridge Products and Equipment, LLC; Tack Walls.
 - c) G&S Acoustics; Tackable Wall Panels (TW).
 - 2. Markerboard Wall Panels:
 - a. Description: Glass or porcelain-enamel marker board wall panels designed to be installed on wall surfaces.
 - b. Components:
 - 1) Core: Manufacturer's standard.
 - 2) Mounting Method: Manufacturer's standard.
 - 3) Products: One of the following:
 - a) Chatfield Clarke; Magnaboard.
 - b) Claridge Products and Equipment, LLC; Tack Walls.
 - c) Magnatag.
 - 3. Tackboard:
 - a. Description: Natural cork.
- C. Interior Signage:
 - 1. Description:

C 1090.003 Compartments and Cubicles

- A. Toilet Compartments:

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Interior Specialties
C1 09 0 -2

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

1. Description: Floor mounted and overhead braced toilet partitions and wall mounted urinal screens.
2. Functional Requirements:
 - a. Fire Performance: Tested in accordance with, and pass the acceptance criteria of, NFPA 286.
3. Components:
 - a. Panels: Solid plastic high density polyethylene.
 - b. Hardware: Heavy duty, stainless steel.
 - 1) Brackets: Full-Height (Continuous) Type.

C 1090.004 Wall and Door Protection

- A. Corner Guards:
 1. Description: Plastic corner guards.
 2. Components:
 - a. PVC.
 - b. Clear polycarbonate.
- B. Impact-Resistant Sheet Wall Covering:
 1. Description: 0.040 inch thick; Custom digital graphics, InPro Corporation; Aspex Printed Wall Protection.

C 1090.005 Toilet, Bath, and Laundry Accessories

- A. Description: Stainless steel washroom accessories.

C 1090.006 Storage Specialties

- A. Lockers:
 1. Description: Metal corridor lockers.
 2. Functional Requirements:
 - a. Knocked-down construction.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

C 20 - INTERIOR FINISHES

C 2010 Wall Finishes

C 2010.001 Gypsum Board Finish

- A. Description: ASTM C 840 and as follows:
 - 1. Level 1: Plenum areas above ceilings, concealed areas.
 - 2. Level 4: Typical for exposed surfaces.
 - 3. Level 5: Walls subject to bright artificial or natural lighting, surfaces scheduled for high-gloss paint finishes, lobbies, and double-height spaces.

C 2010.002 Wall Painting and Coating

- A. Description: Three-coat low-VOC acrylic latex painting system consisting of primer, intermediate, and top coat.

C 2010.003 Wall Coverings

- A. Vinyl Wall Covering:
 - 1. Description: Vinyl wall covering with custom digital graphic.
 - 2. Functional Requirements:
 - a. ASTM F 793.
 - 3. Components:
 - a. Product: Koroseal Type II Digital Wallcovering w/ Clearshield Wall Armor Coating.

C 2010.004 Special Wall Surfacing

- A. Plastic Paneling:
 - 1. Description: Glass-fiber-reinforced plastic paneling (FRP).
 - 2. Functional Requirements:
 - a. Gelcoat-finished, glass-fiber-reinforced plastic panels complying with ASTM D5319.
 - b. Surface-Burning Characteristics: As follows when tested by a qualified testing agency according to ASTM E84. Identify products with appropriate markings of applicable testing agency.
 - 1) Flame-Spread Index: 25 or less.
 - 2) Smoke-Developed Index: 450 or less.
 - 3. Components:
 - a. Trim Accessories: Vinyl extrusions.
- B. Felt Wall Covering:
 - 1. Description: Felt wall covering factory applied to sound absorbing substrate.
 - 2. Components:

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- a. Felt: PET.
- C. Fabric-Wrapped Panels
 - 1. Description: Shop-fabricated, fabric-wrapped, decorative or tackable panels attached to walls.
 - 2. Components:
 - a. Core.
 - b. Facing Material.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

C 20 - INTERIOR FINISHES

C 2030 Flooring

C 2030.001 Concrete Sealer

- A. Description: Liquid chemical hardener.

C 2030.002 Resilient Flooring

- A. Rubber Tile:
 - 1. Description: Floor tiles manufactured of vulcanized compound of natural rubber, synthetic rubber, or both with pigments, fillers, and plasticizers according to ASTM F 1344.
- B. Solid Vinyl Tile:
 - 1. Description: Floor tiles composed of vinyl binder, fillers and pigments according to ASTM F 1700.
- C. Sheet Rubber:
 - 1. Description: Rubber sheet flooring and integral cove base without backings according to ASTM F 1859 or with backings according to ASTM F 1860, with seamless installation.
- D. Sheet Vinyl:
 - 1. Description: Vinyl sheet flooring and integral cove base without backings according to ASTM F 1913 or with backings according to ASTM F 1303, with heat welded seamless installation.

C 2030.003 Resilient Base and Accessories

- A. Description: Resilient base and accessories for installation with resilient floor coverings, carpet, and carpet tile.
- B. Components:
 - 1. Base: Straight, cove, butt to, or sculptured style.
 - 2. Accessories: Nosings, edges, caps, reducer strips, joiners, and transition strips.

C 2030.004 Resinous Flooring

- A. Description: Abrasion-, impact-, and chemical-resistant, aggregate-filled, and resin-based monolithic floor surfacing designed to produce a seamless floor and integral cove base.
- B. Components:
 - 1. Top and Body Coats: Epoxy.

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

C 2030.005 Carpeting

- A. Description: Tile carpeting.

C 2030.006 Resilient Athletic Flooring

- A. Description: Rubber athletic flooring provided as rolled goods for adhered installation, with cut-in game striping.

C 2030.007 Entrance Floor Mats

- A. Description: Surface applied floor mats.
- B. Components:
 - 1. Carpet-Type Tiles: Carpet bonded to 1/8- to 1/4-inch- thick, flexible vinyl backing to form mats 3/8 or 7/16 inch thick with nonraveling edges.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

C 20 - INTERIOR FINISHES

C 2050 Ceiling Finishes

C 2050.001 Gypsum Board Finish

- A. Description: Finishes for gypsum board ceiling assemblies
- B. Functional Requirements: ASTM C 840 and as follows:
 - 1. Level 4: Typical for exposed surfaces.
 - 2. Level 5: Surfaces subject to bright artificial or natural lighting.

C 2050.002 Ceiling Painting and Coating

- A. Description: Three-coat low-VOC acrylic latex painting system.

C 2050.003 Acoustical Ceiling Treatment

- A. Description: Shop-fabricated, fabric-wrapped, sound absorbing ceiling units tested for acoustical performance.
- B. Components:
 - 1. Baffles: Fabric covered, suspended baffles.
 - 2. Fabric: PET felt.

END OF ELEMENT

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 20 - PLUMBING

D 2010 Building Plumbing Systems

D 2010.001 Building Plumbing Systems

- A. Description: This section includes fixtures, equipment, and distribution for domestic water (potable) and sanitary sewer piping systems
- B. Functional Requirements:
 - 1. Provide domestic hot and cold water, waste, vent piping, grease waste, insulation for piping, water heater, expansion tank.
 - 2. Provide condensate and T&P relief piping for HVAC units and water heaters
- C. Components:
 - 1. Piping, Valves and Fittings for potable water:
 - a. Piping and fittings for domestic water applications shall be lead-free.
 - b. Equipment and pipe identification for exposed systems.
 - c. Expansion loops provide Metraflex Inc., Metraloop series, or equal.
 - d. Permanently attached engraved bakelite plate, 1/2 inch high white letters on black background for all equipment identification.
 - e. Hot and Tempered Water Piping insulation to be fiberglass, with ASJ-SSL jacket.
 - 2. Plumbing Fixtures
 - a. See plans
 - b. Classroom sinks for students above kindergarten grade level and all student lavatory sinks will be cold water only
 - c. Provide hot water for preschool, TK, and kindergarten classroom sinks, staff lavatory sinks, and mop sinks
 - d. Provide floor drains in all restrooms
 - e. Provide trap primer at all floor drains
 - f. Provide garbage disposal at lounge sink
 - g. Provide gravity type grease interceptor for kitchen
 - h. Provide backsplash at mop sink
 - i. Acceptable Manufacturers to be as follows:
 - 1) Water Closets:
 - a) Kohler Kingston K4325
 - b) American Standard
 - 2) Water Closet Flush Valves:
 - a) Sloan Royal Optima 111-1.28 ES-S
 - b) Sloan Royal 142-1.28
 - c) Zurn
 - 3) Urinals
 - a) Kohler Bardon K-4804-ET

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- b) American Standard
 - 4) Urinal Flush Valves:
 - a) Sloan Royal 186 ES-S HEU 0.125GPF
 - b) Zurn
 - 5) Lavatories
 - a) Kohler Kingston K-2005
 - b) Zurn
 - 6) Lavatory Faucets
 - a) Chicago 116.121.AB.1
 - b) Sloan ETF-600
 - 7) Mop Sinks:
 - a) Acorn TNC-24-SH-SSC
 - b) Kohler
 - c) American Standard
 - 8) Mop Sink Faucets:
 - a) Chicago 897-CP
 - 9) Stainless Steel Sinks:
 - a) Elkay DRKADQ3119-65-BP
 - b) Elkay LRADQ2219-65-BP
 - c) Elkay LRADQ33-19-60
 - d) Just Mfg
 - 10) Stainless Steel Sink Faucets:
 - a) Chicago ECast Model 350 Gooseneck
 - b) Chicago ECast Model 50-317 Gooseneck
 - c) Chicago ECast Model 1100-317
- 3. Electric Tank Water Heaters
 - a. Acceptable Manufacturers:
 - 1) A.O. Smith
 - 2) Bradford White Corporation
 - b. General:
 - 1) Provide commercial electric water heater of size, capacity, recovery rate and electrical characteristics as scheduled on Drawings. Provide UL Listing and NSF approval.
 - c. Heater:
 - 1) Working pressure of 150 psi, magnesium anode rod; glass lining on internal surfaces exposed to water.
 - d. Heating Elements:
 - 1) Heavy-duty, medium watt density, with incoloy sheath, thermostat stepped through magnetic contactors
 - e. Safety Controls:
 - 1) Double-pole, manual-reset, high-limit, probe- type electric water flow cutoff; both factory wired
 - f. Jacket:
 - 1) Equip with full-size control compartments with front panel opening.
 - 2) Insulate tank with vermin-proof glass fiber insulation.

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- 3) Provide outer steel jacket with bonderized undercoat and baked enamel finish.
- g. Accessories:
 - 1) Provide brass drain valve.
 - 2) Provide ASTM temperature and pressure relief valve, minimum size = $\frac{3}{4}$ "Ø.
 - 3) Provide a floor sink at each water heater location for temperature and pressure relief discharge (unless there is a mop sink near the water heater)
 - 4) Provide recirculation pump to ensure hot water is available within 10 seconds of turning on faucet
- h. Controls:
 - 1) Adjustable immersion thermostat; power circuit fusing
 - 2) Control compartment to be hinged and shall house the following:
 - a) 120 volt control circuit transformer
 - b) Transformer fusing
 - c) Magnetic contactor(s)
 - d) Immersion style operating thermostat(s)
 - e) High limit thermostat(s)
 - f) Element fusing per N.E.C.
 - g) Commercial grade incoloy sheathed flange mounted elements with pre-wired terminal leads
4. Electric Tankless Water Heaters
 - a. Acceptable Manufacturers:
 - 1) Eemax
 - 2) Chronomite
 - b. General:
 - 1) Water heater to have external digital temperature control.
 - 2) Unit to be rated for a minimum pressure of 25 PSI and a maximum pressure of 150 PSI
 - 3) Unit to have digital micro-pressing temperate control capable of maintaining outlet temperature.
 - 4) Heating element in heater shall be replaceable cartridge insert.
 - 5) Unit shall have replaceable filter in the inlet connector.
 - 6) Heating element shall be Nickel Chrome material.
 - 7) Unit to be rated for outdoor installation.
5. Water Expansion Tank
 - a. Provide potable water expansion tank at domestic hot water heater as detailed within drawings.
 - b. Potable water expansion tank shall be of drawn steel construction. Tank to have a Butyl diaphragm separating the air chamber from the water containing chamber. Inlet connector shall be brass or stainless steel. Materials of manufacture for the diaphragm shall be FDA approved.
 - c. Pressure Expansion tank to be as follows:
 - 1) ASME Section VIII Construction

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- 2) Carbon Steel Shell
- 3) Fixed Butyl Bladder (FDA Approved)
- 4) Stainless Steel System Connection
- 5) Pre-charged to 40 PSI (Field Adjustable).
- 6) Integral bladder integrity monitor
- d. The potable water expansion tank manufacturer shall be Zurn/Wilkins or Amtrol, Inc
- 6. Acceptable Manufacturers for products not covered above:
 - a. Gate Valves: Hammond IB64, IR-1138
 - b. Gate Valves: Mueller Series 2360
 - c. Ball Valves: Nibco T585-70, F-515-CS-F-66-FS, T-595-Y
 - d. Swing Check Valves: Stockham B-321
 - e. Silent Check Valves: Nibco T-480
 - f. Calibrated Balance Valves: Bell & Gossett Circuit Setter Plus
 - g. Strainers for potable water: Watts LF777SI, 77F-DI-125
 - h. Valve Boxes: Christy No. G5 Traffic Valve Box, Christy No. F22, Brooks No. 3-TL
 - i. Gauges: Marsh Series J
 - j. Gauges/Thermostats: Pete's Plug II
 - k. Thermometers: Marsh 5" diameter bimetal dial
 - l. Access Doors: Milco Style K, DW, M, "Fire Rated"
 - m. Expansion Loops: Metraflex Inc
 - n. Flexible Joints/Pipe Guides: Metraflex Inc. Metrasphere
 - o. Flexible Joints: Barco Ductile Iron
 - p. Faucet/Valve: Haws 5054LF Bubbler
 - q. Solids Interceptor: Jay R Smith 8715-2"
 - r. Drinking Fountain: Haws 1117L dual height or Elkay
 - s. Refrigerator Ice Maker: Guy Gray SSIB2AB
 - t. Hose Bibb: Acorn 8121CR or Woodford
 - u. Hose Bibb: Acorn 8126CR or Woodford
 - v. Hose Bibb: Acorn or Woodford, Jay R Smith 5609QT
 - w. Hose Bibb: Acorn 8121CP or Woodford
 - x. Wall Hydrant: Acorn M8104-E500 or Woodford
 - y. Wall Hydrant: Acorn or Woodford, Jay R Smith 5509
 - z. Drain and Waste Pipe Above Grade: AB & I
 - aa. Joints Above Grade: Anaco-Husky
 - bb. Joints Below Grade: Ty-Seal Neoprene Gaskets
 - cc. Grease Waste and Vent: AB&I
 - dd. Water Service Piping: J.M. Eagle
 - ee. Water Hammer Arrestors: PPP or MIFAB, Josam Series 75000
 - ff. Water Filters: 3M Aqua Pure Model AP510
 - gg. Hose Station: Leonard THS-25-VB-CW
 - hh. Relieve Valves: Cash (A.W.) Valve Manufacturing Corporation
 - ii. Trap Primer: MiFab, Inc. or PPP
 - jj. Thermostatic Water Temperature Control Valve: Bradley Corporation

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Building Plumbing Systems
D2010 -5

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- kk. Cleanouts: Zurn ZN-1400-KC
- ll. Cleanouts: Zurn ZN-1400-X-DX
- mm. Cleanouts: Zurn Z-1440A
- nn. Cleanouts: Zurn Z-1449-BP
- oo. Cleanouts: Zurn Z-1400-HD-KC
- pp. Floor Drains: Zurn
- qq. Floor Sinks: Zurn
- rr. Concrete Grease Interceptor: Jensen or Pro Cast
- ss. In-Line Domestic Hot Water Recirculation Pumps: Grundfos Pumps Corporation
- tt. Deionizer: Culligan Stainless Steel Mixed Bed Deionized Water System

END OF ELEMENT

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 20 - PLUMBING

D 2030 Building Support Plumbing Systems

D 2030.001 Stormwater Drainage Piping

- A. Description: This section includes piping as required for the building storm drainage (rainwater) system.
- B. Functional Requirements:
 - 1. Provide concealed piping within the building for primary and secondary rainwater drainage from roof drains.
 - 2. Piping shall be sized per CA Plumbing Code using a rainfall rate of 3.0 inch/hour
- C. Components:
 - 1. Piping
 - a. Concealed Rainwater Leaders shall be No-hub cast iron soil pipe and fittings, or copper DWV tubing.
 - 2. Roof Drains and Overflow Drains
 - a. Acceptable Manufacturers:
 - 1) Zurn
 - 3. Hopper Drains
 - a. Acceptable Manufacturers:
 - 1) Zurn

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SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 30 - HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

D 3020 HVAC Systems

D 3020.001 Rooftop packaged HVAC Units

- A. Description: This section includes the requirements for the rooftop packaged HVAC units and all associated components/controls
- B. Functional Requirements:
 - 1. Operation
 - a. Unit shall be an all-electric heat pump with supplemental electric resistance strip heat
 - b. Unit shall be capable of maintaining standard ASHRAE space conditions for the project specific summer and winter design days and minimum ventilation airflow requirements per CA Energy Code.
 - c. Unit shall operate at 480V.
 - d. Each classroom shall be provided with its own zone.
 - e. Ensure background noise levels for all rooms are in compliance with ANSI standards
 - 1) Classroom and library background noise level shall not exceed 35dBA
 - 2. Ventilation
 - a. Provide unit with low-leakage economizer with full modulating power exhaust
 - b. Economizer shall meet the requirements of CA Energy Code and be provided with controls capable of interconnection with the EMS system listed below
 - c. Power exhaust shall be fully modulating controlled via pressure sensor installed in the classroom. Power exhaust controls shall be capable of interconnection with the EMS system listed below.
 - 3. Controls
 - a. Provide thermostats for all units
 - 1) Thermostats shall have integral CO2 sensors for DCV where applicable
 - b. Units shall be provided with controls compatible with the campus wide Energy Management System (EMS). EMS system is Pelican. Provide all required modules to facilitate interconnection for the HVAC unit, its economizer, and its power exhaust (three separate connection points).
- C. Components:
 - 1. Unit Manufacturer shall be Lennox, Trane, Carrier, or York
 - a. Permanently attached engraved bakelite plate, 1/2 inch high white letters on black background for all equipment identification.

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

2. Economizer/Power Exhaust Manufacturer = Micrometl
3. Thermostats and economizer/power exhaust controls capable of interconnection with EMS
4. Provide with unpowered convenience outlets
5. Provide with vibration isolation curbs

D 3020.002 Wall-mounted Mini-split Units

- A. Description: This section includes the requirements for the wall-mounted mini-split units and all associated components/controls
- B. Functional Requirements:
 1. Provide a wall-mounted mini-split to provide process cooling for the IDF room. Unit shall be capable of providing a space temperature of 65 deg all year round
 2. Provide a wall-mounted mini-split to provide process cooling for all electrical rooms with transformers. Unit shall be capable of providing a space temperature of 75 deg all year round
- C. Components:
 1. Indoor/Outdoor Unit Manufacturer to be Fujitsu
 - a. Piping: Fiberglass, with ASJ-SSL jacket.
 - b. Type ACR hard drawn copper tubing with wrought copper fittings
 - c. Permanently attached engraved bakelite plate, 1/2 inch high white letters

D 3020.003 Ceiling Exhaust Fans

- A. Description: This section includes the requirements for ceiling exhaust fans and all associated components/controls
- B. Functional Requirements: Provide ceiling exhaust fan with occupancy sensing controls. Minimum exhaust airflow shall meet CA Mechanical Code.
- C. Components:
 1. Fan Manufacturer = Greenheck
 2. Occupancy sensing controls
- D. Applicable Areas (including but not limited to):
 1. Private restrooms
 2. Staff Lounge

D 3020.004 Roof-mounted Exhaust Fans

- A. Description: This section includes the requirements for roof-mounted exhaust fans and all associated components/controls
- B. Functional Requirements: Provide roof-mounted exhaust fan with time switch controls. Minimum exhaust airflow shall meet CA Mechanical Code
- C. Components:
 1. Fan Manufacturer = Greenheck
 2. Time switch controls

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- D. Applicable Areas (including but not limited to):
1. Public restrooms

D 3020.005 HVAC System Controls

- A. Description: This section includes the requirements for HVAC system controls
- B. Functional Requirements: Provide a complete controls system for all HVAC units that is capable of interconnection with EMS
- C. Components: System Manufacturer = Pelican

D 3020.006 Supplemental System Components

- A. Description: This section includes the requirements for the supplemental HVAC system components
- B. Components
1. Acceptable Manufacturers
 - a. Motor Starters: Allen Bradley or Square D
 - b. Access Doors: Milcor Style K, DW, M, "Fire Rated"
 - c. Phase Protection: Sym Com Model 201A
 - d. Coil Guard: Micrometl
 - e. Split System AC Unit: Fujitsu
 - f. Variable Refrigerant Flow: Fujitsu
 - g. Variable Refrigerant Flow Heat Pump: Fujitsu
 - h. Variable Refrigerant Flow Branch Circuit Controls: Fujitsu
 - i. Variable Refrigerant Flow ERV: Lossnay LGH-F1200RX5
 - j. Exhaust Fan: Greenheck
 - k. Transfer Fan: Greenheck
 - l. Relief and Intake Vents: Lauren Cook
 - m. Air Filters: Tridem Tri Dek XL 4 Ply, Merv 11
 - n. Ceiling Fan: Big Ass Fans Essence Series
 - o. Exhaust/Intake/Relief Hood: Greenheck WRH
 - p. Backdraft Dampers: Ruskin CBD2
 - q. Single Damper Blades: Self-locking Regulators: Ventlock 641
 - r. Single Damper Blades: End Bearings: Ventlock 607
 - s. Multiple Blade Dampers: Ruskin CD36
 - t. High Velocity Dampers: Ruskin CD50
 - u. External Insulated Duct: Self-locking Regulators: Ventlock 644
 - v. Fire Dampers: Ruskin DIBD20, DIBD230
 - w. Fire Dampers: High Pressure/Velocity: Ruskin FD60
 - x. Fire Dampers: Ceiling Installation: Ruskin CFD 2/3/4/5, CFD7
 - y. Fire Dampers: Round Combination Smoke Fire: Ruskin FSDR25, FSD60
 - z. Fire Dampers: 3-Hour Combination Smoke Fire: Ruskin FSD60-3
 - aa. Fire Dampers: Wall Type Combination Smoke Fire: Ruskin FSD35, FSD60FA
 - bb. Fire Dampers: Ceiling Type Combination Smoke Fire: Ruskin FSD36C

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

cc. Fusible Links: Ruskin 165F/350F, EFL, MCP2
dd. Actuators: Belimo

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 30 - HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

D 3050 Facility HVAC Distribution Systems

D 3050.001 HVAC Air Distribution

- A. Description: This section includes the requirements for HVAC distribution systems
- B. Functional Requirements:
 - 1. Provide a complete and functional air distribution system compliant with CA Mechanical Code and CA Energy Code. Ensure an even and uniform dispersal of supply air and ensure a proper distance between supply air diffusers and return air grilles.
 - 2. Provide type 1 grease ducts for kitchen hood exhaust.
 - 3. Ensure background noise levels for all rooms are in compliance with ANSI standards
 - a. Classroom and library background noise level shall not exceed 35dBA
- C. Components:
 - 1. Ductwork
 - a. Galvanized G90, insulated with minimum R4.2 fiberglass insulation, or exposed to conditioned spaces.
 - b. Acceptable Manufacturers:
 - 1) Ductmate
 - c. Kitchen exhaust duct type 1 insulation Thermal Ceramics Firemaster FastWrap XL, or equal.
 - 2. Air Terminal Devices
 - a. Manufacturer: Titus
 - 1) Supply Diffuser: model number MCD, or equal
 - 2) Return Grille: model number 355RL, or equal
 - 3. Acceptable Manufacturers:
 - a. Duct Sealing
 - 1) Design Polymeric DP1010
 - 2) Foster 30-36 Adhesives
 - b. Rectangular Duct Turning Vanes
 - 1) SMD Duct/E-Z E-Z Rail
 - c. Rectangular Duct Liner Insulation
 - 1) Johns Manville Duct Liner PM
 - d. Round Internally Insulated Ductwork and Fittings
 - 1) McGill Airflow Acousti-k27
 - e. Duct Access Doors
 - 1) Greenheck
 - f. Flexible Air Ducts
 - 1) CA Schroeder, Inc Calf Flex 2PMJ

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

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Facility HVAC Distribution Systems
D3050 -2

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 50 - ELECTRICAL

D 5020 Electrical Service and Distribution

D 5020.001 Power Distribution

- A. Description: This section includes the requirements for branch circuit panelboards, transformers, and PV systems
- B. Functional Requirements:
 - 1. Panelboards:
 - a. Provide panelboards in compliance with all codes and regulations
 - b. Provide a 480V panelboard at each building
 - 2. Transformers:
 - a. Provide transformers in compliance with all codes and regulations
 - b. Size transformers to provide the full nominal amperage of the secondary panel(s) served
 - 3. PV system:
 - a. Provide PV system in compliance with all codes and regulations
- C. Components:
 - 1. Panelboards
 - a. 480Y/277V, 3-phase and 208Y/120V, 1-phase or 3-phase
 - b. Cabinets shall be NEMA Type 1 enclosure, door, and trim of code gauge galvanized steel. Provide NEMA Type 3R enclosures for exterior mounted panelboard.
 - c. Bus shall be bolted copper with taps arranged for distributed phase connections to branch circuit devices
 - d. Shall have a main circuit breaker unless located in sight of feeder equipment
 - e. Neutral bus shall be 100 percent rated of phase bus bars and shall have lugs for each outgoing branch circuit or feeder requiring a neutral connection unless otherwise noted.
 - f. AIC Rating:
 - 1) As a minimum, panelboards shall be rated 10,000 AIC for 120/208 volt panelboards and 22,000 AIC for 277/480 volt panelboards.
 - 2) The AIC for 120/208 volt panelboards shall be determined based on the available fault current on the secondary side of the upstream transformer and the secondary wire size and length to the panelboard
 - g. Acceptable Manufacturers:
 - 1) Square D
 - 2. Transformers
 - a. Shall be completely enclosed except for ventilation openings

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- b. Capacity > 112.5kVA
 - 1) Shall have class 155 or higher insulation systems
 - c. Acceptable Manufacturers:
 - 1) Square D
- 3. PV System
 - a. Inverters shall operate at 480V.
 - b. Provide a single PV disconnect at main service for campus.

D 5020.002 Facility Grounding

- A. Description: This Section includes grounding of electrical systems and equipment. Requirements specified in this Section may be supplemented by requirements of other Sections.
- B. Functional Requirements:
 - 1. Grounding System Resistance: 25 ohms.
 - 2. Electrical Components, Devices, and Accessories: Listed and labeled under UL 467 as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 - 3. Provide a concrete-encased electrode (Ufer) at each building
- C. Components:
 - 1. Grounding Conductors
 - a. Equipment Grounding Conductors: Insulated with green-colored insulation.
 - b. Grounding Electrode Conductors: Stranded cable.
 - c. Underground Conductors: Bare, tinned, stranded, unless otherwise indicated.
 - d. Copper Bonding Conductor: No. 4 or No. 6 AWG, stranded copper conductor.
 - e. Foundation Electrode: 4/0 AWG.
 - 2. Grounding Well Components
 - a. Well Pipe: 12 inch diameter by 24 inches long concrete pipe with belled end.
 - b. Well Cover: Cast iron with legend 'GROUND' embossed cover.
 - 3. Acceptable Manufacturers:
 - a. Ground Rods:
 - 1) Weaver
 - b. Ground Wells:
 - 1) Oldcastle Precast
 - c. Ground Bushings:
 - 1) O-Z/Gedney

D 5020.003 Service and Distribution Supplementary Components

- A. Description: this section includes the requirements for disconnect switches, circuit breakers, and fuses

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- B. Functional Requirements: Provide supplementary components in compliance with all codes and regulations
- C. Components:
 - 1. Fuses shall be sourced from Cooper Bussman
 - 2. Disconnect switches and circuit breakers shall be sourced from Square D
 - 3. Disconnects switches shall be provided with lockable handle
 - 4. Circuit breakers shall be molded case circuit breaker type
 - 5. Circuit breakers larger than 250A shall have adjustable trip frame

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 50 - ELECTRICAL

D 5030 General Purpose Electrical Power

D 5030.001 Branch Wiring System

- A. Description: This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. Functional Requirements:
1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 2. Service Entrance, Feeders Concealed in Concrete, below Slabs-on-Grade, and in Crawlspace:
 - a. Type XHHW-2, single conductors in raceway.
 3. Exposed Feeders, Feeders Concealed in Ceilings, Walls, and Partitions:
 - a. Type THHN-THWN2, single conductors in raceway.
 4. Exposed Branch Circuits, including in Crawlspace, Branch Circuits Concealed in Concrete and below Slabs-on-Grade:
 - a. Type THHN-THWN 2, single conductors in raceway.
 5. Branch Circuits Concealed in Ceilings, Walls, and Partitions:
 - a. Type THHN-THWN, single conductors in raceway. Metal-clad cable, Type MC shall not be used without notice of approval from the school district.
 6. Class 1 Control Circuits, Class 2 Control Circuits:
 - a. Type THHN-THWN, in raceway.
- C. Components:
1. Raceways
 - a. Outdoors:
 - 1) Exposed: Rigid steel or IMC.
 - 2) Concealed: Rigid steel or IMC.
 - 3) Underground, Single Run: RNC.
 - 4) Underground, Grouped: RNC.
 - 5) Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 - 6) Boxes and Enclosures: NEMA 250, Type 3R.
 - b. Indoors:
 - 1) Exposed: EMT.
 - 2) Concealed: EMT.

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- 3) Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except use LFMC in damp or wet locations.
- 4) Damp or Wet Locations: Rigid steel conduit.
- 5) Boxes and Enclosures: NEMA 250, Type 1, except as follows:
 - a) Damp or Wet Locations: NEMA 250, Type 4, stainless steel.
2. Conductors and Cables
 - a. Conductor Material: Copper complying with NEMA WC 5 or 7; solid conductor for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.
 - b. Conductor Insulation Types: Type THW, THHN-THWN2 or XHHW2 complying with NEMA WC 5 or 7.
 - c. Multiconductor Cable: Metal-clad cable, Type MC with ground wire. MC shall not be used unless approved prior to installation by the school district.
3. Connectors and Splices
 - a. Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.
4. Raceway Fittings
 - a. Compression type.
5. Finish
 - a. For raceway, enclosures, or cabinet components, provide manufacturer's standard prime-coat finish ready for field painting.
6. Acceptable Manufacturers:
 - a. Building Wire:
 - 1) American Insulated Wire Corp
 - b. Metal-Clad Armored Cable:
 - 1) American Cable Systems
 - c. Flexible Cords and Cables:
 - 1) Carol Cable Co
 - d. Wiring Connectors and Terminations:
 - 1) Ideal
 - e. Metal Conduit
 - 1) Allied Tube and Conduit Co
 - f. Conduit Fittings:
 - 1) Appleton Electric Co

D 5030.002 Wiring Devices

- A. Description: This section includes straight-blade convenience receptacles, tamper-resistant receptacles, GFCI receptacles, toggle switches and floor service receptacles, prefabricated multioutlet assemblies, and wall plates.
- B. Functional Requirements:
 1. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

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General Purpose Electrical Power
D5030 -4

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

2. Comply with all relevant NEMA configuration requirements.
3. Comply with all relevant UL requirements.
4. For wiring devices connected to normal power system provide finish color as selected by Architect unless otherwise indicated or required by NFPA 70 or device listing.
5. For wiring devices connected to emergency power system provide red finish color.

C. Components:

1. Straight-blade receptacles
 - a. Duplex Convenience Receptacles: 125 V, 20 A; comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.
2. Tamper-Resistant Convenience Receptacles
 - a. Tamper-Resistant Convenience Receptacles: 125 V, 20 A; comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.
3. GFCI Receptacles
 - a. 125 V, 20 A, straight blade, non-feed-through type.
 - b. Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, UL 943 Class A, and FS W-C-596.
 - c. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.
4. Toggle Switches
 - a. Switches, 120V, 20 A:
5. Floor Service Receptacles
 - a. Factory-fabricated and -wired assembly of below-floor junction box with multi-channeled, through-floor raceway/firestop unit and detachable matching floor service-outlet assembly.
6. Prefabricated Multioutlet Assemblies
 - a. Two-piece surface metal raceway, with factory-wired multioutlet harness.
 - b. Components shall be products from single manufacturer designed for use as a complete, matching assembly of raceways and receptacles.
7. Wall Plates
 - a. Single and combination types shall match corresponding wiring devices. Finish will match corresponding wiring devices.
8. Acceptable Manufacturers:
 - a. Outlet and Junction Boxes
 - 1) Spring City Electrical Manufacturing Co.
 - b. Cast Boxes
 - 1) Appleton Electric Co.
 - c. Floor Boxes
 - 1) Legrand
 - d. Switches, Receptacles, and Cover Plates
 - 1) Leviton
 - e. Floor Mounted Service Box
 - 1) Legrand #880C Series

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 5030.003 Supplementary System Components

- A. Description: This section includes the requirements for the supplemental general purpose electrical power system components
- B. Components:
 - 1. Acceptable Manufacturers:
 - a. Pull Boxes: Circle AW Products
 - b. Ladder-Type Cable Tray: Chatsworth Products, Inc. and/or Panduit
 - c. Concrete Fasteners: Hilti Kwik Bolt
 - d. Concrete Inserts and Construction Channel: Unistrut Corp.
 - e. Conduit Straps: O-Z/Gedney
 - f. Underground Precast Concrete Utility Structures: Christy Concrete Products
 - g. Underground Conduit, Ducts and Fittings: Prime Conduit
 - h. Conduit and Wire Markers: Thomas and Betts Corp.
 - i. Inscription Tape: Kroy
 - j. Cabinets and Enclosures: Hoffman Engineering Co.
 - k. Manual Motor Starters: Square D
 - l. Surge Protective Devices: Current Technology
 - m. Cable Trays: Chatsworth Products, Inc or Panduit

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 50 - ELECTRICAL

D 5040 Lighting

D 5040.001 Lighting Controls

- A. Description: This section includes lighting control systems. The system shall be complete including but not limited to: occupancy sensors, photo-sensors, dimmer switches, automatic wall switches, plug-load controllers, room controllers, wiring, interfaces, etc. Include network controllers where applicable.
- B. Functional Requirements:
 - 1. Provide acceptance testing and commissioning in accordance with Title-24 California Energy Commission Building Energy Efficiency Standards. After system installation, provide testing and commissioning by the manufacturer's factory authorized technician to verify proper system adjustments, systems settings, systems testing, sensor placements, and train owner's personnel for adjustment and maintenance.
 - 2. System shall be low voltage 24VDC, plug-n-go, digital, class-2, 24VDC, UL listed, FCC part-5 compliant, 5-yr warranty. Communication and power delivered via Cat-5e cables and RJ45 connectors. Star or daisy chain connections. Up to 1000 ft of cable for DLM local network, 150 ft allowance per communicating device. BACnet compatibility. RoHS compliant.
- C. Components:
 - 1. Occupancy Sensors
 - a. Include ultrasonic, passive infrared (PIR), and dual-technology ultrasonic & PIR.
 - 2. Automatic Wall Switches
 - a. Include 1-8 button switches, dimming switches, 5-button scene switch.
 - b. Include remote control switches only where specifically indicated.
 - 3. Daylight Sensors
 - a. Include single-zone, multi-zone, closed loop, open loop, and dual loop.
 - b. Daylight sensors are self-calibrating.
 - 4. Toggle Switches
 - a. Switches, 120/277 V, 20 A:
 - 5. Controllers
 - a. Include dimming and non-dimming room controllers and plug-load controllers.
 - 6. Network Components
 - a. Include network bridge, manager, router, and switch.
 - b. Network control components shall be capable of interconnection with EMS
 - 7. Acceptable Manufacturers:
 - a. Network Lighting Control System

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Lighting
D5040 -3

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- 1) Wattstopper or GE
- b. Occupancy Sensor Switches
 - 1) Wattstopper

D 5040.002 Lighting Fixtures

- A. Description: This section includes LED luminaires and lighting wiring.
- B. Functional Requirements:
 - 1. Provide acceptance testing and commissioning in accordance with Title-24 California Energy Commission Building Energy Efficiency Standards. After system installation, provide testing and commissioning by the manufacturer's factory authorized technician to verify proper system adjustments, systems settings, systems testing, sensor placements, and train owner's personnel for adjustment and maintenance.
 - 2. Fixtures shall comply with the following:
 - a. UL Listed.
 - b. Minimum 5-year warranty.
 - c. L70 or L80 performance at 50,000 hrs.
 - d. Photometrics testing and delivered lumens tested in accordance with IESNA LM 79.
 - e. Testing for LED life and maintenance shall be per IESNA LM-80.
 - f. Exterior fixtures to be rated for wet locations, IP65 rated.
 - g. 4000k color temperature
 - h. Fixture to operate at 277V
- C. Components:
 - 1. LED Luminaires
 - a. Acceptable Manufacturers:
 - 1) LEDs: General Electric
 - 2) LED Drivers: Osram Sylvania
 - 3) Emergency Battery Pack: Bodine
 - 4) 2'x4' Architectural Recessed LED Troffer: Lithonia 2FSL4
 - 5) 2'x2' Architectural Recessed LED Troffer: Lithonia 2FSL2
 - 6) Suspended Indirect/Direct Linear LED Fixture: Fluxerx View VU1
 - 7) Recessed Linear LED Fixture: Finelite HP4
 - 8) Nominal 4' Long Surface Mounted Compact Linear LED Fixture: Philips Fluxstream
 - 9) Nominal 4' Long Surface Mounted Compact Linear LED Fixture with Battery Pack: Philips Fluxstream
 - 10) Nominal 6" Square Slim Surface mounted LED Fixture: Philips Slim Surface S6S
 - 11) 2'x4' Recessed LED Troffer: Metalux 2GRLED
 - 12) Suspended LED Area Light: Cree CXB
 - 13) LED Exit Sign: Eventlite TLP-G-2U-W
 - 14) LED Downlight: Gotham EVO Square
 - 15) Exterior LED Wall Sconce: WAC WP-LED127

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

- 16) Exterior 4' Linear, Adjustable High Intensity LED Grazing Fixture:
Color Kinetics eW Graze Mix Powercore 523-000080-45
- 17) Exterior Solar Powered Rechargeable LED Light - Motion Sensor
Activated: Cooper Lighting MSLED
- b. Verify fixture mounting to ceiling type. Fixture shall be compatible with the
ceiling type.
- 2. Lighting Wiring
 - a. Fixtures shall be wired with conductors having insulation suitable for the
environmental conditions, current, voltage, and temperature to which the
conductors are subjected.
 - b. 120/208 Volt Luminaire: 300 Volt, type AF, HFF, KFF, SFF, ZFF, or equal,
beginning at separately mounted outlet box.

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 60 - COMMUNICATIONS

D 6010 Data Communications

D 6010.001 Data Communications

- A. Description: This section includes the requirements for providing infrastructure for the Data Communications system to be installed by others
- B. Functional Requirements:
 - 1. Provide 120V dedicated power and blocking for the installation of the Main Distribution Frame (MDF) and all Intermediate Distribution Frames (IDF) per Lodi Unified School District Telecommunications Specifications.
 - 2. Provide plywood backboard and grounding bar per Lodi Unified School District Telecommunications Specifications.
 - 3. Provide conduit pathways for Data per plans
 - 4. See plans
- C. Components:
 - 1. Concealed conduit
 - 2. Single gang box with cover
 - 3. Fire treated plywood
 - 4. Grounding bus bar

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 60 - COMMUNICATIONS

D 6020 Voice Communications

D 6020.001 Voice Communications

- A. Description: This section includes the requirements for providing infrastructure for the Voice Communications system to be installed by others
- B. Functional Requirements:
 - 1. Provide conduit pathways for speakers and push call buttons per plans
- C. Components:
 - 1. Concealed conduit
 - 2. Single gang box with cover

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 60 - COMMUNICATIONS

D 6030 Audio-Video Communication

D 6030.001 Audio-Video Systems

- A. Description: This section includes the requirements for providing infrastructure for the future AV system to be installed by others
- B. Functional Requirements:
 - 1. Provide conduit pathways for AV per plans
 - 2. Provide plate/backboard for short throw projectors
- C. Components:
 - 1. Concealed conduit
 - 2. Single gang box with cover
 - 3. Plate/backboard

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 70 - ELECTRONIC SAFETY AND SECURITY

D 7010 Access Control

D 7010.001 Access Control

- A. Description: This section includes the requirements for providing infrastructure for the Access Control system to be installed by others
- B. Functional Requirements:
 - 1. Provide conduit pathways in the door jamb of each exterior door to allow for the installation of exterior facing access control devices by others
 - 2. See plans
- C. Components:
 - 1. Concealed conduit
 - 2. Single gang box with cover

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 70 - ELECTRONIC SAFETY AND SECURITY

D 7030 Electronic Surveillance

D 7030.001 Video Surveillance

- A. Description: This section includes the requirements for providing infrastructure for the Surveillance system to be installed by others
- B. Functional Requirements:
 - 1. Provide backbox and conduit pathways for cameras per plans
- C. Components:
 - 1. Concealed conduit
 - 2. Single gang box with cover

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

D 7010.001 ELECTRONIC SAFETY AND SECURITY

D 7050 Detection and Alarm

D 7050.001 Fire Detection and Alarm

- A. Description: This section includes the requirements for providing infrastructure for the Fire Alarm system to be installed by others
- B. Functional Requirements:
 - 1. Provide 120V dedicated power and blocking for the installation of the fire alarm control panel, and all fire alarm booster panels and amplifiers.
 - 2. See plans
- C. Components:
 - 1. 120V receptacle/wiring/breaker
 - 2. Structural blocking

END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

E 10 - EQUIPMENT

E 1070 Entertainment and Recreational Equipment

E 1070.001 Theater and Stage Equipment

- A. Description: Complete stage-curtain system, including stage curtains and tracks; with necessary accessories for support and operation.
- B. Functional Requirements:
 - 1. Structural Performance: Pipe grid rigging systems and attachments to structure shall withstand the effects of gravity and operational loads including those from equipment, fixtures, and other items to be attached to rigging system.
- C. Components:
 - 1. Stage Curtain Product: KM Fabrics Crescent Velour.

E 1070.002 Athletic Equipment

- A. Basketball Equipment
 - 1. Description: Overhead-Supported Backstops.
 - 2. Functional Requirements:
 - a. Folding Type: Manufacturer's standard assembly for backstop, with hardware and fittings to permit folding.
 - 3. Components:
 - a. Backstop: Molded-fiberglass panels laminated together over faces and edges encapsulating a 3/4-inch honeycomb core.
 - b. Basketball Goals: Basket ring complete with flanges, braces, attachment plate, and evenly spaced loops welded around underside of ring.

Basketball Nets: 12-loop-mesh net, between 15 and 18 inches long, sized to fit ring diameter.END

SAMUEL M. GANTNER ELEMENTARY SCHOOL
LODI, CALIFORNIA
PRELIMINARY PROJECT DESCRIPTION
30 SEPTEMBER 2025

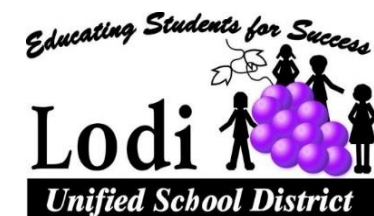
E 20 - FURNISHINGS

E 2010 Fixed Furnishings

E 2010.001 Casework

- A. Description: Custom and manufactured casework units.
- B. Functional Requirements: Complying with AWS, custom grade unless otherwise indicated.
- C. Components:
 - 1. Cabinets:
 - a. Plastic-laminate-faced cabinets.
 - 2. Countertops:
 - a. Solid-surfacing-material countertops.
 - b. Plastic-laminate-faced countertops.

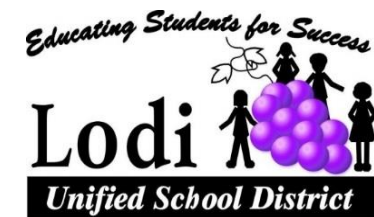
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LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
DIVISION 3					
	Concrete Floor Leveling, Patching & Grouting	Resurface Coating - Horizontal	US Mix Products Co.	Thinpatch	
		Patching / Resurface Coating - Vertical	US SPEC	VTU Resurfacer	
		Leveling Compound	L & M Constr. Chemicals, Inc.	Levelex / Levelex Primer	
		Patching / Resurface Coating - Vertical	US SPEC	Permasil	
		Non-shrink Grout	US SPEC	Premium Grout	
	Concrete Maintenance	Concrete Cleaner	ProSoCo	Consolideck	
		Concrete Cleaner	ProSoCo	Sure Klean	
	Concrete Reinforcing	Vapor Barrier Stakes	Vaporstake	Vapor Stake	
	Concrete Forming	Expansion Joint Filler	Celotex Corporation	1/2" Thick Flexcell	
		Extruded Polystyrene Foam	Dow Chemical Corp	Styrofoam	
	Cast In Place Concrete	Workability and Water Reducing Admixture	BASF	POZZOLIGHT 322N	
		Vapor Barrier - Loose Laid	Reef Industries	Sheet Membrane: VAPORguard	
		Anchoring Cement	US Mix Products Co.	Anchoring Cement	
		Structural Bonding Adhesive	US Mix Products Co.	Maxi-Bond 2500	
		Bonding Materials	US Mix Products Co.	Acrylcoat	
		Bonding Materials	US Mix Products Co.	Bond Coat	
		Bond Breaking Compound	L & M Constr. Chemicals, Inc.	Debond Form Coating	
		Curing Compound	W.R. Meadows	1100 Clear	
DIVISION 4					
	Masonry, Stone and Tile Maintenance	Custom Masonry Acidic Cleaner	ProSoCo	Sure Klean, Custom Masonry Cleaner	
		Burnished Custom Masonry Acidic Cleaner	ProSoCo	Sure Klean, Burnished Custom Masonry Cleaner	
		General Purpose Non-Acidic Cleaner	ProSoCo	Enviro Klean Safety Klean	
		Heavy Duty Concrete Cleaner	ProSoCo	Sure Klean	
		Asphalt and Tar Remover	ProSoCo	Sure Klean Asphalt & Tar Remover	
		Oil and Grease Stain Remover	ProSoCo	Stand Off	
	Unit Masonry	Concrete Masonry Units	Basalite	Precision	
	DIVISION 5				
	Structural Steel Framing	Direct Tension Indicator Washers	J & M Turner	ASTM F959, Type 325	
		Tension Control Fastener System	Lohr		
		Powder Driven Fasteners	Hilti Fastening Systems		
		Expansion Bolts	Hilti Fastening Systems	Kwik-Bolt Concrete Expansion Anchors	
		Shop Primer	Tnemec Company, Inc.	FD88	
		Shop Primer	Tnemec Company, Inc.	90-97 Tneme-Zinc	
		Hole filler for steel columns and beams	JB Industries	Industro Weld	
	Steel Decking	Metal Roof Deck (Non Acoustical)	Verco	PLB-36, PLN3	
		Metal Roof Deck (Cellular)	Verco	PLB-CD, PLN-CD	
		Metal Roof Deck (Acoustical)	EPIC	ER2RA	



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
	Metal Ladders	Access Ladder Components: Rungs	McNichols	Traction Tread	Exterior condition hot dipped galvanized, schedule 40
	Metal Ladders	Roof Access Ladder	LaneAire		
	Metal Fabrications	Escutcheons	Plumbing Supply Co.	Heavy Gauge Escutcheons with Springs	
		Boots - Pipe Penetrations	Pipetite	Pipetite Standard	
	Metal Railings	Exterior guardrails and handrails			Hot dipped galvanized, schedule 40
DIVISION 6					
	Rough Carpentry	Accessories	Simpson Strong Tie		
		Plywood Sheathing Backing Boards	Panel Source International	Purekor Retardant Plywood, 5-ply, Western Hemlock/Fir	
	Laminated Veneer Lumber	Laminated Veneer Lumber (LVL)	Weyerhaeuser, iLevel	Microllam, Western Species	
	Parallel Strand Lumber	Paralell Strand Lumber (PSL)	Weyerhaeuser, iLevel	Parallam, Western Species	
	Wood I-Joists	Flanges	Weyerhaeuser, iLevel	Micro-Lam	
	Glue-Laminated Construction	Glue Laminated Beams	Willamette Industries, Inc. / Weyerhaeuser		
	Fiberglass Reinforced Panels (FRP)	Standard FRP Panels	Nudo	Standard, Class I/A: Pebbled Texture	Marlite
		Standard FRP Panels: Trim	Nudo	Extruded PVC Trim	Marlite
		Standard FRP Panels: Sealant	Nudo	Clear Silicone	
		Standard FRP Panels: Adhesives	Nudo / Tite Bond	Water Resistant, Non-Flammable	
		Outside Corner Guards	Korogard	Stainless Steel Corner Guard, 2"x2", #4 Satin Finish	
	Plastic Laminate	Veneer	Formica		Wilsonart
	Architectural Casework	Substrates for Laminate Veneer	Roseburg Forest Products	Sky Blend	
		Adjustable Shelving Substrates for Laminate Veneer	Roseburg Forest Products	HyBrid	
		Casework Hardware: Hinges	Blum	Clip Top Series	
		Casework Hardware: Door & Drawer Pulls	Hafele	Stainless Steel "U" Shaped Wire Pull	
		Casework Hardware: Drawer Slides	Knape & Vogt	Full Extension and 1.5" Extension, Ball Bearing Captured Slides	
		Casework Hardware: Drawer & Cabinet Door Locks	Sugatsune	Million Locks, 6830-30MK, Mortised	
		Casework Hardware: Adjsutable Casework/Cabinet Shelving (Recessed)	Knape & Vogt	Recessed, No. 255	
		Casework Hardware: Adjsutable Casework/Cabinet Shelving (Support Clips)	Knape & Vogt	Horizontal Slot, No. 256R	



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

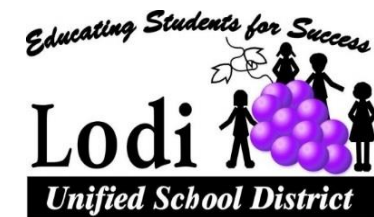
	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
DIVISION 7					
	Cold Applied Self-Adhering Membranes	Underlayment: Roofs	W.R. Grace	Vycor Ultra	
		Flexible Flashing: Roofs	W.R. Grace	Vycor Ultra	
		Flexible Flashing: Walls	W.R. Grace	Vycor Plus	
		Flexible Flashing: Door and Window Openings	W.R. Grace	Vycor Plus	
		Flexible Flashing: Copings	W.R. Grace	Vycor Ultra	
	Concrete Slab Vapor Emission Control Treatment	Remedial Treatment	Synthetics, Intl.	Synthetic 30 - Factory Mixed	
	Water Repellant / Anti-Graffiti Coatings	Water Repellant / Anti-Graffiti Coating	This Stuff Works (TSW), Inc.		
	Building Insulation	Thermal and Acoustical Insulation	Owens/Corning	Unfaced - Sound Attenuation Fire Batt Insulation	CertainTeed, Johns Manville
		Thermal and Acoustical Insulation	Owens/Corning	Unfaced - Thermal Batt Insulation	CertainTeed, Johns Manville
		Rigid Insulation - Roofs	RMAX	Multi Max FA-3	
	Metal Roof Panels	Roof Panel	AEP, Garland	Design Span	Metal Sales, Centria, MBCI, Garland
		Standing Seam Mounting Clips	Per system	Per system	
	Spray Applied Air Barrier Membrane	Spray Applied Air Barrier	Henry Company	Air Bloc 33 MR	
	Wall Cladding Rain Screen Assembly	Rain Screen Panels	Trespa	Solid Phenolic, Meteon	
	Metal Siding Assembly	Wall Panel Assembly	AEP, Garland	Flex Series	Metal Sales, Centria, MBCI, Garland
	Thermoplastic Membrane Roofing	Roofing Membrane	GAF, Firestone, Garland	Everguard	60 mils minimum
		Roof Walkway Pads	GAF, Firestone, Garland	Walkway Pad	
		Membrane Coated Sheet Metal Flashing	GAF, Firestone, Garland	Membrane Coated Sheet Metal	
		Slip Sheet - Separation Roll Goods	Atlas Roofing Corporation	FR-50	
	Firestopping	Through-Penetration Firestop Systems	3M	CP 25WB+	Hilti
		Through-Penetration Firestop Systems	3M	FS - 195+, PPDs	Hilti
	Sheet Metal Flashing & Trim	Pre-manufactured Copings, Flashings, Etc.	Fry Reglet		
	Isolation Membrane	Slip Sheet	Atlas	FR-50	
	Roof Hatches & Safety Railings	Roof Hatch at Fixed Wall Mounted Ladders	Bilco	S-50	
		Roof Hatch Safety Railing	Kee Industrial Products, Inc.	KeeHatch	
	Sealants and Caulking	Exterior	Dow Corning	795, Type 4	
			Sika	2c	
			Tremco	Vulken	
			M1		
		Interior	Dow Corning	999A Type 11	
			Pecora Corporation	Dynapoxy	
		Mastic / Sealant (Door Thresholds)	Tremco	Vulkem 116	Sika, Pecora
		Tape	3M	Closed Cell Acrylic Foam	
	Expansion Control	Exterior Wall Expansion Joint	Balco	9WC	MM systems
		Roof to Wall Expansion Cover	Balco	FRE	MM systems



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

SECTION	ITEM	MANUFACTURER	MODEL	NOTES
DIVISION 8				
Steel Doors and Frames	Doors, Door Frames, and Window Frames	Ceco Doors		Curries, Total Door, Door Components, Timely
	Door Louvers	Anemostat		
	Door Lite Assembly Frame and Glazing Compound	Anemostat	LoPro	
	Sound Attenuation Fill - Door Frames	Owens Corning	Mineral Wool (Rated Conditions)	
	Sound Attenuation Fill, Spray In Foam	Fomospray	Spray Insulation (Non-rated)	
	Sound Attenuation Fill, Sealant	Macklanburg-Duncan	Insulating Foam Sealant	
	Fire Rated Glazing Tape	Anemostat	GT - Fire Rated Glazing Tape	
Steel Frames	Fixed Frames	Timely	Standard Profile, Series C	Curries, Total Door, Door Components, Ceco
	Pocket Door Frames	Timely	Pocket Door Trim - Series P	
	Casing Trim	Timely	TA-28 Casing	
Access Doors and Panels	Access Door and Panels - Walls	Acudor	UF-5000 (Non-rated) FW-5050 (Rated)	
	Cement Plaster - Flush	Acudor	PS-5030 (Non-rated) FW-5050 With Flange (Rated)	
	Ceilings and Soffits	Acudor	UF-5000 (Non-rated) SD-6000 (Security)	
	Valve Boxes	Acudor	ARVE	
	Non-rated Ceiling Access Hatch/Door	KARP Associates, Inc.	KSTE (acoustical tile ceiling) KSTDW (drywall finish ceiling)	
Wood Doors	Flush Panel - Solid Core Wood Door	Oregon Door	Standard Profile, PC-5	
	Vision Glass Lite and Frame In Doors	Anemostat	LoPro	
	Fire Rated Glazing Tape	Anemostat	Fire Rated Glazing Tape	
Door Hardware	Refer to District's Hardware Specification Guidelines			Refer to District's Hardware Specification Guidelines
Overhead Insulated Coiling Doors	Smokeshield Insulated Rolling Fire Door	Cornell Iron Works, Inc.	ERD21	Cookson Co., Alpine Overhead Doors
Glazing	Steel Framed Windows: Non Rated	PPG Glass	Clear Single Glazing	
	Fire Rated Glazing - Door and/or Window Locations	Techincal Glass Products	FireLite - NT	Non-wired glazing
	Storefront Windows and Doors	PPG Glass	SolarBan 70XL	1" min. Insulated units
	Framed Door Vision Lite	PPG Glass	Clear Laminated Glazing	
	Glazing Fire Tape	Pemko	FG300S90	
Overhead Doors	Vertical Rise Door Assembly	SGCA Doors	Rise	Cookson Co., Overhead Door
Entrances, Window Walls, Storefronts and Curtain Walls	Storefront System	Oldcastle Glass (Vistawall Products)	Series 3000 Thermal Multiplane	Arcadia, Kawneer
	Operable Windows: Horizontal Slider	Building Envelope	Signature Series, 4" Horizontal Slider	
	Aluminum Storefront Doors	Oldcastle Building Envelope	#500 Wide Style Doors	Arcadia, Kawneer
	Aluminum Flush Panel Doors	Special - Lite, Inc.	SL-16	
Translucent Wall and Roof Assemblies	Translucent Wall and Roof Assemblies	Kalwall Corporation		
Skylights	Fixed Skylights	Velux	Model No. Skylight FCM	Sunoptics, CPI Daylighting



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
DIVISION 9					
	Metal Framing (Non-structural)	Stud	Dietrich Metal Framing		
		Header Assembly	Brandy	Pro X Header	
		Galvanized Repair Paint	ZRC Worldwide	ZRC Zero VOC Water Based Galvanizing Compound	
	Gypsum Board and Sheathing Substrates	Interior Walls	Georgia Pacific	ToughRock Fireguard Type X	USG, National Gypsum
		Interior Face of Exterior Walls	Georgia Pacific	Dens Armour Plus Fireguard Type X, High Performance Interior Panel	USG, National Gypsum
		Damp Locations (Non-tile Veneer Conditions)	Georgia Pacific	Dens Armour Plus Fireguard Type X, High Performance Interior Panel	USG, National Gypsum
		Thin Veneer Wall and Ceiling Sheathing (Non-shower Locations)	Georgia Pacific	Dens Shield Fireguard Type X Tile Backer	USG, National Gypsum
		Roof Underlayment	Georgia Pacific	Dens Deck Prime Type X Exterior Sheathing	
		Accessories	USG	DUR-A-BEAD Corner Bead	
		Accessories	USG	Sheetrock Brand (Tape On Trim)	
		Accessories	USG	Sheetrock Brand	
		Accessories	USG	Sheetrock Brand (No. 200)	
		Accessories	USG	Sheetrock Brand (No. 093)	
		Joint Treatment	USG	Sheetrock - Plus Three Compound	
		Joint Treatment	USG	Joint Tape - Heavy	
		Joint Treatment	Georgia Pacific	Dens Armour Plus	
		Joint Treatment Compound	USG	ToughRock Fiberglass Mesh Tape	
		Joint Treatment Compound	USG	Setting Compound (as recommended) - Level 5 Finish	
		Joint Treatment	Georgia Pacific	Dens Shield Tile Backer Board	
		Joint Treatment Compound	USG	ToughRock Fiberglass Mesh Tape	
		Joint Treatment Compound	USG	Setting Compound	
		Joint Treatment Substrate and Tape Product - Exterior Walls	Georgia Pacific	Dens Glass/Dens Deck Prime	
		Joint Treatment Compound - Exterior Walls	Pecora Corporation	Tough Rock Fiberglass Mesh Tape	
		Textured Walls - Sealer/Primer	USG	AC-20 Acrylix Latex Sealant	
		Textured Walls - Texture	USG	First Coat, Sheetrock Brand	
		Smooth Wall/Level 5 - Skim Coat	USG	Red Bag Wall Texture	
		Smooth Wall/Level 5 - Sealer/Primer Coat	USG	Plus Three	
		Smooth Wall/Level 5 - Sealer/Primer Coat	USG	First Coat, Sheetrock Brand	
		Portland Cement Plaster Assembly	Metal Lath	Structa Wire Corporation	17 Ga. X 1-1/2" SF CR TT (Twin Track)
	Corner Bead		Amico	X-2 (Outside corner)	
	Soffit Drop		Stockton Products	#5 Drip, NFD	
	Control Joints		Amico	Griplock "J"	
	Casing Bead		Amico	X-66	
	Expansion Joints		Amico	2-Piece Expansion Joint (#40 Type)	
Window/Door Head Drip	Stockton Products		WTP - 1" (x Dim) - 4" Flange (y Dim)		
Base of Wall Drip	Stockton Products		J-Bead w/ 1/4" Dia. Weep Holes		



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
		Cement Plaster Mix - Lime Substitute	Gibco	RPF	
		Admixtures - Enhancing Emulsion	BASF	ACRYL 60	
		Wall Penetration Boot/Collar Flashing	Quickflash Weatherproofing Products, Inc.	P Series (Pipe and conduit penetration) E Series (Electrical boxes)	
	Tile	Waterproof Membrane & Crack Protection Assembly	Laticrete	9235 Liquid, 9235 Fabric	
		Mortar: Thin Set	Laticrete	254 Platinum	
		Grout: Cementitious	Laticrete	PermaColor Select	
		Sealer: Wall Grout Sealer	Miracle Sealants & Abrasives Co.	511 Impregnator	
		Cleaner: Surface	Miracle Sealants & Abrasives Co.	Mira Clean #1	
		Trim	Schluter	Jolly	
	Acoustical Ceiling Tile and Suspension System	Acoustical Tiles	Armstrong / Radar Basic	Dune - 1775HRC / 2310 / 769A	
		Acoustical Tiles	Armstrong	Kitchen Zone - 673	
		Suspension Grid Systems - Main TEE	Armstrong	7501HRC	
		Suspension Grid Systems - Cross TEE	Armstrong	XL7520HRC XL7540HRC XL7580HRC	
		Suspension Grid System Wall Angle	Armstrong	7880HRC	
		Suspension Grid System Seismic Joint Clips	Armstrong	Berc2 SJMBR09	
		Suspension Grid Systems - Main TEE	Armstrong	7301HRC	
		Suspension Grid Systems - Cross TEE	Armstrong	XL8320HRC XL8340HRC XL8380HRC	
		Lag Screws "I"	I-Lag	750 SD 150 SD	
	Resilient Base and Accessories	Resilient Base	Burke Flooring	Burke Base Rubber Wall Base, Type TS	
		Flooring Transition	Burke Flooring		
		Adhesives and Fillers	Burke Flooring		
		Sealant	Burke Flooring	Colored	
		Vinyl Track Extenders	Burke Flooring	975	
	Resilient Athletic Flooring	Resilient Flooring	Nora	Grano	
	Epoxy Floor Coating	Epoxy Based Seamless Flooring System	Dur-A-Flex, Inc.	Dur-A-Quartz	
	Polyurethane Flooring System	Cementitious Urethane Concrete Coating	Dur-A-Flex, Inc.	Poly-Crete MDB	
	Carpet Tile	Carpet Tile	Tandus / Mowhark	Centiva / Artist II	
	Walk Off Mat	Walk Off Mat	Mohawk	Step Up II	Color: Obsidian / Patch Black
	Resilient Sheet Flooring	Resilient Sheet Flooring	Armstrong	Connection Corlon	
	Resilient Tile Flooring	Luxury Vinyl Tile	Shaw Contract	Grain 0364V	
	Vinyl Flooring	VCT	Armstrong Standard		
	Vinyl Flooring	LVP	Metrofloor	Deja New	
	Vinyl Wall Covering	Vinyl Wall Covering	DesignTex	Vincent	Koroseal
			DesignTex	Custom Mural	Koroseal
	Tackable Wall Covering	Tackable Composite Wall Covering	Décor	Bulletin Board	Color: Oyster



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
	Acoustic Wall Panels	Acoustic Wall Panels	Kirei	EchoPanel	
	Painting and Coatings	Polyurethane System Primer - Aluminum	Kelly Moore	Procryl Acrylic Universal Primer B66W00-310	
		Polyurethane System Finish	Kelly Moore	High Solids Polyurethane B65 - 100 Series, B65-625	
		Polyurethane System Hardener	Kelly Moore	B65-V625	
		Polyurethane System Primer - Galvanized Steel/Ferrous	Kelly Moore	Procryl Univesral Primer B66W00-310	
		Polyurthean System Primer - Ferrous	Kelly Moore	Water Based Macropoxy 646 Primer	
		Exterior Wood Stain	Kelly Moore	Woodscapes Poly S/T A15T15	
		Exterior Wood Solid Color Paint - Latex Satin Finish - Primer	Kelly Moore	Exterior Latexwood Primer B42W8041	
		Exterior Wood Solid Color Paint - Latex Satin Finish - Finish	Kelly Moore	A-100 Latex Satin A82 Series	
		Polyurthen System Primer - Galvanized Steel/Ferrous	Kelly Moore	Pro Industrial Pro-Cryl Universal Primer B66W00-310	
		Polyurthen System Finish - Galvanized Steel/Ferrous	Kelly Moore	High Solids Polyurethane 100 Series B65W00625	
		Polyurthen System Hardener - Galvanized Steel/Ferrous	Kelly Moore	Primer: B58v620 Finish: B65v625	
		Polyurethan System Primer - Ferrous	Kelly Moore	Macropoxy 646 - 100 Fast Cure Epoxy Primer B58W00620	
		Interior Wood - Painted Flame Retardant	Kelly Moore	10-10A	
		Interior Wood Paint - Primer	Kelly Moore	Premium Wall and Wood Primer B28W8111	
		Interior Wood Paint - Semi-Gloss	Kelly Moore	Promar 200 S/G Zero B31-2600	
		Interior Wood Paint - Egg-Shell	Kelly Moore	Promar 200 Egg Shell Zero B20-2600	
		Interior Wood Clear Finish	Kelly Moore	Wood Classic Ploy A67F1	
		Interior Wood Stained Urethane System	Kelly Moore	Miniwax 250 Stain	
		Interior Wood Stained Urethane System	Kelly Moore	Wood Classic Poly A67F1	
		Interior Drywall Primer	Kelly Moore	Promar 200 Interior Latex Primer B28W08200	
		Interior Drywall Paint - Egg-Shell/Flat	Kelly Moore	Promar 200 Zero VOC B30W02651	
		Interior Drywall Paint - Gloss	Kelly Moore	Promar 200 Gloss B21W00251	
		Interior Pipe Identification	Kelly Moore	Hydro Gloss H20 Based Urethane B65W181	
		Interior Galvanized Repair Paint	Kelly Moore	ZRC Zero VOC Water Based Galvanizing Compound	
		Anti-Slip Paint/Coating	Gaco		
	Elastomeric Coatings	Elastomeric Finish	Apoc/Western	Colloid	
		Metal Accessory Paint	Dryvit	Demandit	
		Roof Coatings	Western Colloid, Apoc		
		Building Coatings	Sherwin Williams	Sherlastic, Conflex	
		Wall Penetration Boot/Collar Flashing	Quickflash Weatherproofing Products, Inc.	P Series (Pipe and conduit penetration) E Series (Electrical boxes)	



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
DIVISION 10					
	Visual Display Boards	Markerboard	Platinum	DTS Series	Magnetic
	Signage	Signage	Advance Corporation, Braille Tac Division		
		Fire Extinguisher Signage	Seton	Model 39429	
	Dimensional Letter Signage	Dimensional Letters	Western Sign Company, Inc.		
	Toilet Accessories	Washroom/Shower Accessories	Bobrick		
		Grab Bars	Bobrick		
		Mirror	Bobrick	B-165	
		Electric Hand Dryer	Workd Dryer	SLIMdri. Aluminum, brushed chrome	
	Solid Plastic Toilet and Shower Compartments	Solid Plastic Toilet and Shower Compartments	ASI Global Partitions	Solid Plastic (HDPE)	
	Metal Lockers	Metal Lockers	Penco	Guardian Defiant	Lyon, Republic Storage
	Emergency Access Cabinets	Rapid Entry Access Vaults	Knox Company	Knox-Vault 3261	
		Key Switches	Knox Company	Model 3502	
	Fire Extinguisher and Fire Extinguisher Cabinets	Fire Extinguisher (Cabinet)	Potter - Roemer	3006 x 5" Diameter x 16" Tall	
		Fire Extinguisher (Wall Bracket)	Potter - Roemer	3410 x 7" Diameter x 24" Tall	
		Fire Extinguisher (Wall Bracket)	Potter - Roemer	Model 3352	
		Fire Extinguisher Cabinet	Potter - Roemer	Alta 7062-DV	
		Fire Extinguisher Wall Bracket	Potter - Roemer	Model 3904	
	Flagpoles	Flagpoles	Pole-Tech	PT306B Commercial Groundset Flagpole	
DIVISION 11					
	Audio Visual Equipment	Automatic Projection Screen	Da-Lite	Tensioned Contour Electrol	
		Speakers	Electra-Voice	ZX3	
		Mobile Equipment Rack Cart	Da-Lite	21U	
	Recreational Play Structures	Kindergarten Play Structure	Game Time	PowerScope Plus PowerScope	All About Play, Little Tykes
		Grade School Play Structure	Game Time	IONiX PowerScope	All About Play, Little Tykes
	Athletic Equipment	Basketball Assembly	Porter Athletic Company	Backboard: 00267-698 Goal & Net: 00202-H00 Upright Padding: 00069-000	
				Center-strut Ceiling Hung Side Folding Front Braced (90955000)	
		Volleyball	Porter Athletic Company	01971 Powr-Rib II	
		Wall Protection Pads	Porter Athletic Company	OSB Board with Bonded Foam and Vinyl Covering	
		Tetherball Post & Ball Assembly	Porter Athletic Company	Posts: 00763-00 Ground Sleeve: 00402-000 Ball: 00763-100	
		Handball Wall Assembly	L.A. Steelcraft	Ball Wall	
		Maps	World Maps Online	UM-US	
		Maps	World Maps Online	UM-WORLD	



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

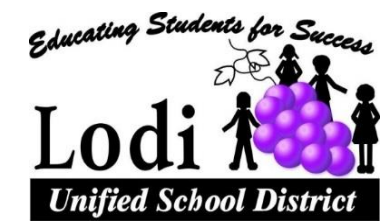
SECTION	ITEM	MANUFACTURER	MODEL	NOTES
DIVISION 12				
Window Shades	Windows	Lutron / Levelor	Lutron Serena	Levelor Mini Blinds
	Light-Filtering Fabric	Sheer Shade	Fiberglass Basketweave II	
	Single Roller Shade Assembly	Lutron	Roller 100 LFF - Darkening	
DIVISION 14				
Conveying Equipment	Vertical Platform Wheelchair Lift	Garaventa	Genesis Opal	or equivalent
DIVISION 21				
Fire Sprinkler	Fire Sprinkler Materials		To Be Specified by Engineer	
DIVISION 22				
Plumbing	Gate Valves	Hammond	Hammond IB641	
	Gate Valves	Hammond	Hammond IR-1138	
	Gate Valves	Mueller	Mueller Series 2360	
	Ball Valves	Nibco	Nibco T585-70	
	Ball Valves	Nibco	Nibco F-515-CS-F-66-FS	
	Ball Valves	Nibco	Nibco T-595-Y	
	Swing Check Valves	Stockham	Stockham B-321	
	Silent Check Valves	Nibco	Nibco Model T-480	
	Calibrated Balance Valves	Bell & Gossett Circuit Setter Plus		
	Building Gas Shut-Off Valve	Jomar	Jomar 175-LWN	
	Building Gas Shut-Off Valve	ReSun	ReSun D-126	
	Gas Shut-Off Valve Above Grade	Milwaukee	Milwaukee BB2-100	
	Seismic Gas Shut-Off Valve	Little Firefighter Corporation	NAGV, VAGV, AGV	
	Strainers for Potable Water	Watts	Watts LF777SI	
	Strainers for Potable Water	Watts	Watts 77F-DI-125	
	Valve Boxes	Christy	Christy No. G5 Traffic Valve Box	
	Valve Boxes	Christy	Christy No. F22	
	Valve Boxes	Brooks	Brooks No. 3-TL	
	Gauges	Marsh	Marsh "Series J"	
	Gauges/Thermostats		Pete's Plug II	
	Thermometers	Marsh	5" Diameter Bimetal Dial	
	Access Doors	Milcor	Style K	
	Access Doors	Milcor	Style DW	
	Access Doors	Milcor	Style M	
	Access Doors	Milcor	Style "Fire Rated"	
	Expansion Loops	Metraflex Inc.		
	Flexible Joints/Pipe Guides	Metraflex Inc.	Metraflex Metrasphere	
	Flexible Joints	Barco	Barco Ductile Iron	



LODI USD DESIGN SPECIFICATION GUIDELINES

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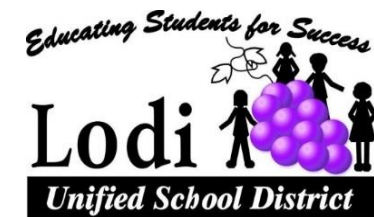
SECTION	ITEM	MANUFACTURER	MODEL	NOTES
Plumbing Fixtures	Water Closet Wall Mounted	Kohler or American Standard	Kingston 1.28 No. K4325	With manual Sloan flush valves
	Flush Valve	Sloan or Zurn	Royal Optima 111-1.28 ES-S	
	Flush Valve	Sloan or Zurn	Royal 142-1.28	
	Urinal Wall Mounted	Kohler or American Standard	Bardon 1/8 GPF No. K-4904-ET	With manual Sloan flush valves
	Flush Valve	Sloan or Zurn	Royal 186 ES-S HEU 0.125 GPF	
	Lavatory	Kohler or American Standard	Kingston No. K-2005	
	Faucet/Valve	Chicago	116.121.AB.1 Sensor Faucet	
	Faucet/Valve	Chicago	637-ETZ-003F SHADCP	
	Faucet/Valve	Sloan	Model E280F ETF-600 Sensor Faucet	
	Sink	Just Mfg. or Elkay	Model DRKADQ3119-65-BP	
	Faucet/Valve	Chicago	ECAST Model 350 Gooseneck	
	Faucet/Valve	Haws	5054LF Bubbler	
	Sink	Just Mfg or Elkay	Model LRADQ2219-65-BP	
	Faucet/Valve	Chicago	ECAST Model 50-317 Gooseneck	
	Sink	Just Mfg. or Elkay	Model LRADQ33-19-60	
	Faucet/Valve	Chicago	ECAST Model 1100-317	
	Solids Interceptor	Zurn	8715-2"	
	Service Sink	Kohler or American Standard	TNC-24-SH-SSC	
	Faucet/Valve	Chicago	Model 897-CP	
	Drinking Fountain	Haws or Elkay	1117L Dual Height, Wall Mount	Hi/Lo with bottle filler on chilled models
	Refrigerator Ice Maker	Guy Gray	Model SSIB2AB	
	Hose Bibb	Acorn or Woodford	Model 8121CR	
	Hose Bibb	Acorn or Woodford	Model 8126CR	
	Hose Bibb	Acorn or Woodford	5609QT	
	Hose Bibb	Acorn or Woodford	Model 8121CP	
	Wall Hydrant	Acorn or Woodford	M8104-E500	Freeze-less for exterior installations
	Wall Hydrant	Acorn or Woodford	Model 5509	Freeze-less for exterior installations
Plumbing Piping Systems	Drain and Waste Pipe Above Grade	AB & I		
	Joints Above Grade	ANACO-Husky		
	Drain and Waste Pipe Below Grade	AB & I		
	Joints Below Grade	ANACO-Husky	SD 4000	
	Joints Below Grade	Ty-Seal	Neoprene Gaskets	
	Grease Waste and Vent	AB&I		
	Gas Pipe Flexible Connection	Metraflex Inc.		
	Water Service Piping	J.M. Eagle		
	Gas Piping Underground	Performance Pipe	"DriscoPlex" 6500 PE 2708	
	Gas Piping Aboveground	Bonney	Bonney "Weldolet" Allied Pipe Fittings	
	Water Hammer Arrestors	PPP or MIFAB	Series 75000	
	Water Filters	Cuno Incorporated	Aqua Pure Model AP510	
	Hose Bibs	Acorn Engineering Co. or Woodford		Freezeless for exterior and roof installations



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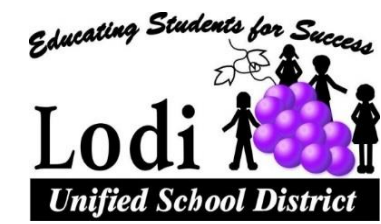
	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
		Hose Station Gas Pressure Regulating Valves	Leonard American	THS-25-VB-CW Model 1813C, 1803	



LODI USD DESIGN SPECIFICATION GUIDELINES

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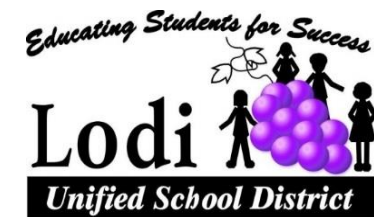
	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
		Gas Pressure Regulating Valves	American	Model 1813C	
		Gas Pressure Regulating Valves	American	Models 1813, 1813B	
		Relieve Valves	Cash (A.W.) Valve Manufacturing Corporation		
		Trap Primer	MiFab, Inc. or PPP		
		Thermostatic Water Temperature Control Valve	Bradley Corporation		
		Cleanouts	Zurn	ZN-1400-KC	
		Cleanouts	Zurn	ZN-1400-X-DX	
		Cleanouts	Zurn	Z-1440A	
		Cleanouts	Zurn	Z-1441/Z-1443	
		Cleanouts	Zurn	Z-1449-BP	
		Cleanouts	Zurn	Z-1400-HD-KC	
		Floor Drains	Zurn		
		Floor Sinks	Zurn		
		Roof Drains and Overflow Drains	Zurn		
		Hopper Drains	Zurn		
	Plumbing Equipment	Concrete Grease Interceptor	Jensen or Pro Cast		
		Commercial Electric Water Heaters	Bradford White Coproration or A.O. Smith		
		Instantaneous Electric Water Heaters	Eemax or Chronomite Laboratories, Inc.		
		Gas Fired Water Heaters	Bradford White Corporation		
		Expansion Tanks	Zurn/Wilkins or Amtrol, Inc.		
		In-Line Domestic Hot Water Recirculation Pumps	Grundfos Pumps Corporation		
		Deionizer	Culligan	Model SS-50 Mixed Bed Deionized Water System	
DIVISION 23					
	HVAC	Motor Starters	Allen Bradley	Square D Style K	
		Access Doors	Milcor	Style DW Style M Style "Fire Rated"	
	HVAC Equipment	Phase Protection	Sym Com	Model 201 A	
		Air Conditioning Unit	Lennox		Trane, Carrier, York (acceptable)
		Coil Guard	Micrometl		
		Modulating Power Exhaust Economizer	Micrometl		
		Split System AC Unit	Fujitsu		
		Variable Refrigerant Flow	Fujitsu		
		Variable Refrigerant Flow: Heat Pump Unit	Fujitsu		
		Variable Refrigerant Flow: Branch Circuit Controls	Fujitsu		
		Variable Refrigerant Flow: Energy Recovery Ventilator	Lossnay	LGH-F1200RX5	
		Exhaust Fan	Greenheck Fan Corporation		
		Transfer Fan	Greenheck Fan Corporation		



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
		Relief and Intake Vents	Lauren Cook Company		



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

SECTION	ITEM	MANUFACTURER	MODEL	NOTES
	Air Filters	Tridem	Tri Dek XL 4 Ply	Merv 11, no exceptions
	Ceiling Fan	Big Ass Fans	Essence Series	
	Exhaust/Intake/Relief Hood	Greenheck Fan	WRH	
	Backdraft Dampers	Ruskin	CBD2	
	Single Damper Blades: Self-locking Regulators	Ventlock	Ventlock 641	
	Single Damper Blades: End Bearings	Ventlock	Ventlock 607	
	Multiple Blade Dampers	Ruskin	CD35	
	High Velocity Dampers	Ruskin	CD50	
	External Insulated Duct: Self-locking Regulators	Ventlock	Ventlock 644	
	Fire Dampers	Ruskin	DIBD20 DIBD230	
	Fire Dampers: High Pressure/Velocity	Ruskin	FD60	
	Fire Dampers: Ceiling Installation	Ruskin	CFD 2/3/4/5 CFD7	
	Fire Dampers: Round Combination Smoke Fire	Ruskin	FSDR25 FSD60	
	Fire Dampers: 3-Hour Cominbation Smoke Fire	Ruskin	FSD60-3	
	Fire Dampers: Wall Type Combination Smoke Fire	Ruskin	FSD35 FSD60FA	
	Fire Dampers: Ceiling Type Combination Smoke Fire	Ruskin	FSD36C	
	Fusible Links	Ruskin	Ruskin 165F/350F Ruskin EFL Ruskin MCP2	
	Actuators	Belimo		
	Ductwork	Ductmate		
	Ductwork: Duct Sealing	Design Polymerics	DP1010	
	Ductwork: Duct Sealing	Foster	Foster 30-36 Adhesives	
	Ductwork: Rectangular Duct Turning Vanes	SMC Duct/E-Z	E-Z Rail II	
	Ductwork: Rectangular Internally Insulated Duct Fabrication	Johns Manville	Duct Liner PM	
	Ductwork: Round Internally Insulated Duct and Fittings	McGill AirFlow, LLC.	Acousti-k27	
	Duct Access Doors	NCA Manufacturing, Inc.	AD-RD-87	
	Flexible Air Ducts	C.A. Schroeder, Inc.	Cal Flex 2PMJ	
DIVISION 25				
Facility Controls	Automation Facility Controls	Pelican		



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
DIVISION 26					
	Building Wire and Cable	Building Wire	America Insulated Wire Corp.		
		Metal-Clad Armored Cable	American Cable Systems		Flex/MC to be used for lighting whips only when approved by District
		Flexible Cords and Cables	Carol Cable Company		
		Wiring Connectors and Terminations	Ideal		
	Grounding and Bonding	Ground Rods	Weaver		
		Ground Wells	Oldcastle Precast		
		Ground Bushings	O-Z/Gedney		
	Boxes	Outlet and Junction Boxes	Spring City Electrical Manufacturing Co.		
		Cast Boxes	Appleton Electric Co.		
		Floor Boxes	Legrand		
		Pull Boxes	Circle AW Products		
	Cable Trays	Ladder-Type Cable Tray	Chatsworth Products, Inc. and/or Panduit		
	Hangers and Supports	Concrete Fasteners	Hilti	Kwik Bolt	
		Concrete Inserts and Construction Channel	Unistrut Corp.		
		Conduit Straps	O-Z/Gedney		
	Conduit	Metal Conduit	Allied Tube and Conduit Co.		
		Fittings	Appleton Electric Co.		
	Underground Ducts and Structures	Underground Precast Concrete Utility Structures	Christy Concrete Products		
		Conduit, Ducts and Fittings	Prime Conduit		
	Signal Systems Raceway	"J" Hook Hanger	Unistrut Corp.		
	Electrical Identification	Conduit and Wire Markers	Thomas and Betts Corp.		
		Inscription Tape	Kroy		
	Network Lighting Control System	Network Lighting Control System	Wattstopper or GE Lighting System		
	Dry Type Transformers	Dry Type Transformers	Square D		
	Switchboards	Switchboards	Square D		
	Panelboards	Panelboards	Square D		
	Cabinets and Enclosures	Hoffman Engineering Co.			
	Wiring Devices	Switches, Receptacles and Coverplates	Leviton	#20AC Series #5362 Series #2091-S Series	Ivory in color
		Occupancy Sensor Switches	WattStopper		
		Floor Mounted Service Boxes	Legrand	#880C Series	
	Overcurrent Protective Devices	Fuses	Bussmann Division, Cooper Industries		
		Circuit Breakers	Square D -QOB-		
	Disconnect Switches	Disconnect Switches	Square D		
	Motor Controls	Manual Motor Starters	Square D		
	Surge Protective Devices	Surge Protective Devices	Current Technology		
	Exterior Lighting	LED Area Light		P21-A1-1-5W-80LA-WW-UNIV	4000K in Color Only
		LED Area Light - Backlight Controlled Optics		P21-A1-1-BLC-80LA-WW-UNIV	4000K in Color Only
		Pedestrian Scale LED Area Light		SFP-T3-5W-55LA-WW-UNIV-AR	4000K in Color Only



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

SECTION	ITEM	MANUFACTURER	MODEL	NOTES
Interior Lighting	4' Linear, Adjustable High Intensity LED Grazing Fixture	Color Kinetics	eW Graze Mix Powercore 523-000080-45	4000K in Color Only
	Solar Powered Rechargeable LED Light - Motion Sensor Activated	Cooper Lighting	MSLED	4000K in Color Only
	LEDs	General Electric		4000K in Color Only
	LED Drivers	Osram Sylvania		4000K in Color Only
	Emergency Batter Pack	Bodine		4000K in Color Only
	2'x4' Architectural Recessed LED Troffer	Lithonia	2FSL4-48L-EZ1-LP835-N100	4000K in Color Only
	2'x2' Architectural Recessed LED Troffer	Lithonia	2FSL2-33L-EZ1-LP835-N100	4000K in Color Only
	Suspended Indirect/Direct Linear LED Fixture	Fluxerx	VU1-S-A-D-35-A-LNEGTH-S-D-M-3-(A ***)	4000K in Color Only
	Recessed Linear LED Fixture	Finelite	HP4-WW-R-K-8'-SO-3500K-277V-SC-SF	4000K in Color Only
	Nominal 4' Long Surface Mounted Compact Linear LED Fixture	Philips	Fluxstream LF-4-FR-31-35-U-LAG + SVCC60-UNV	4000K in Color Only
	Nominal 4' Long Surface Mounted Compact Linear LED Fixture - with Batter Pack	Philips	Fluxstream LF-4-FR-31-35-U-LAG-EM + SVCC60-UNV	4000K in Color Only
	Nominal 4' Long Surface Mounted Compact Linear LED Fixture - Increased Lumen Output and 0-10V Dimming	Philips	Fluxstream LF-4-10-41-35-U-DZT	4000K in Color Only
	Nominal 6" Square Slim Surface mounted LED Fixture	Philips	Slim Surface S6S830K10	4000K in Color Only
	2'x4' Recessed LED Troffer	Metalux	2GRLD1-6400-A125-UNV-L835-CD-1	4000K in Color Only
	Suspended LED Area Light	Cree	CXBW16-CL16 + CXB-A-JP-H-40K-8-UL-10V + SC-5	4000K in Color Only
	LED Exit Sign	Eventlite	TLP-G-2U-W	4000K in Color Only
	LED Downlight	Gotham	EVO-SQ-35-15-6AR-LSS-MVOLT-EZ1	4000K in Color Only
	Exterior LED Wall Sconce	WAC	WP-LED127-30-GH	4000K in Color Only
DIVISION 27				
Telecommunication Cabling Systems	Equipment Racks and Cable Runways	Middle Atlantic		See 2019 District Technology Standards
	Bonding Strap	Panduit		See 2019 District Technology Standards
	Bonding Connectors and lugs	Panduit		See 2019 District Technology Standards
	Backbone Fiber Optic Cable	General Cable		See 2019 District Technology Standards
	Backbone Twisted Pair Cable	General Cable		See 2019 District Technology Standards
	Backbone Twister Pair Terminations	General Cable		See 2019 District Technology Standards
	Horizontal Twisted Pair and Modular Patch Cord Cable	Panduit		See 2019 District Technology Standards
	Horizontal Twisted Pair and Modular Patch Cord Terminations	Panduit		See 2019 District Technology Standards
	Audio Visual System			
	Interactive Flat Screen TV	Promethean Boards		
Assistive Listening System	Assistive Listening System	Williams Sound		Owner supplied, contractor installed
Campus Communication System	Bogen or Rauland			
Clock Systems	Clock System	American Time - Battery Clock		Owner supplied, contractor installed



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
DIVISION 28					
	Access Control	Accugardian			Entry Management Pelican/Novar
	Security Camera System	Milestone Software			Owner supplied, contractor installed
	Security Alarm Monitoring System	Security Alarm Monitoring System	Alamo Intrusion Alarm		Confirm with District's Facilities Dept. on each site
	Fire Alarm System	Manual Pull Stations	Gamewell SGI Products Only	Addressable Model	
		Heat Detectors	Gamewell SGI Products Only		
		Photoelectric Smoke Detectors	Gamewell SGI Products Only		
		Duct Smoke Detectors	Gamewell SGI Products Only	Model SPV	
		Notification Device: Speaker	Gamewell SGI Products Only		
		Notification Device: Strobe, Strobe/Speaker	Gamewell SGI Products Only		
	Notification Devices: Remot Power Supply for Strobe Circuits	Gamewell SGI Products Only			
DIVISION 31					
	Earthwork	Decomposed Granite Solidifier	PolyPavement		
	Termite Control	Termiticides	BASF or Wilco	Termidor SC	
	Vegetation Control	Soil Herbicide	Roundup Promax		
DIVISION 32					
	Asphalt Concrete Paving	Soil Sterilizer	Ciba Ceigy	Pramatol 25-E	
		Seal Coat Select Fillers and Fibers	Western Colloid Products	Park-Top No. 302	
		Pavement Epoxy	K-Lite	Ktexp-590	
		Crack Filler	QPR	CAR08	
		Crack Filler	Conoco, Inc.	Docal 1100 Viscolastic	
		Crack Filler	Topeka	Hot Mix	
	Concrete Paving	Anchoring Cement	Por-Rok		
		Integral Color	Davis Color	Mix Ready (Pre-bagged)	
	Tactile Warning Surfacing	Modular Paver Tiles (Cast-in-place)	Access Tile	Cast In Place Replaceable	
		Fasteners (Surface mount)			
	Synthetic Resilient Surfacing	Synthetic Resilient Surfacing	Sofsurface		
	Unit Masonry Retaining Walls	Modular Concrete Retaining Wall	Basalite	Keystone, Standard	
		Construction Adhesive	Basalite	Keystone Kapseal	
	Site Furnishings	Bicycle Lockers - Class 1	Creative Pipe, Inc.	CS1-C Common Wall	
		Bicycle Racks - Class III	Ribbon Rack, Inc.	RB 09 and RB 07	
		Skateboard - Vertical Dock	Park a Bike	Skatedock, SM-10	
		Wheel Stops	West Coast Rubber, Ground Rubber Solutions	Ground Rubber Wheel Stop	
		Skate Deterrents	Barret Robinson	Skate Stoppers, FA-FR FA 135	
	Chain Link Fences	Swinging Gates	BFC		Door King accessories
		Single Man Gate: Exit Device	Von Duprin / Schlage	Series 22 Exit Device (22NL)	
		Single Man Gate: Closer	Lockey	TB600 Hydraluic Gate Closer	
		Electric Gate Operators and Controls	LiftMaster	Elite CSW24VDC	



LODI USD DESIGN SPECIFICATION GUIDELINES

Edit Date: 1-28-2021

	SECTION	ITEM	MANUFACTURER	MODEL	NOTES
	Decorative Metal Fences	General Fence	Monumental Iron Works	Imperieal Fence - Style B	Door King accessories
		Double/Single Man Gate: Exit Device	Von Duprin	Series 22 Exit Device (22NL) 98/99	
		Double/Single Man Gate: Closer	Lockey	TB600 Hydraluic Gate Closer	
		Gate Operators	Lift Master	Elite CSW24VDC	
	Landscape Irrigation	Irrigation	Rainbird (only, no substitutions)		No substitutions
	Landscape Planting	Tree Staking Material	Arthur Enterprises	Tie-It Super Tree Ties	
		Filter Fabric	Fabriscap Inc.	Landscape Filter/drain Fabric	
		Mulch	Weyerhaeuser Company	Siva-Fiber	
		Root Barrier	NDS	EP series	
		Weed Control	Ubjohn	Enide	
		Fungicide	Cibe-Geigy	Subdue	
		Binders	AZ-TAC Products, Inc.	AM-TAC	



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Telecommunications Specifications and
Installation Standards
Edited: 05-19-2025



Table of Contents

Part 1 – General	3
1.01 Introduction	3
1.02 Work Included.....	3
1.03 Contractor Qualifications.....	3
1.04 Requirements.....	4
1.05 Submittals and Substitutions	7
PART 2 – Products and Procedures.....	8
2.01 Approved LUSD Parts List.....	8
2.02 Labeling	8
2.03 Copper Backbone Cable	8
2.04 Wi-Fi Cable	9
2.05 Workstation Cable	9
2.06 Intercom Cable.....	9
2.07 Access Control & Cameras	10
2.08 Promethean Boards/LCD Displays	10
2.09 Fiber Inner Duct	11
2.10 Fiber Distribution	11
2.11 Main Distribution Facility (MDF).....	11
2.12 Intermediate Distribution Facility (IDF)	12
2.13 Backboard	12
2.14 Grounding and Bonding.....	13
2.15 Testing and Documentation	15
2.16 Acceptance.....	17
PART 3 – Execution	18
3.01 Division of Work.....	18
PART 4 – Conduit	18
4.01 Underground.....	18
4.02 Aboveground.....	19
4.03 Portable Classrooms	19



PART 5 – Concrete.....	19
PART 6 – Change Orders	20
PART 7 – Departure from Specifications.....	20
PART 8 – Asbestos and Lead Containing Paint Waiver	20
PART 9 – Access Control & Video Safety.....	20
9.01 Introduction	20
9.02 JAESC/Transportation/Warehouse Specific Guidelines.....	20
9.03 School Site Specific Guidelines	21
9.04 District Wide Guidelines	21
9.05 Documentation Guidelines	22
9.06 Power	22
9.07 Miscellaneous	22
PART 10 – Promethean Boards, Displays, & A/V Projectors.....	23
10.02 Short Throw Projectors.....	23
10.03 Ceiling Mount Projectors	24
10.04 Promethean Boards	24
10.05 Multipurpose Rooms/Gyms.....	24
10.06 DSA Mounting Documentation.....	24
PART 11 – Intrusion Alarm	28
11.01 System.....	28
11.02 Telco Interconnect	28
PART 12 – Enclosures.....	28



Part 1 – General

1.01 Introduction

The following specifications are intended to assist in the development of a telecommunications system for accommodating present and future technologies within the Lodi Unified School District. They provide a set of instructions and materials needed to install a telecommunications system within parameters set by industry standards. The requirements for the structured cabling systems within the facilities are continued in this document.

1.02 Work Included

- Contractor shall design and provide all materials in order to install a complete and functional data/telecommunications and cable television infrastructure.
- Only one (1) Contractor shall be responsible for providing a complete and functional infrastructure, including necessary components and documentation.
- Documentation will include MS Visio drawings showing room drop locations, cable runs, and conduit pathways. Data, voice, and Fiber cables are all part of the same infrastructure and shall all be installed, terminated, labeled, and documented by only one contractor (no exceptions). Test results and drawings will be delivered in one package on a USB drive. If corrections/revisions are made, a new package is required.

1.03 Contractor Qualifications

- Must be a Panduit Certified Installer and have an Anixter account in good standing.
- Must possess a valid C-7 California State contractor's license. This license must have been issued 2 years prior to the date of the bid. No other license classification is acceptable.
- Must be able to prove to the satisfaction of LUSD that they have significant experience in the installation of fiber optic systems.
 - Proper installation of fiber optic cable
 - Fiber termination
 - Interconnecting equipment
 - Test procedures with appropriate documentation.
- Must prove employees have been trained in the proper handling and cleanup of small quantities of lead paint. Contractor must contact Technology Services, prior to any work starting for an updated list of sites that require drilling work to be handled by a dedicated asbestos vendor. In the event Contractor encounters asbestos, stop work and notify district.
- Must be in trade of installing telecommunication systems, continuously, for a period of at least 3 years prior to the date of this bid.



- Must submit at least one project reference for each of the three years prior to the date of this bid.
- Must provide a minimum of 3 references supporting a claim of experience for a similar project within 2 years prior to this bid. These project references shall contain the starting and ending contract price, the project foreman or superintendent's name, and the name, address, and telephone number of a project contact.
- Must also provide a list of key installation personnel, their hire dates and a resume of their experience. Key installation personnel shall include at least one foreman and two journey level installers or technicians. By submitting the names of these personnel, contractor is committing them to the execution of the project outlined in this specification.

1.04 Requirements

Drawings and General Provisions of the contract, including General and Supplementary Conditions and Division 1 Specifications Sections shall apply to work specified, in this Section.

Rules and Regulations

All work and materials shall be in full accordance with the latest rules and regulations of the following:

- EIA/TIA Standards
- BICSI Standards
- NEC Standards
- Title 24 (California Code of Regulation)
- All Local Codes
- LUSD Standards
- NFPA Standards
- ADA Requirements
- Safety, Health and Environmental Standards

Permits, Fees, and Inspections

Contractor shall be responsible for all fees and permits required to any governmental agency having jurisdiction over the work of this section. Contractor shall arrange inspections required by any local ordinances during construction. Upon completion of the work, satisfactory evidence shall be furnished to LUSD to show that all work has been installed in accordance with the code(s).

Examination of Site

Contractor shall be held to have visited the site and been satisfied with the conditions under which the work is to be performed. Contractor shall check existing conditions that may affect the work. If the contractor retains services of other firms, those firms shall investigate existing systems and determine labor and other materials required to add devices or modify systems.



No allowance shall subsequently be made on the contractor's behalf, for any extra expense resulting from a failure or neglect to discover conditions affecting the work.

Cleaning and Cleanup

All work areas shall be cleaned to remove all dust, dirt, grease, paint, or other marks. All electrical equipment shall be left in a clean condition inside and out, satisfactory to LUSD. Buildings and premises will be kept free from accumulated waste materials, rubbish and debris resulting from work. Upon completion of work: tools, appliances, surplus and waste materials, rubbish and/or debris will be removed and/or legally disposed of offsite.

Interruption of Services

- The underground route may run through areas of existing underground irrigation, signal, power, gas, water and sewer.
- Contractor must take precautions to avoid damaging/killing the root systems of existing trees. Contractor shall hand-dig as necessary to prevent disruption to existing systems, and make all repairs as required if damage occurred, at no additional cost to LUSD.
- LUSD will make every effort to assist contractor in locating existing underground routes. However, contractor will be required to pothole and inspect as needed. Contractor is responsible for USA surveys (Underground Service Alert).
- Power and signal services to existing buildings and related circuits are to remain in operation and shall not be interrupted, except by specific written approval from LUSD.
- If it is deemed necessary to shutdown circuits for the installation of new work, such shutdowns shall be scheduled with LUSD who may at its choosing, have a representative present during shutdown. Shutdowns shall be scheduled "after hours" or on weekends when an interruption would not cause a disturbance to school activities. Any accidental interruption of service to circuits or equipment as a result of work performed by the contractor shall be restored immediately in a manner acceptable to LUSD, at the contractor's expense.

Cooperation and Coordination

Contractor shall be solely responsible for instituting and maintaining safe working conditions for the project area under construction. Noise, dust, and other nuisance control measures will be implemented as effectively as possible. Work will be executed at a time when the space required by this installation is accessible. Adequate barrier and trench covers will be provided, and no equipment will be left unattended, ensuring the safety of students and staff.

Inspection

Contractor shall cooperate with the LUSD Designer/Inspector and provide assistance at all times for inspection of the work performed under this contract. Work that will be contained behind or under access covers, ground covering, or similar impediments shall be left exposed until inspected by LUSD. Contractor shall remove covers, operate devices, or perform any reasonable work that, in the opinion of LUSD, will be necessary to determine the quality and adequacy of the work.



Manufacturers Direction

Contractor shall follow manufacturer's directions that cover points not included in the drawings or specifications.

Workmanship

Contractor shall take all precautions necessary to protect existing structures. Structures or items to remain that are damaged during the course of work, shall be repaired or replaced by the contractor. Good workmanship shall be evident by the proper installation of all materials and equipment. Equipment shall be level, plumb and true with the structure and other equipment. All materials shall be firmly secured in place, adequately supported and permanent.

Contractor's Supervision

Contractor shall personally, or through an authorized and competent representative, constantly supervise the work from its commencement to its completion and acceptance. Contractor shall have the same foreman and workers on the job from its commencement to its completion, as much as possible. LUSD shall be notified of any personnel changes and supplied with the proper documents for any new personnel (i.e. lead certificates). All non-LUSD personnel shall be identified either by an ID tag or uniform with a company logo when on school grounds.

Scheduling of Work

Due to its nature, this work will have to proceed with a definite sequence of operations to minimize outages and continue facilities to all areas. The site will remain in operation during the work, and the contractor shall make every effort to maintain required services.

Guarantees

- Acceptance of the contract for this work includes this guarantee: Contractor guarantees that he has performed the work in accordance with the contract documents. Contractor also agrees to replace or repair, as new, any defective work, materials, or parts which appears within 4 years of final payment. LUSD will make the final determination of whether any defects are the responsibility of the contractor to replace or repair.
- Warranties, guarantees and certificates shall be provided for equipment and materials furnished and installed, as of the date of final payment and be delivered to LUSD. A set of "As Built" Visio drawings and test results for all installed cabling shall be provided to LUSD, before the project will be considered complete.
- Panduit Pan-Net Performance Guarantee - Contractor shall provide a 25 year application performance warranty for all Panduit Pan-Net copper cable and connectivity products. The system must be installed to meet all TIA/EIA commercial building wiring standards and installed per appropriate Panduit instruction sheets. If any Panduit product fails to perform as stated above, Panduit will provide new components at no charge.



1.05 Submittals and Substitutions

LUSD has evaluated and approved all the approved items listed in the LUSD Parts List.

Substitutions to this list are possible but must be approved before a bid is accepted.

Substitutions must be submitted to LUSD 10 working days before a bid is due and will either be approved or rejected 5 working days before a bid is due. The substitution documentation shall include the comparative specification listing for the approved product and the proposed product, including a complete listing of the characteristics of the equipment in the specification.

Within 10 working days after the date of the award of the contract, contractor shall submit to 3 copies of a complete submission to LUSD for review. The submission shall consist of 5 major sections, with each section separated with index tabs:

1. Section 1 shall be the Index, which will include the project title, address, name of the firm submitting the proposal and name of the architect. Each page in the submission shall be numbered chronologically and summarized in the index.
2. Section 2 shall include a copy of the contractor's valid C-7 California State Contractor's License, documentation outlined in Section 1.02 and a list of instrumentation to be used for system testing.
3. Section 3 shall contain the pre-approved substitution submittal and the written approval from LUSD. If no substitutions are planned, it will be noted in this section as well.
4. Section 4 shall contain samples of proposed cable markers and labeling.
5. Section 5 shall contain a complete and detailed satellite cable count, workstation count, bill-of-materials and Visio drawing showing proposed work ("As Planned"). Any contractor failing to include all of the required information shall be deemed non-responsive and may be disqualified, at the discretion of LUSD.



PART 2 – Products and Procedures

2.01 Approved LUSD Parts List

An approved parts list is detailed in “Enclosure C” of this document. Preferred education pricing provided for this list is available through Anixter Inc. (1-800-ANIXTER, reference Lodi Unified).

All products must be selected from the “LUSD Parts List,” unless substitutions have been approved by LUSD.

2.02 Labeling

- Shall follow the “LUSD Labeling Format” specified in Enclosure B, with the exception of workstation cables (i.e. patch cords).
- Shall never be hand-written.
- Shall be machine printed on clear or opaque tape, stenciled onto adhesive labels, or type written onto adhesive labels.
- Shall have font that is at least 1/8” in height, block characters, and legible.
- Shall have text that is of a color contrasting with the label so that it may be easily read. If labeling tape is utilized, the font color shall contrast with the background.
- Patch panels shall exhibit workstation numbers, in a sequential order, for all workstations served by the MDF or IDF.
- Shall be completed before testing commences. Labeling discrepancies found during inspection will void all test results.

2.03 Copper Backbone Cable

Description: The backbone cabling used to connect all IDF’s to the MDF, used for voice/data.

- Shall be Category 5e and installation must be in compliance with all EIA/TIA standards.
- The number of available wire pairs to each IDF must account for a minimum of 2 pairs per classroom. A minimum of 25 pairs of cable shall be used to any building encompassing an office. Each pathway, upon the population of cable, shall have enough wire pairs to accommodate all existing and future IDF’s in that pathway’s route.
- Cable must be rated for the environment that it will be installed in, such as plenum, riser or outdoor rated.
- Only Cat 5e 110 punch blocks will be allowed for terminations. Backbone pairs shall be terminated at the top left of the blocks installed in the IDF.
- Each copper backbone cable shall be machine labeled and printed EIA/TIA 606 Section 8 compliant at each end with its respective IDF number/letter. All binder groups shall be tied off with their respective identifying ribbon at every breakout point.



2.04 Wi-Fi Cable

Description: Cabling between Wi-Fi jacks and IDF/MDF's.

- Shall be blue Category 6A - 802.3bt Type 4 and installation must be in compliance with all EIA/TIA standards.
- Each blue cable shall be terminated at both ends with white Panduit Cat 6A RJ45 jacks.
- Panduit Executive style faceplate shall be used at access point location.
- Wireless access points shall be in every classroom, common areas, and exterior for full campus coverage.

2.05 Workstation Cable

Description: Cabling between workstations and IDF/MDF's.

- Installation must be in compliance with all EIA/TIA standards.
- Each standard classroom must have a minimum of three workstations:
 - Each workstation shall consist of 2 purple Cat 6A cables and 1 grey Cat 6A cable.
 - Workstations shall be disbursed around the room and not within 10 feet of the main door.
 - Each purple cable shall be terminated at both ends with a beige Panduit Cat 6A RJ45 jacks.
 - Each gray cable shall be terminated, with slack loop at IDF/MDF location with a Cat 6A Blue RJ45 for VOIP and 110 punch block for non-VOIP. District will identify where to use VOIP and where to non-VOIP. Workstation terminates with a Blue Panduit Cat 6A RJ45 jack for Voip and a Cat6A Black RJ45 for non-VOIP.
- Panduit LDP series or Panduit T-70 series (both Cat 6A compliant) raceway shall be used on interior walls where raceway is required for station drops. Panduit T -70 shall be used for computer labs and have access points every 5 feet (an access point shall consist of one duplex outlet 110 VAC receptacle and two beige Cat 6A data jacks).
- Copper station cabling may run outside of conduits and above T-Bar suspended ceilings when available. Cables installed in this fashion must follow these guidelines:
 - Run horizontally in bundles and tie down neatly without the use of zip-ties.
 - Be well clear of any light fixtures or other electrical appliances that may affect data transmissions.
 - Have their own support system, such as J-Hooks or a cable tray
 - Cable tray shall be a minimum of 12"x4" wire mesh and UL listed.
 - Cannot be supported by other items in the ceiling such as conduit, ducts and ceiling grids.

2.06 Intercom Cable

Description: Cabling between Intercom Speakers/Horns and IDF/MDF's.

- Green Cat6A cable shall be used for new IDF's/buildings.

- Indoor Speakers:
 - Indoor speakers shall have a Green Jack at the patch panel and at designated indoor speaker locations using a Panduit executive faceplate.
 - Locations shall be 18 inches away from Access Points , 4 inches below ceiling, and 4 feet away from HVAC vents.
- Outdoor Horns:
 - Shall have a green Jack at the patch panel and a Panduit Field Terminable RJ45 plug in a dual gang double-deep weatherproof bell box (w/ wire-wrap label).
 - Bell boxes shall be 4 inches away from ceilings, soffits, other devices, etc. and be protected with a wire cage, allowing protected interior space of 14 (h) x 14 (w) x 16 (d) or more. Note: Outdoor horns should be used in gyms, locker rooms, multi-purpose rooms, and other noisy areas. Boxes are to be mounted so the device mounting holes are vertical. All exterior boxes are to be covered with a weatherproof blank to protect wiring and building from weather. Picture below shows correct orientation.



2.07 Access Control & Cameras

Description: Cabling between cameras or access control devices and IDF/MDF's.

- Yellow Cat6A cable shall be used with yellow jacks.
- Access Control:
 - Shall be terminated with a yellow jack at each end of cable.
- Cameras:
 - Camera location shall be terminated with a Panduit Field Terminable RJ45 plug in a flush mount four square box w/ a single gang mud ring or an 8x8 weather tight NEMA rated box with screw on lid. (Don't forget Wire-Wrap Label)
 - Cameras should be mounted in locations shielded from the sun when possible.
 - All exterior boxes are to be covered with a weatherproof blank to protect wiring and building from weather.

2.08 Promethean Boards/LCD Displays

Description: Cabling between Promethean Boards/Displays and IDF/MDF's.



- Purple Cat6A cable shall be used with beige jack.
 - Beige jack shall be mounted in a Panduit Executive faceplate, located 29 inches below the ceiling, directly above the display (unless specified otherwise).
 - HDMI receptacle/faceplate shall also be mounted below the display, 14 inches above the floor, and terminate with an HDMI cable coiled behind the display.

2.09 Fiber Inner Duct

Description: Ducting specifically manufactured to enclose and protect fiber optic cable.

- Must be used for all fiber installations, with exceptions where conduits are too small to run inner duct.
- LUSD will be notified, in writing, that conduits might be too small to run inner duct. LUSD must approve, in writing, any fiber run not in inner duct.

2.10 Fiber Distribution

Description: The backbone cabling used to connect all IDF's to the MDF.

- Only 50 um-multimode fiber (OM4) shall be used and installation must comply with all EIA/TIA standards.
- Singlemode fiber (OS2) shall be used as needed due to distances.
- Only 62.5/125 um-multimode fiber shall be used for fire alarm applications
- A minimum of 12-strand fiber shall be used from the IDF's to the MDF.
- Each fiber cable shall homerun from the IDF's to the MDF without the use of interconnects.
- Each pathway, upon the population of fiber, shall have enough fibers to accommodate all existing and future IDF's in that pathway route.
- SC style connectors shall be used for all fiber termination.
- All fiber strands shall be terminated and labeled at both ends with its respective IDF identifier.
- All fiber interconnect devices shall be labeled with their respective IDF identifier.
- At each location where the fiber cable is exposed to human intrusion, it shall be marked with warning tags. These tags shall be yellow or orange in color, and shall contain the warning: "CAUTION FIBER OPTIC CABLE." The text shall be black, block characters and at least 3/16" high. A warning tag shall be permanently affixed to each exposed cable or bundle of cables.

2.11 Main Distribution Facility (MDF)



Description: A location within a building or complex of buildings, where the entire telecommunications system originates. EIA/TIA-569 standards refer to the room housing the MDF as the "Equipment Room."

- Must be in compliance with all EIA/TIA standards.
- Must have fire treated ¾" plywood on all walls.
- Must have (1) 4-post rack and (2) 2-post racks in secured dedicated rooms
- NEMA 5-20 power outlets must be mounted 8 inches above any ladder racks and be less than 8 feet from two post stand-up 19 inch data racks.
- Cabinets must have a dedicated power outlet mounted inside.
- Cabinet shall be load tested with no less than 200 pounds and up to rated shear strength.
- Ladder racking must be mounted on the perimeter of all walls and above cabinets.
- A Panduit wire manager must be mounted in-between every patch panel (must use one wire management panel for every patch panel).
- A 3-foot slack loop shall be required at MDF for all cables.
- MDF room sizing:
 - High School – 15'x10'
 - Middle School – 10'x8'
 - Elementary School – 9'x8'

2.12 Intermediate Distribution Facility (IDF)

Description: A location in a building that interconnects and manages the telecommunications wiring between the MDF and workstation devices.

- Must be in compliance with all EIA/TIA standards.
- Must have fire treated ¾" plywood on all walls.
- Cabinets must have a dedicated power outlet mounted inside.
- Must have (2) lockable 90" tall, 19-inch / 40 RU, front and rear swing cabinets in unsecured locations.
- Must have (2) 2-post racks in secured dedicated rooms.
- Cabinet shall be load tested with no less than 200 pounds and up to rated shear strength.
- Ladder racking must be mounted on the perimeter of all walls and above cabinets.
- Cabinets must adhere to ADA requirements. See Enclosure G
- A Panduit wire manager must be mounted in-between every patch panel (must use one wire management panel for every patch panel).
- A 3-foot slack loop shall be required at IDF for all cables.

2.13 Backboard



Description: Generally, refers to the plywood sheeting lining the walls of telecommunications facilities. Backboard may also refer to the entire wall-mounted assembly including wire management, wiring blocks, and equipment cabinets.

- Must have fire treated $\frac{3}{4}$ " plywood on all walls.
- Dimensions shall be no larger than the cabinet/IDF when installed in a classroom.
- Shall be fastened to two separate wall studs with 4 lag bolts.
- Shall be no thinner than $\frac{5}{8}$."

2.14 Grounding and Bonding

Description: Generally, refers to the grounding and bonding requirements for telecommunications rooms, including data cabinets, racks, and ladder racking systems. Strictly adhere to all Building Industry Consulting Service International (BICSI), Telecommunications Industry Association (TIA) recommended installation, best practices, codes, and standards when installing the grounding and telecommunications bonding infrastructure.

- Telecommunications Main Grounding Busbar (TMGB) shall be located in the MDF: busbar placed in convenient and accessible location and bonded by means of bonding conductor for telecommunications to building service equipment (power) ground.
 - Telecommunications Main Grounding Busbar (TMGB) shall be constructed of .25" (6.4 mm) thick solid copper bar. The busbar shall be 4" (100 mm) high and 20" (510 mm) long and shall have 30 attachment points (two rows of 15 each) for two-hole grounding lugs. The hole pattern for attaching grounding lugs shall meet the requirements of ANSI-J-STD – 607-A and shall accept 27 lugs with $\frac{5}{8}$ " (15.8 mm) hole centers and 3 lugs with 1" (25.4 mm) hole centers. The busbar shall include wall-mount stand-off brackets, assembly screws and insulators creating a 4" (100 mm) standoff from the wall. The busbar shall be UL Listed as grounding and bonding equipment.
- Telecommunications Grounding Busbar (TGB) shall be located in the IDF: interface to building telecommunications grounding system generally located in telecommunications room. Common point of connection for telecommunications system and equipment bonding to ground, and located in telecommunications room or equipment room.
 - Telecommunications Grounding Busbar (TGB) shall be constructed of .25" (6.4 mm) thick solid copper bar. The busbar shall be 2" (50 mm) high and 12" (300 mm) long and shall have 9 attachment points (one row) for two-hole grounding lugs. The hole pattern for attaching grounding lugs shall meet the requirements of ANSI-J-STD – 607-A and shall accept 6 lugs with $\frac{5}{8}$ " (15.8 mm) hole centers



and 3 lugs with 1" (25.4 mm) hole centers. The busbar shall include wall-mount stand-off brackets, assembly screws and insulators creating a 4" (100 mm) standoff from the wall. The busbar shall be UL Listed as grounding and bonding equipment.



2.15 Testing and Documentation

Testing: Contractor shall test each fiber strand and each pair of twisted pair copper cable after labeling is 100% complete. LUSD reserves the right to have a representative present during testing.

- **Fiber Optics Cable:** Each strand shall undergo bi-directional testing for signal attenuation losses.
 - Test Equipment:
 - Multi-mode: Fluke DSP 4000 for equivalent.
 - Single-mode: Laser Precision TD2000 OTDR with appropriate modules, or equivalent.
 - Tests:
 - Multi-mode: Bi-directional signal attenuation at 850 and 1300 nm.
 - Single-mode: Bi-directional signal attenuation at 1310 and 1550 nm.
 - Test Criteria:
 - Signal loss less than the link loss budget as determined by the tables below.

SC Connector Pair	0.5dB
Multi-Mode Cable	
Wavelength (nm)	Maximum Attenuation (dB/km)
850	3.5
1300	1.5

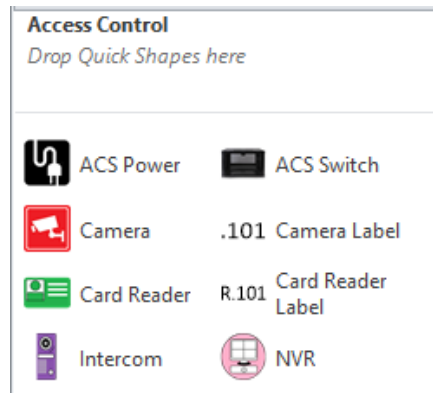
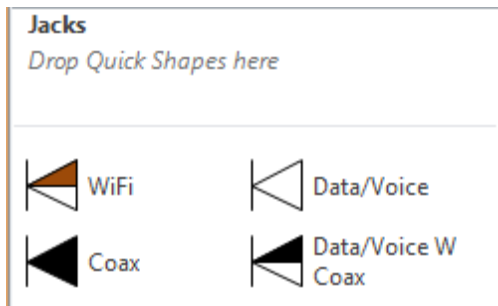
Example: A link with 3 connectors and a total length of 500m should have a maximum attenuation of 3.25dB at 850nm and 2.25dB at 1300nm

SC Connector Pair	0.5dB
Single-Mode Cable	
Wavelength (nm)	Maximum Attenuation (dB/km)
850	1.0
1300	1.0

- **Workstation Cable:** Each workstation cable shall be tested from the Jack Panel to the data outlet after labeling is completed.
 - Test Equipment: Fluke DSP-4000 or equivalent.
 - Tests: Conform to EIA/TIA Standards for Category 6A.
 - Test Criteria: Tested to Category 6A for permanent link compliance.
- **Wi-Fi Cable:** Each Wi-Fi cable shall be tested from the Jack Panel to the data outlet after labeling is completed.
 - Test Equipment: Fluke DSP-4000 or equivalent.
 - Tests: Conform to EIA/TIA Standards for Category 6A and 802.3bt Type 4.
 - Test Criteria: Tested to Category 6A for permanent link compliance.

Documentation: Contractor shall provide documentation to include test results and Visio “As-Built” drawings in both soft and hard copy format.

- **Fiber Test Results:** Shall be entered onto the attached form "Fiber Test Results."
 - Only original signed copies will be acceptable.
 - Hand written results are not acceptable.
 - Copies of test results are not acceptable.
 - Test results shall be in PDF format.
- **Workstation/Wi-Fi Test Results:** Shall be provided in the form of printouts from the test equipment, as well as computer file copies on CD including the software needed to read the results.
 - Only original signed copies will be acceptable.
 - Hand written results are not acceptable.
 - Copies of test results are not acceptable.
 - Test results shall be in PDF format.
- **As-Built Drawings:** Contractor shall produce drawings while adhering to the following guidelines:
 - Always use icons from the Visio stencils provided by LUSD. Not all available icons are shown below.



- Depiction of backbone cable routing.
- Locations of access points, card readers, distribution cabinets, intercoms, jacks, NVRs, security cameras and workstations.
 - Active components between an end point and NVR/switch, must be documented (power injectors, switches/repeaters, hubs, etc.).
 - Access Control components must have power sources identified.
 - Jacks must be accompanied by a jack label.
 - Nodes must be accompanied by an IP address.
- Submit before final inspection for punch list. Incorrect Visio drawings are punch list items and are to be corrected before re-inspection.
- Additional copies corresponding to the appropriate IDF/MDF, shall be posted in the MDF's and IDF's.



- With regard to functionality, contractor must demonstrate to LUSD that Gigabit Ethernet data signals can be successfully transmitted bi-directionally, from the MDF/IDF to and from a number of individual data outlets.
 - No more than 5% of the data jacks will be tested.
 - If any locations fail, an additional 5% will be tested until no more links fail.
- With regard to documentation, all required documentation shall be submitted to LUSD

PART 3 – Execution

3.01 Division of Work

Contractor shall design and install the data communications system as described in the preceding documentation. Installation shall result in a functional system. The scope of work shall include:

- All necessary conduit and raceway with a Visio drawing showing proposed cable routes, existing conduit to be used, new conduit being installed, equipment racks and approximate drop location. (Note: The EIA/TIA specifies at least 2 drops per workstation location, back to the IDF/MDF).
- Necessary trenching, backfill, replacement of landscape material, repair of damage to utilities or structures, replacement of asphalt and base, and replacement or repair to concrete work resulting from conduit or raceway installation.
- Provide and install all equipment.
- Test and document system upon completion. Copies of all other forms and enclosures shall be included.
- Supply and install all necessary materials resulting in a safe, complete and functional system. The scope of work shall be reviewed by no less than 1 person for completeness from the following departments: Facilities & Planning, Maintenance & Operations.

PART 4 – Conduit

4.01 Underground

- Contractor will use PVC schedule 40 underground, with rigid 90-degree elbows and tracer tape placed 6" to 12" over the top of the PVC portions. Elbows shall have a radius of at least 10 times the diameter of the conduit used.
- See NEC for appropriate depths and pull box sizes.
- Should be next to existing underground where possible.
- All new underground conduits shall be (2) 4" plus (1) 4" spare, PVC to support data/voice/intercom/PA. All new underground conduits shall be 2" PVC to support fire alarm.
- Areas near tree roots and other underground utilities will need to be hand dug. LUSD will identify those areas. Pull boxes are to have traffic lid covers (that say Data). The bottom will be grooved with drains installed. LUSD will provide diagrams upon request.



4.02 Aboveground

- All roof penetrations shall be approved by LUSD, before actual penetration is made.
- All exterior conduit that is accessible shall be in rigid conduit.
- A pull rope will be installed in all new and existing conduits used, including underground and interior conduit.
- Firewall penetrations will extend through the wall a minimum of 12 inches.
 - Shall be sealed around the outside with firecaulk.
 - Shall be sealed around the inside with firecaulk duct seal (the depth shall be 50% diameter of the conduit).
 - No innerduct shall be installed in a firewall penetration.
- Conduit size to be determined by EIA/TIA Standards leaving room for future expansion.
- EMT conduit shall be used in the following interior areas:
 - Gyms.
 - Multi-Purpose rooms.
 - Industrial Arts buildings.
- LB's shall not be used in new and existing conduit for data applications.
- All exterior boxes/mud rings shall be protected by a weather-proof cover.
- Data/Voice conduits shall service LUSD's voice and managed IP network only.

4.03 Portable Classrooms

- All conduits to be installed on the exterior of a portable will be approved by LUSD personnel before installation.
- The center beam of a portable shall not be penetrated.

PART 5 – Concrete

- ALL concrete and asphalt repair shall be included in the scope of work and will be replaced from joint to joint (no patching, except when done temporarily for safety).
- Soft patch may not be used as a permanent patch for asphalt or concrete.



PART 6 – Change Orders

ALL change orders shall be routed to the department originating the project. Departments are typically Facilities & Planning and Technology Services and will be approved or disapproved on a case by case basis.

Approved change order form will be added to the scope of work and completed as a part of the contract.

PART 7 – Departure from Specifications

During unusual or unique situations, a departure from specifications (DFS) may be granted for specific locations and/or equipment. Approval is granted or denied in writing by Technology Services. See section 1.05 for materials substitutions.

The contractor will keep all forms on file until the warranty on the installation expires.

PART 8 – Asbestos and Lead Containing Paint Waiver

Asbestos work must be performed by M&O approved certified remediation company. Contractor must contact LUSD's Maintenance and Operations (M&O) department for a current list of Asbestos Hazard Emergency Response Act (AHERA) sites, requiring work to be performed by a remediation company.

All District sites will be considered to be a lead containing paint facility unless the area of work has been sampled and determined to be otherwise. All work including but not limited to cutting and/or hole drilling will be performed by a lead awareness trained individual that is also trained in HW collection and disposal activities. Otherwise the contractor must employ the services of an environmental company approved by M&O and certified to perform these duties. All environmental activity will be reported to the Maintenance & Operation Structural Supervisor at (209) 331-7193 prior to the commencement of work.

PART 9 – Access Control & Video Safety

9.01 Introduction

In addition to LUSD Infrastructure Wiring Specifications, the following guidelines apply to access control card readers, security cameras, and other access devices installed within LUSD.

A site walk must also be performed with a Technology Services staff member before work begins.

9.02 JAESC/Transportation/Warehouse Specific Guidelines

- Access control devices and security cameras will be:



- Connected directly on the LUSD network.
 - Operations, VLAN 99.
 - Powered by LUSD POE switches.
- All access control nodes should be fed from the MDF, when the run is within EIA/TIA specifications.
- NVR will be housed in the Data Center and rack mounted.

9.03 School Site Specific Guidelines

- Access control card readers and other access devices will be:
 - Connected directly on the LUSD network.
 - Operations, VLAN 99.
 - Powered by LUSD POE switches.
- Security cameras will be placed on their own private network.
- The installation location of the NVR is to be coordinated with Technology Services. Ideally, the NVR will be installed in the MDF where security and environmental conditions are monitored.
 - NVR's are to have two NICs
 - One placed on the private network
 - The other on LUSD's Operations network.

9.04 District Wide Guidelines

- Network Video Recorder (NVR), GateKeeper, and other full OS devices (Windows/Mac), will have the LUSD's Anti-Virus and LanRev agents installed on the systems. In addition, the device name and description are setup according to LUSD specifications.
- All power supplies shall be housed in a cabinet or communications closet.
- All cable runs shall be terminated at a jack, not a modular plug.
- No faceplate needed in ceiling jacks and utilize yellow patch cables.
- Contractor shall receive approval from LUSD before sharing any cabling pathways with existing LUSD infrastructure.
- Yellow Cat 6A cable shall be used for infrastructure cabling runs, terminated into yellow Panduit jacks.
- 19" Patch Panel required for all cabinets (both existing or new cabinets).
- Repeaters/switches used where a 90 meter run is exceeded, are to be located 5 feet from an existing MDF/IDF.
- All jacks shall be labeled in accordance with LUSD specifications.
- Technology Services Network Operations Center (NOC) shall be contacted before anything is patched into LUSD's network. The NOC will be able to verify connectivity and ensure there are no other issues.
 - NOC can be reached at: (209)331-8324, press *0 when at the option menu, then press 6.

9.05 Documentation Guidelines

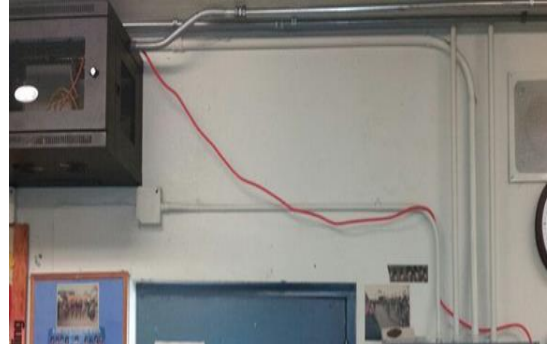
- Please see section 2.15 for cable testing and Visio drawing guidelines

9.06 Power

All Cabinets will have a dedicated circuit/breaker and power sources must be mounted per NEC requirements.

During the initial walk with Technology Services, power sources will be identified. If power source is not available, Technology Services will work with M&O to coordinate the installation of power source.

Powering cabinets with extension cords is not permissible.



Temporary Power

If active components are not operating off a dedicated power outlet/source, then it needs to be noted on the drawing with building/location. All active components mounted in a cabinet must have a dedicated power outlet within the cabinet. Do not affix raceway to walls for temporary power/extension cords.

9.07 Miscellaneous

- All wires must be labeled w/ wire-wrap style labels within 3 inches of the jacks.
- Jacks should be labeled and tested at both ends of each smallest segment according to Specifications. This type of passive cross connect is no longer allowed.



- As of July 1st, 2016, single gang boxes are not permitted in IDF's.
- This photo depicts what **not** to use anymore.
 - Jacks are now placed in a 24 port patch panel
 - Panduit part #CP24BLY



PART 10 – Promethean Boards, Displays, & A/V Projectors

10.01 Mounting Guidelines

- For new construction, DSA approved drawings on following pages must be observed by both architect and installer.
- DSA standards must be followed
- Any non-standard mounts must be approved by F&P.
- All mounts must be tagged with contractor's name and date of installation. See DSA approved mounting documentation.
- HDMI cables mounted in raceway must be able to pass a clean digital signal, with an allowance for a standard quality user patch cable to span 35 feet.
 - For example: If the user connects a 35-foot cable to the user interface/wall plate and the length of the infrastructure cable between the wall plate and the projector is 10 feet, then the total length of digital transmission is 45 feet; therefore, the installer must demonstrate that the infrastructure cable can deliver a clear picture while being extended with a 35-foot HDMI male-to-male patch cable. Sound must also be demonstrated through jacks in faceplates.
- User connection interface/wall plate will contain, one VGA, one HDMI, and one 1/8 stereo audio jack. Active faceplates will be used for VGA/HDMI connection.
- User connection interface/wall plate will contain one VGA, one HDMI, and one 1/8 stereo audio jack. Active faceplates will be used for VGA connection.
- Power will be installed high on the wall within two feet of the projector.

10.02 Short Throw Projectors

- Mounted to a plate/backboard that spans two studs.
- Secured to wall studs with 4 lag bolts.
- Head clearance from bottom of projector must be a minimum of 78 inches from floor.
- All CAT6A network connections, AV connections, and power shall be installed behind the short throw wall mount bracket.



- The use of short throw projectors shall be determined per project, and with District approval.

10.03 Ceiling Mount Projectors

- For T-Bar Ceiling: Two drop ceiling T-bar rods must be attached to opposite corners of the T-bar projector mount panels.
- For Hard Lid Ceiling: Mount must be bolted to cross-members(or ceiling joist) with no less than two bolts and some additional mounting brackets.
- All CAT6A network connections, AV connections, and power shall be installed above the ceiling mount bracket.
- The use of ceiling mount projectors shall be determined per project, and with District approval.

10.04 Promethean Boards

- Wall mounted Promethean Boards shall be installed in all classrooms
- HMDI cabling shall be from Promethean Board to the teaching station with a CAT6A connection. An additional HMDI connections shall be installed directly below the board with a CAT6A connection mounted in an accessible location behind the board.

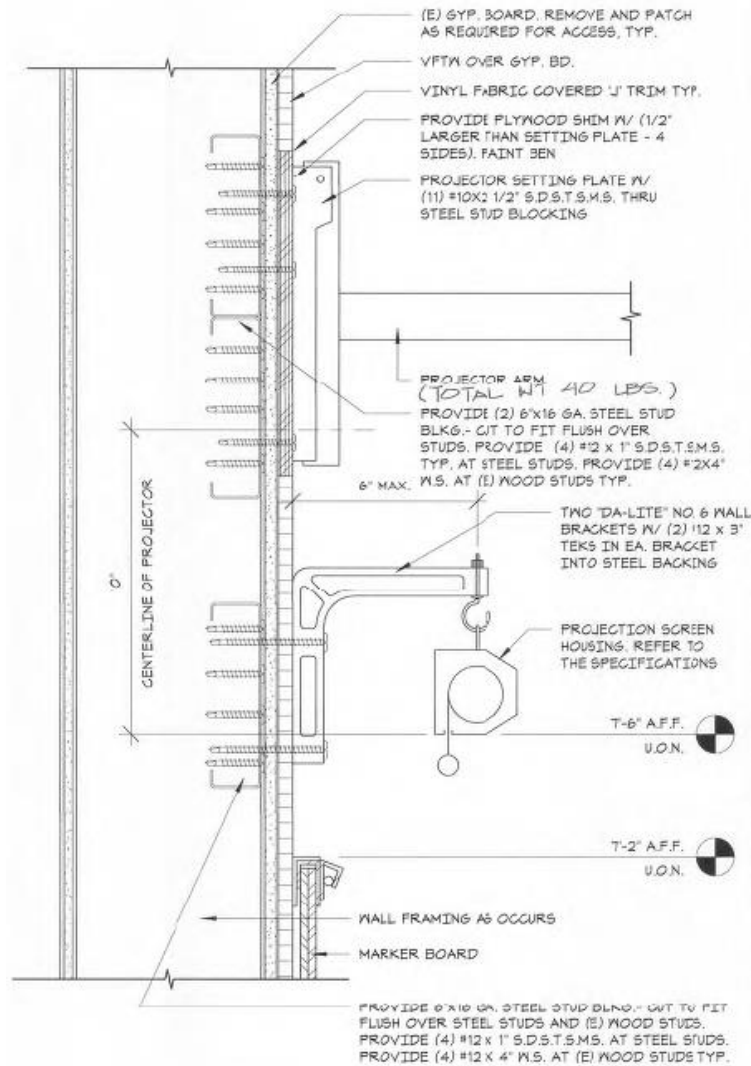
10.05 Multipurpose Rooms/Gyms

- Large assembly areas shall receive electric large format projection screens and lamp less ceiling mounted projectors. Refer to current District standards for current manufacture and model number.
- Large assembly areas shall have a dedicated AV cabinet to facilitate local presentations and house wireless microphones and AV amplifiers.
- Large assembly areas shall have separate sound systems.
- AV wall controls shall be based on Extron Electronics and control all AV in the space, with the capability to integrate lighting and shades.
- Sizing of screens, throw distance of projector, and locations shall be engineered by AV Contractor and approved by the District.

10.06 DSA Mounting Documentation

Projector Anchor – Wood/Metal Studs (Sample)

- Electric screens shall be used, where applicable.



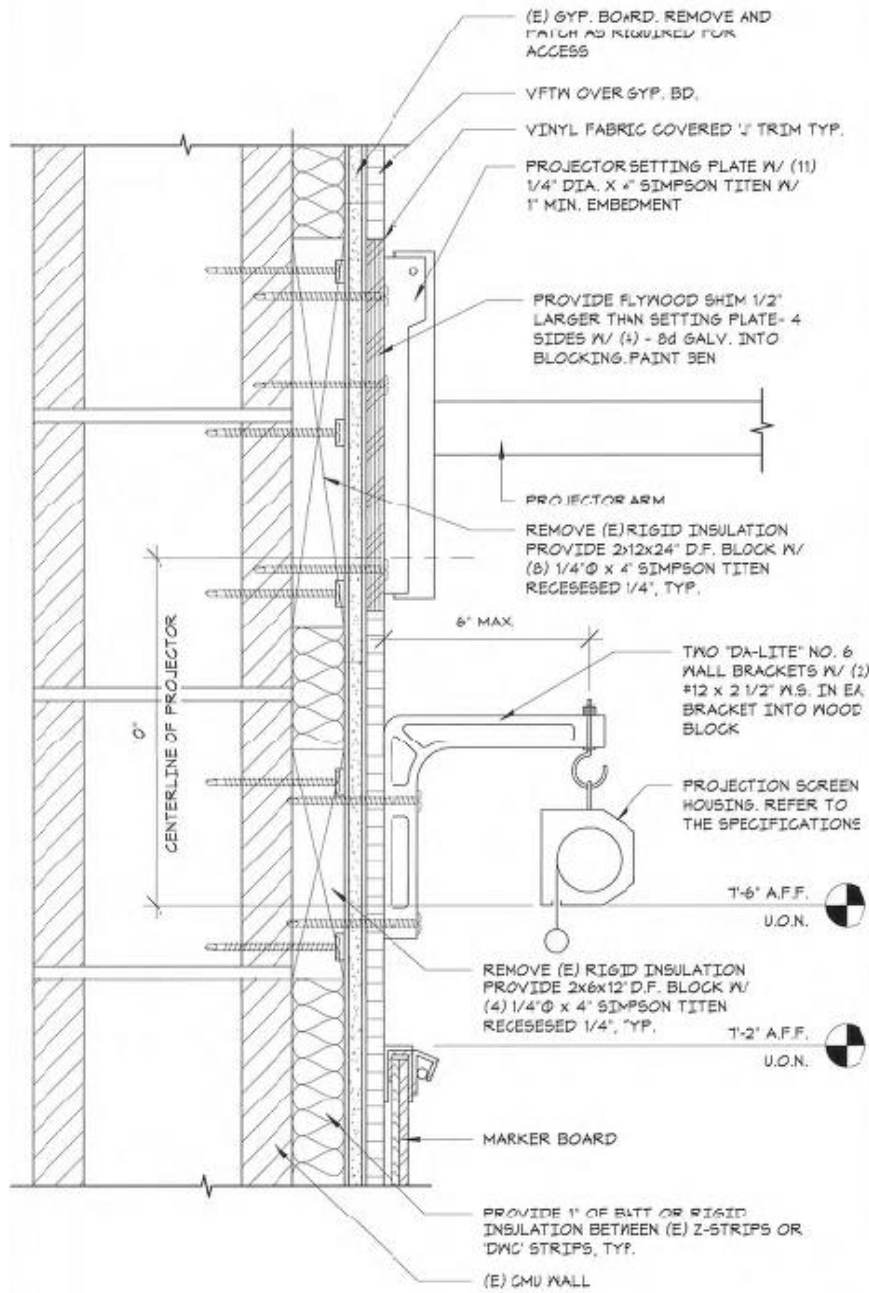
SCALE 3" = 1'-0"

16

PROJECTOR ANCHOR - WOOD/METAL STUDS

FILENAME: 11_52_16_dwg

Projector Anchor – CMU (Sample)



SCALE 3" = 1'-0"

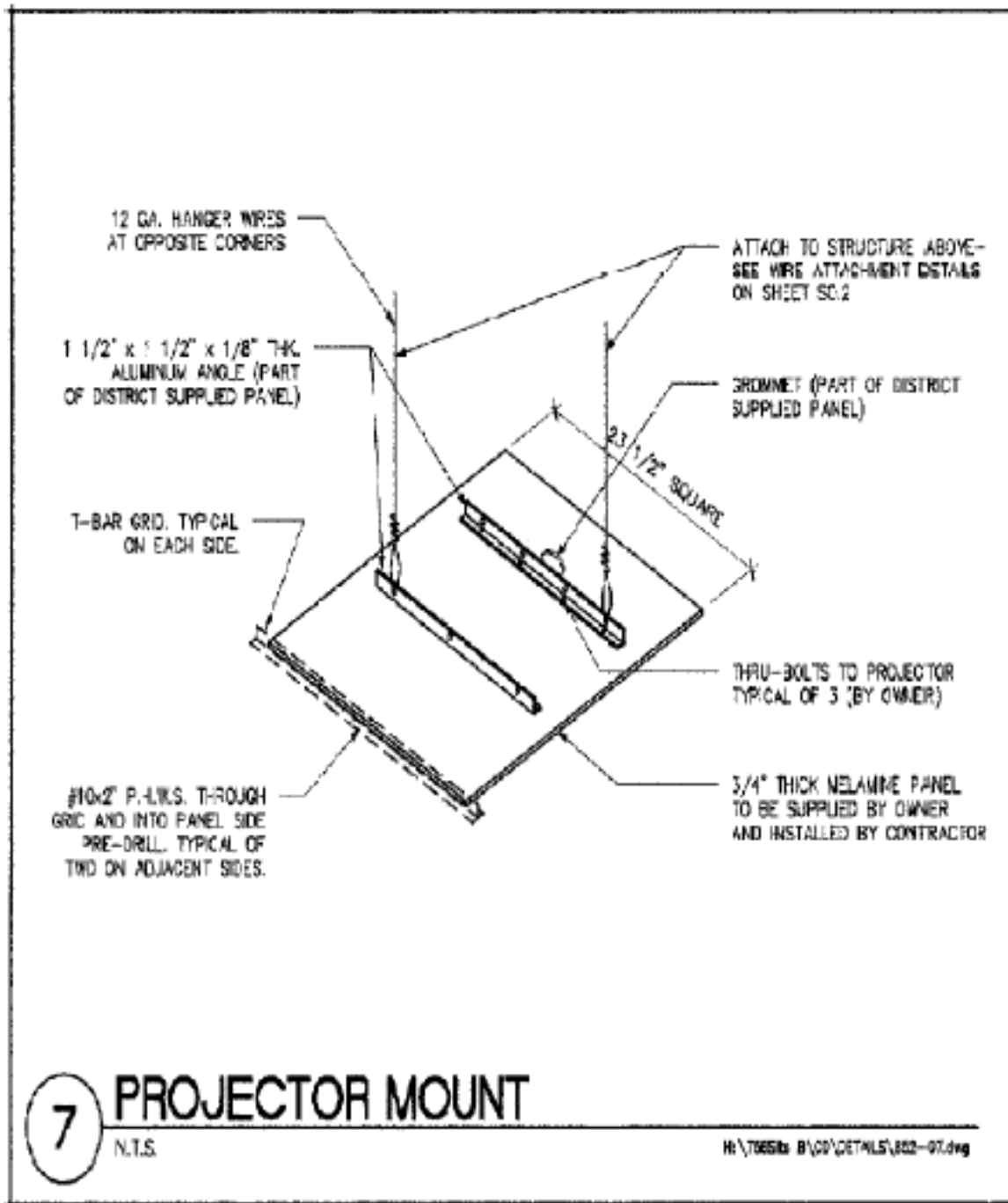
13

PROJECTOR ANCHOR - CMU

FILENAME: 11_52_11.dwg

Projector Mount (Sample)

Panel must have two drop ceiling suspension wires.





PART 11 – Intrusion Alarm

11.01 System

- The system is based on Ademco panels, keypads, and devices
- No door contacts

11.02 Telco Interconnect

- Shall be clearly identified by the CSID noted on the keypad for each COM panel.
- Each new COM panel shall have a dedicated Measured Business Line.
- 3-pair 66 block style biscuit-blocks are preferred at point of termination for COM panel phone lines (No RJ31X's).
- LUSD will only test Measured Business Line to 66 block style biscuit-block.

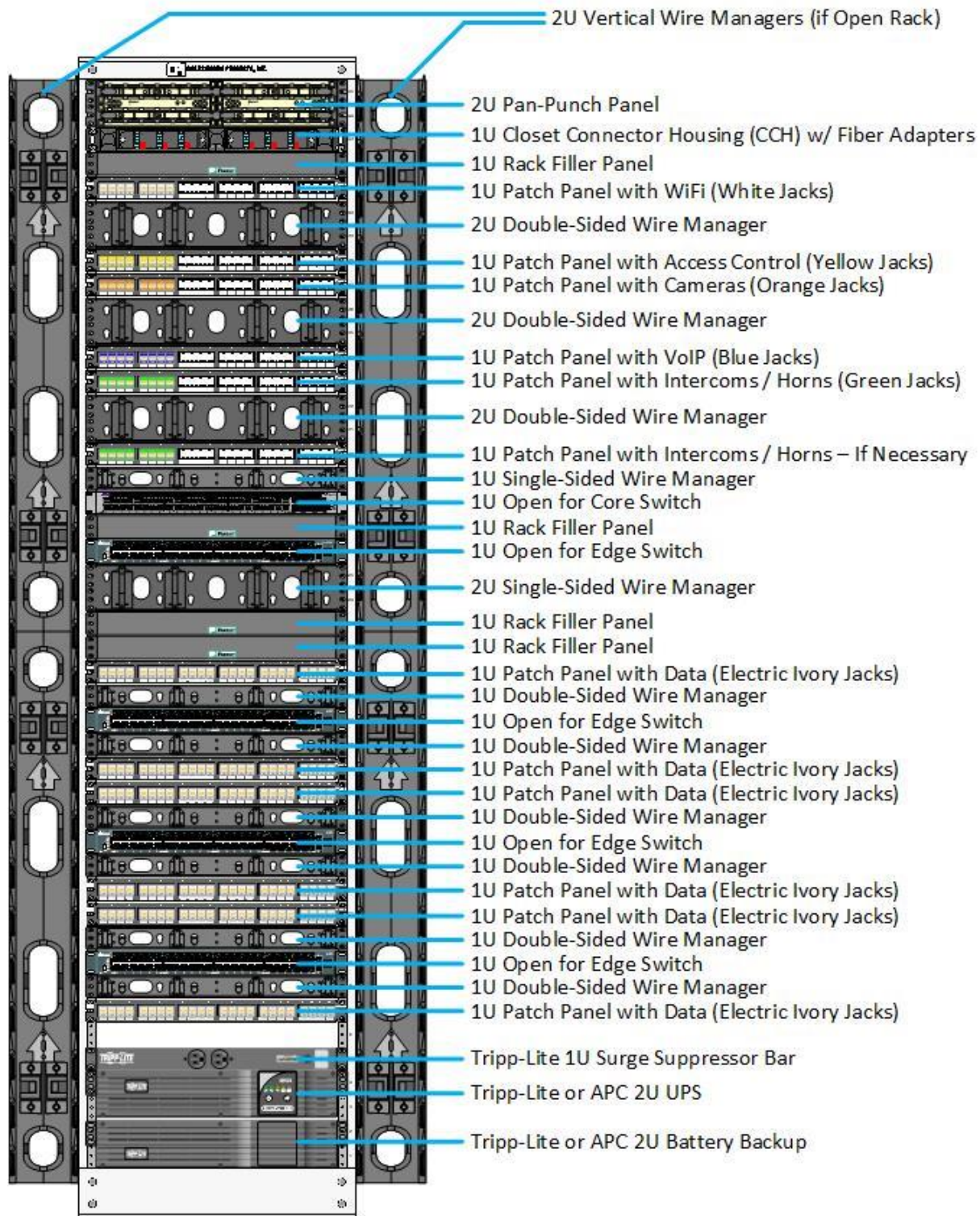
11.03 Wiring

- Shall be supported by D rings, Velcro, or J hooks.
- Pathways should not be shared with data cabling.
- When overriding existing voice or data cables in a box or conduit, Technology Services must be contacted and give approval to do so.

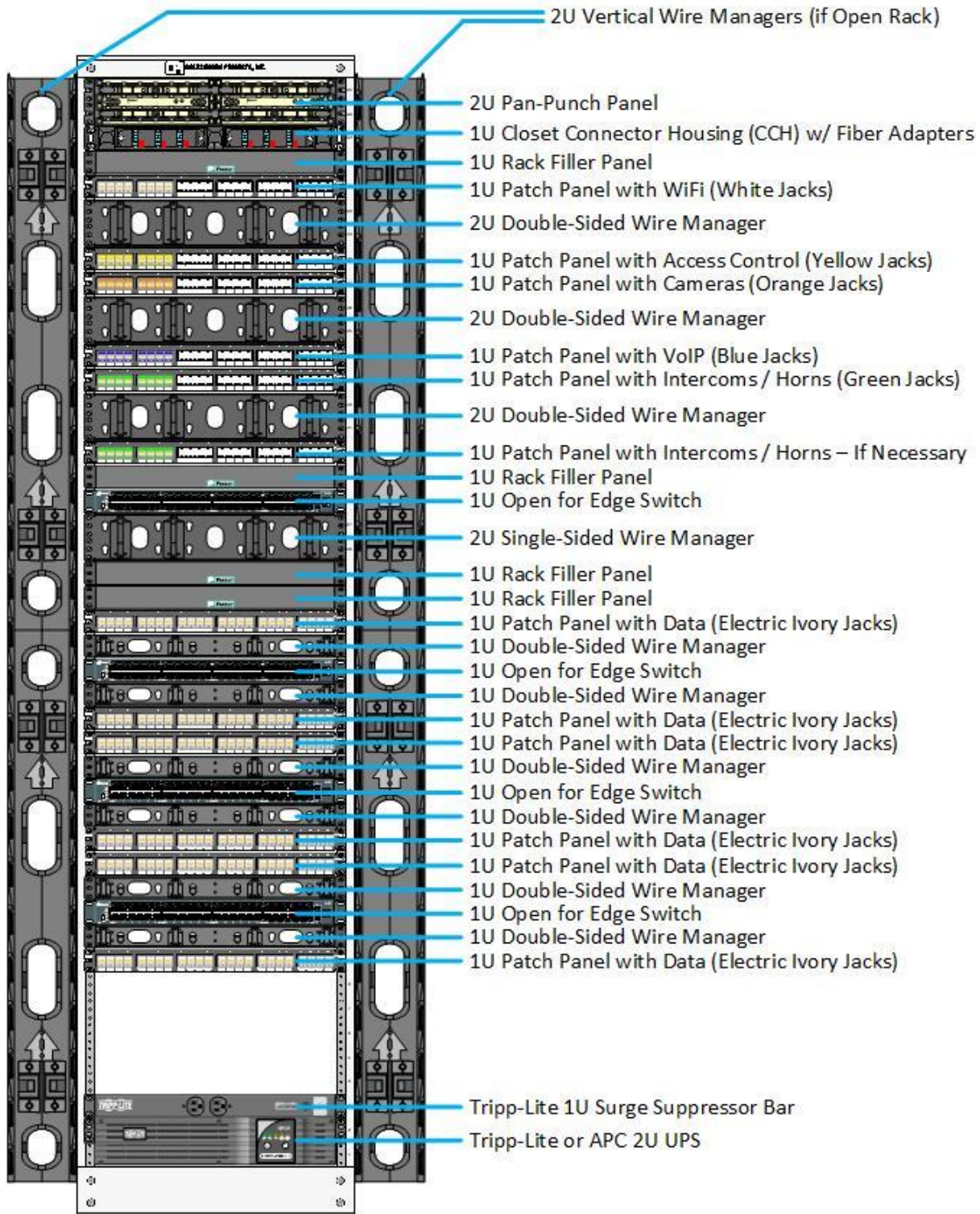
PART 12 – Enclosures

- A. LUSD IDF Layout
- B. LUSD IDF Layout
- C. LUSD Double 2-Post Rack Lay-out
- D. LUSD Previous IDF Layout
- E. LUSD Labeling Format
- F. JAESC Labeling Format
- G. Approved LUSD Parts List
- H. LUSD Basic Telecommunications Jack Legend
- I. Data/Camera System Install Inspection Check List
- J. Projector System Install Inspection Check List – Sample Continued
- K. Accessible Requirements for Cabinet Mounting

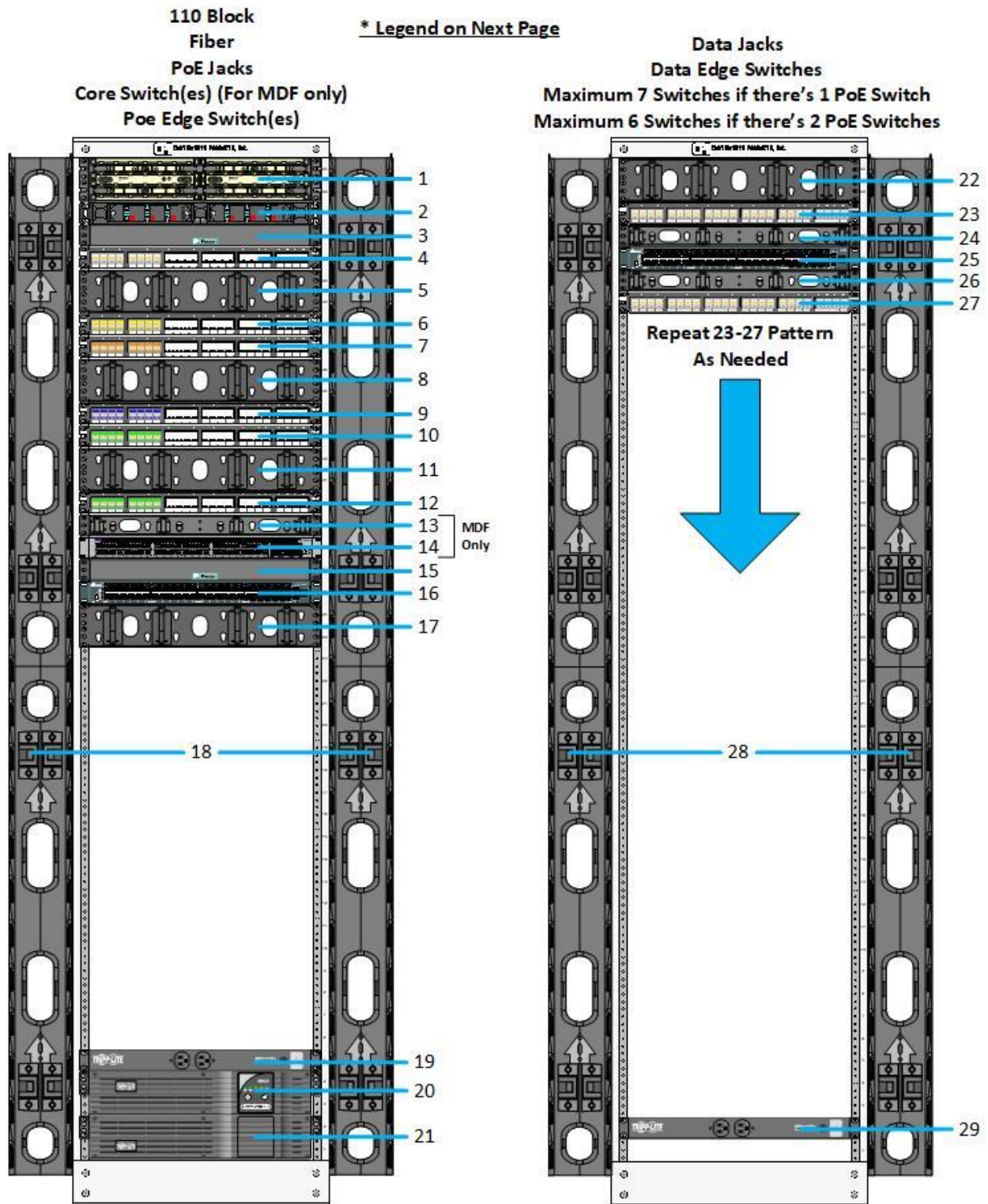
Enclosure A - LUSD MDF Layout



Enclosure B - LUSD IDF Layout



Enclosure C - LUSD Double 2-Post Rack Layout



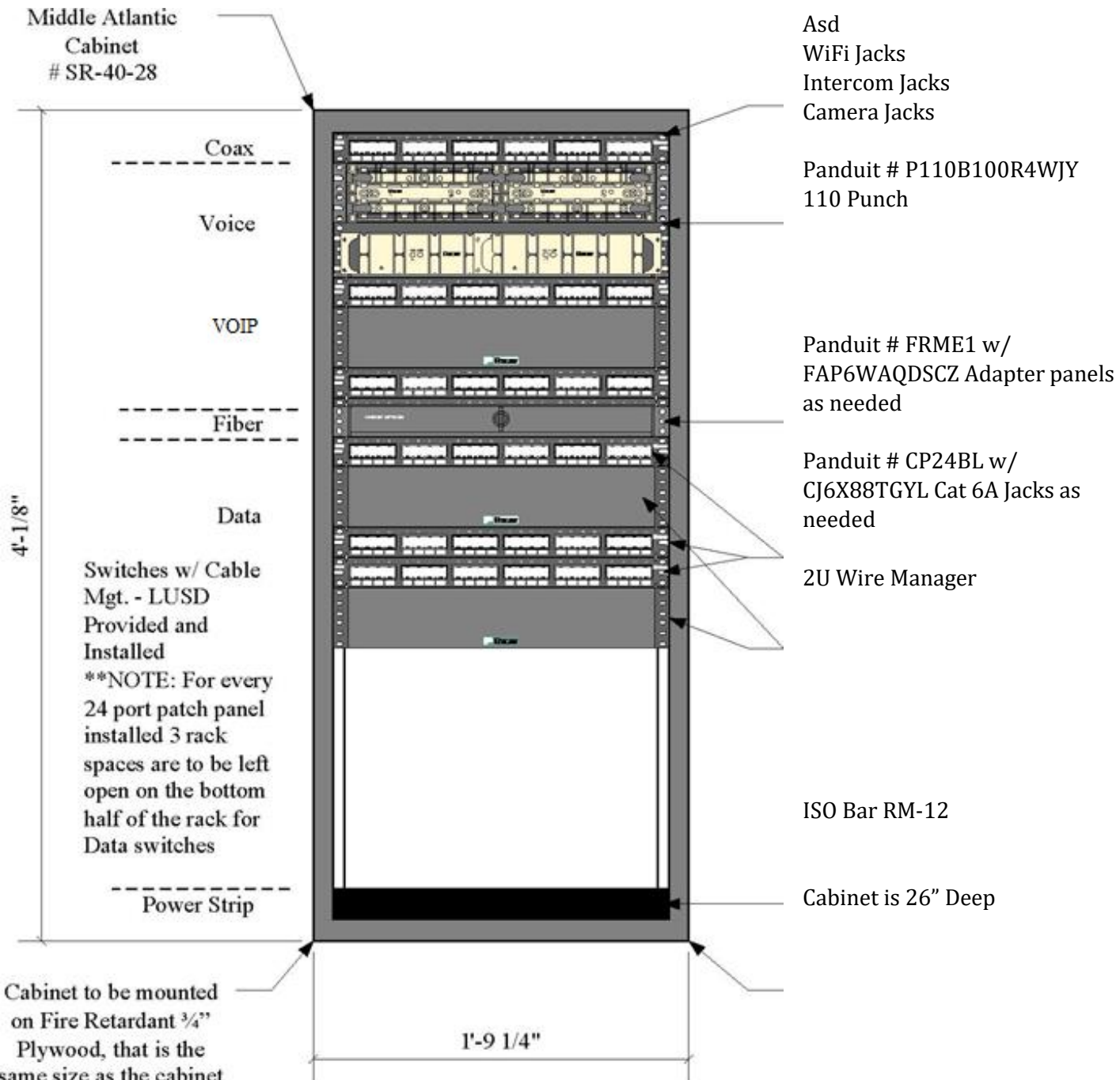


Enclosure C Continued – 2-Post Legend

- | | |
|--|---|
| 1) 2U Pan-Punch Panel | 16) 1U Open for Edge Switch |
| 2) 1U Closet Connector Housing (CCH) w/ Fiber Adapters | 17) 2U Single-Sided Wire Manager |
| 3) 1U Rack Filler Panel | 18) 2U Vertical Wire Managers |
| 4) 1U Patch Panel with WiFi (White Jacks) | 19) Tripp-Lite 1U Surge Suppressor Bar |
| 5) 2U Double-Sided Wire Manager | 20) Tripp-Lite or APC 2U UPS |
| 6) 1U Patch Panel with Access Control (Yellow Jacks) | 21) Tripp-Lite or APC 2U Battery Backup |
| 7) 1U Patch Panel with Cameras (Orange Jacks) | 22) 2U Single-Sided Wire Manager |
| 8) 2U Double-Sided Wire Manager | 23) 1U Patch Panel with Data (Electric Ivory Jacks) |
| 9) 1U Patch Panel with VoIP (Blue Jacks) | 24) 1U Double-Sided Wire Manager |
| 10) 1U Patch Panel with Intercoms / Horns (Green Jacks) | 25) 1U Open for Edge Switch |
| 11) 2U Double-Sided Wire Manager | 26) 1U Double-Sided Wire Manager |
| 12) 1U Patch Panel with Intercoms / Horns – If Necessary | 27) 1U Patch Panel with Data (Electric Ivory Jacks) |
| 13) 1U Single-Sided Wire Manager | 28) 2U Vertical Wire Managers |
| 14) 1U Open for Core Switch | 29) Tripp-Lite 1U Surge Suppressor Bar |
| 15) 1U Rack Filler Panel | |

Enclosure D – LUSD Previous IDF Layout

The Intended layout of ALL 19-inch racks and/or patch panels need to be verified and approved by the LUSD wiring inspector of the I.S. Department before any racks, jacks, or patch panels are mounted.





Enclosure E – LUSD Labeling Format

The LUSD labeling format is a 4-part identifier that indicates the campus, type of jack, IDF location, room, and jack. Below is a key to determine the jack information and name new locations.

WW-XX-YY-ZZ

CAMPUS AND VOICE OR DATA	MDF OR IDF DESIGNATION	ROOM # OR ABBREVIATION	JACK # (TWO DIGITS)
Data = Even # Voice = Odd # Card Readers = CR Camera = VS INT = Interior Intercom HRN = Intercom Horn WAP = WiFi	MDF = A IDF-B = B IDF-C = C etc.	West Admin Office = WA East Admin Office = EA Library = Lib 15 = 15 M2 = M2 10 = 10 etc. Determined by Campus Architect or IT Staff.	01 (1 st Jack in Room) 02 (2 nd Jack in Room) 03 (3 rd Jack in Room) etc. Starts in corner of room and counts clockwise. New jacks increase from last jack.

See Next Page for Voice
and Data numbers for
each campus.

VOICE EXAMPLE: The first voice jack in room M1 = "09-G-M1-01"

DATA EXAMPLE: The first data jack in room M2 = "10-G-M2-01"

DATA EXAMPLE: The first data jack in room E1 = "10-F-E1-01"

VOICE EXAMPLE: The first voice jack in room E1 = "09-F-E1-01"

DATA EXAMPLE: The first data jack in the West Admin Office = "10-A-WA-01"

CARD READER EXAMPLE: IDF Alpha ID + "CR" + IP address node # = DCR101

VIDEO SURVEILLANCE CAMERA EXAMPLE: IDF Alpha ID + "VS" + IP address node # = BVS101

INTERIOR INTERCOM EXAMPLE: The first intercom jack in room E1 = "10-F-INT-01"

HORN INTERCOM EXAMPLE: The first horn jack = "10-F-HRN-01" (2nd horn = 10-F-HRN-02)

*Dashes do not need to be included. However, the jack number must be two numeric characters
Example: "10GM201" instead of "10GM21"

MDF/IDF'S & WORKSTATIONS ALL JACKS ARE TO BE IDENTIFIED WITH THE APPROPRIATE NUMBERING SCHEME. All numbers must be legibly written on the jacks (or 110 punch panels, etc.) with a black permanent marker and then labeled.



Enclosure E Continued – LUSD Labeling Format

Site Location	Site Numbers	
	Data	Voice
Nutrition Services Operations Center	3	4
Bear Creek High	6	5
Lodi High	8	7
Tokay High	10	9
M&O	34	33
Julia Morgan	14	13
Liberty High	16	15
Plaza Robles High	18	17
Delta Sierra	20	19
Lodi Middle	22	21
Millswood	24	23
Woodbridge	26	25
Morada	28	27
Beckman	30	29
Clairmont	32	31
Creekside	36	35
Davis	38	37
Henderson	40	39
Heritage	42	41
Houston	44	43
John Muir	46	45
Lakewood	48	47
Larson	86	85
Lawrence	50	49
Live Oak	52	51
Lockeford	54	53
Lois Borchardt	56	55
Nichols	58	57
Oakwood	60	59
Parklane	62	61
Reese	64	63
Sutherland	66	65
Tokay Colony (Turner Academy)	68	67
Turner School	70	69
Victor	72	71
Vinewood	74	73
Wagner Holt	76	75
Washington	78	77
Christa McAuliffe	80	79
Westwood	82	81
Heritage Int.	84	83
Children's Center	86	85
Transportation	88	87
Warehouse	90	89
Lincoln Tech	92	91
Mosher	94	93
Elkhorn	96	95
Turner Academy West	98	97
Silva	100	99
Podesta	134	133



Enclosure F – JAESC Labeling Format

Data Jack Matrix

Site	Floor	IDF	Zone	Jack#
01 (Phone)	1	A	01	01
02 (Data)	2	B	02	02
	3	C	03	03
		D	04	04
		E	05	05

Note: New VoIP jacks are 02, not 01
Only old phone jacks are 01

Wireless Jack Matrix

Site	Floor	IDF	Zone	Jack#
02 (Data)	1	A	01	W1
	2	B	02	W2
	3	C	03	W3
		D	04	W4
		E	05	W5



Enclosure G – Approved LUSD Parts List

CABINET and GROUNDING			
Manufacturer	Part Number	Description	Location
Middle Atlantic	SR-40-28	40 space, black, 90" tall swinging cabinet (must order solid door separately)	MDF/IDF
Middle Atlantic	Lace-44LP	Vertical Lacing Bar	MDF/IDF
Middle Atlantic	QFAN	Accessory Quiet fan for cabinet	MDF/IDF
Chatsworth	66353-703	Standard 2-Post Rack 84" Height - Black	MDF/IDF
Panduit	RGW-100-1Y	Paint piercing grounding washer kit	MDF/IDF
Panduit	RGS134-1Y	Rack Grounding Strip Kit	MDF/IDF
Panduit	RGEJ624PHY	Equipment Jumper Grounding Kit, 24" jumpers	MDF/IDF

FIBER PRODUCTS			
Manufacturer	Part Number	Description	Location
Panduit	FRME4	Holds up to 12 FAP or FMP adapter panels	MDF
Panduit	FRME3	Holds up to 9 FAP or FMP adapter panels	MDF
Panduit	FRME2U	Holds up to 6 FAP or FMP adapter panels	MDF
Panduit	FRME1U	Holds up to 3 FAP or FMP adapter panels	IDF
Panduit	FAP3WAQDSCZ	OM4 SC FAP loaded with 3 SC duplex multimode couplers (aqua)	MDF/IDF
Panduit	FAP3WBUDSCZ	OS2 SC FAP loaded with 3 SC duplex singlemode couplers (blue)	MDF/IDF
Panduit	<i>OPTI-ADAPTER</i>	Corning/Panduit Modular Fiber Closet Connector Housing (CCH) Adapters/Converters	**Required for Existing MDF
General Cable	BL0061PNU	OM4 6F 50um MM TB OFNP	Backbone
General Cable	AP0061PNU	OS2 6F SM TB OFNP	Backbone
General Cable	BL0061PNU	OM4 6F 50um MM TB OFNP	Backbone
General Cable	BL0061ANU.BK	OM4 6F 50um MM TB OFNP I/O	Backbone
General Cable	AP0061ANU.BK	OS2 6F SM TB OFNP I/O	Backbone
General Cable	BL0064M1A-DWB	OM4 6F 50um MM LT SINGLE JKT	Backbone
General Cable	AQ0064M1A-DWB	OS2 6F SM LT SINGLE JKT	Backbone

WIRE MANAGMENT			
Manufacturer	Part Number	Description	Location
Panduit	WMPSE	1U Dual-Sided Horizontal Wire Management	MDF/IDF
Panduit	WMPH2E	2U Dual-Sided Horizontal Wire Management	MDF/IDF
Panduit	WMPFSE	1U Single-Sided Horizontal Wire Management	MDF/IDF
Panduit	WMPF1E	2U Single-Sided Horizontal Wire Management	MDF/IDF
Panduit	WMPV45E	Dual-Sided Vertical Wire Management	MDF/IDF
Panduit	DPFP1	1U Rack Filler Panel	MDF/IDF

Enclosure G Continued – Approved LUSD Parts List

TWISTED PAIR PRODUCTS			
Manufacturer	Part Number	Description	Location
Panduit	CP24BL	24 Port Mini-Com patch panel	MDF/IDF
Panduit	CP48BLY	48 Port Mini-Com patch panel (Metal panel)	MDF/IDF/WS
Panduit	CPPL24WBLY	24 Port Mini-Com modular patch panel (Plastic)	MDF/IDF/WS
Panduit	FP6X88MTG	TX6A™ Category 6A UTP Field-Term RJ45 Plug	MDF/IDF/WS
Panduit	CJ6X88TGIG	GRAY CAT6A MOD JACK (for Server Locations)	MDF/IDF
Panduit	CJ6X88TGYL	Yellow 6A Mini-Com Jack (Access Control)	Access Control System/Camera
Panduit	CJ6X88TGWH	White 6A Min-com Jack (Ceiling WAPs)	Ceiling WS
Panduit	CJ6X88TGBU	Blue Cat 6A Mini Com Jack (for VoIP)	MDF/IDF/WS
Panduit	CJ6X88TGGR	Green Cat 6A Mini Com Jack (for Intercom)	MDF/IDF/WS
Panduit	CJ6X88TGEI	Electric Ivory Cat 6A Mini Com Jack	WS
Panduit	FPUD6X88MTG	Up/Down Field Term Plug (for Intercom Horn/Speaker Weather Tight Bell Boxes Only; terminate using down orientation diagram)	Horn, Hallway, & Flush Mount Speakers
Panduit	FP6X88MTG	Field Term Plug – Used to avoid clear RJ45 plug	Various
Panduit	FC-ICCP0.5MBU	UTP Field Cord - Used when FP6X88MTG Field Terminable Plug won't fit camera or Intercom.	Interior & Ext. Cameras
Panduit	UTP6XXYL	Non- Shielded Yellow 6A Patch Cord, XX is length	MDF/IDF/WS



Panduit	UTP28X*YL	Cat.6A, 28AWG, Yellow, * = length: 1,3,5,7,19,14 feet	MDF/IDF/WS
Panduit	P110B100R4WJY	19" Rack Mount Panel w 2 100pr 110 punch-down blocks and jumper troughs	MDF/IDF
Panduit	P110B100R2Y	2U Pan-Punch Rack Mount Panel with 2 100-Pair pre-mounted bases	MDF/IDF
Panduit	P110CB4-XY	4pr 110 Connecting Clips 10pk	MDF/IDF
Panduit	P110CB5-XY	5pr 110 Connecting Clips 10pk	MDF/IDF
General Cable	7133825	Purple CAT 6A CMR (for Data at workstations)	Horizontal
General Cable	7133819	Blue CAT 6A CMR (for WAPs)	Horizontal
General Cable	7131823	Green CAT 6A CMP (for Intercom drops, closets)	Horizontal
General Cable	7131822	Yellow CAT 6A CMP (for Cameras, Closets)	Horizontal
General Cable	7133821	Gray CAT 6A CMR 4 Pair wire (for Voice)	Horizontal
Commscope	CM-00424SMX-CF6A-02	SystiMax, Black CAT 6A OSP (Voice and Data)	Horizontal
General Cable	2131550E	Cat.5e, 25 pair CMP, White	MDF/IDF
General Cable	2133269E	Cat.5e, 25 pair CMP, Gray	MDF/IDF
Superior Essex	04-097-31	CAT 5 25 Pair OSP	MDF/IDF

Enclosure G Continued – Approved LUSD Parts List

COAX PRODUCTS			
Manufacturer	Part Number	Description	Location
Belden	6139B8	RG-11 Coax Dou-foil w/100% Shielding Plenum	Backbone
Belden	1523A	RG-11 Coax Dou-foil w/100% Shielding Non-Plenum	Backbone
Belden	1525A	RG-11 Coax Dou-foil w/100% Shielding OSP	Backbone

RACEWAY PRODUCTS			
Manufacturer	Part Number	Description	Location
Panduit	LD-5	Raceway for Data/Wi-Fi/Access Control System	Wi-Fi/ACS
Panduit	LD10E	Raceway for Data/Voice/Coax	WorkStation



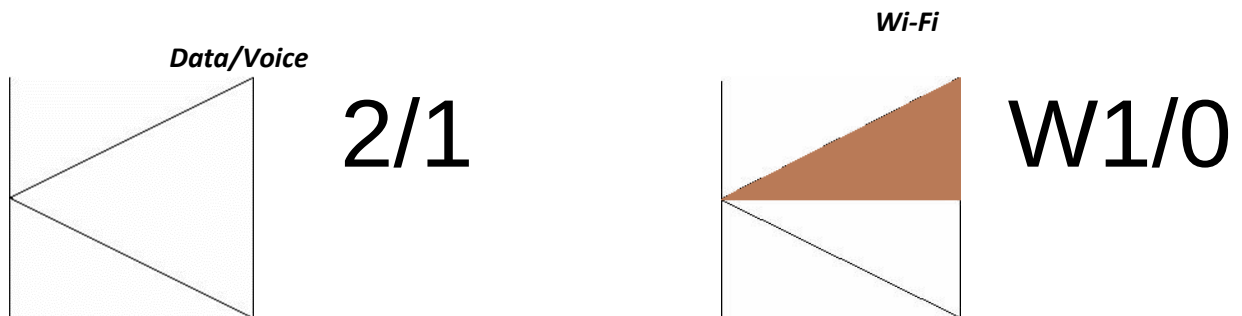
Panduit	T-70	Raceway for Comp. Lab That will accept communications and power	WorkStation
Panduit	CMBEI-X	Mini-Com Blank Ivory	WorkStation
Panduit	CFPSL4EIY	Classic Executive Faceplate, Sloped (anti-shear)	WorkStation
Panduit	JBX3510EI-A	Single gang Junction box	WorkStation

INTERCOM PRODUCTS			
Manufacturer	Part Number	Description	Location
Algo	8188	PoE SIP Ceiling Speaker	Recessed Locations
Algo	8188MEM	Hydrophobic Membrane Screen for 8188	Bathrooms, Kitchens, etc.
Algo	8186	LUSD Supplied; Not installed by contractor; contractor installs Panduit Up/Down Field Term plug in double gang double-deep weather tight bell box w/ cap.	Outdoor Locations, Multi-Purpose Rooms, Gyms, Locker Rooms, etc.
Algo	8180	Not installed by contractor; contractor installs green data jack in Panduit Executive faceplate	Classrooms

Enclosure G Continued – Approved LUSD Parts List

CAMERA PRODUCTS			
Manufacturer	Part Number	Description	Location
WiseNet	QNV-8080R	5 Megapixel H.265 DOME IP CAMERA	Interior / Exterior

Enclosure H - LUSD Basic Telecommunications Jack Legend



This example has “2” for two data and “1” for one voice.

Data only would be d/0 with “d” as the number of data jacks.

Voice only would be 0/v with “v” as the number of voice jacks.

Category 6A cabling/jacks are indicated by a “W” preceding the number (or jack count)

Jack Color Code			
White - Wi-Fi		Electric Ivory - Data	
Black - Voice		Yellow - Access Control	
Blue - VOIP		Green - Intercom	



Enclosure I – Data/Camera System Install Inspection Check List - Sample

Data/Camera System Install Inspection Check List

	Yes	No	N/A or Undetermined
1. Does the work done match the scope of work?	☐	☐	☐
Notes:			
2. Does the Visio match what was installed?	☐	☐	☐
Notes:			
3. Are all of the test results completed?	☐	☐	☐
Notes:			
4. Cabinet			
a. Is it mounted to the backboard and firmly affixed?	☐	☐	☐
b. Does the cabinet block anything and open?	☐	☐	☐
c. Is there dedicated 115 VAC?	☐	☐	☐
d. Are the cables bundled neatly and labeled in the back?	☐	☐	☐
e. Are all of the parts used in the Lodi USD specifications?	☐	☐	☐
f. Is everything labeled in front to Lodi USD specifications?	☐	☐	☐
Notes:			
5. Wiring			
a. Spot check the wire in the ceiling – is it supported every 4' to 8' per EIA/TIA?	☐	☐	☐
b. No black tape is to be used. Is there any black tape?	☐	☐	☐
c. No zip ties are to be used. Are there any zip ties?	☐	☐	☐
d. Is the pipe/raceway not overfilled per EIA/TIA?	☐	☐	☐
e. Was slack-loop provided?	☐	☐	☐
Notes:			
6. Stations			
a. Is each device labeled and have a wraparound label on the wire as per EIA/TIA?	☐	☐	☐
b. Is each device mounted with approved hardware?	☐	☐	☐
Notes:			



Enclosure I – Data/Camera System Install Inspection Check List – Sample Continued

	Yes	No	N/A or Undetermined
7. Pipe/Raceway			
a. Is all raceway Panduit?	☐	☐	☐
b. Are all pipe runs are rigid when below 8' or on the roof as per Lodi USD specifications?	☐	☐	☐
c. Does the firewall have 3' on each side of the wall as per building code?	☐	☐	☐
d. No set screw fitting shall be used. Is there any set screw fitting?	☐	☐	☐
e. Whenever pulling into a pipe/raceway, a pull string is required per Lodi USD specifications. Is there a string?	☐	☐	☐
Notes:			
8. Penetrations			
a. Do penetrations to an outside wall have a nipple and is it sealed with silicon on both the outside and inside?	☐	☐	☐
b. Were the penetrations approved by the Lead and Asbestos Manager?	☐	☐	☐
Notes:			
9. Does the Site Administrator approve and are they happy?	☐	☐	☐
Notes:			
Additional Notes:			



Enclosure J – Projector System Install Inspection Check List - Sample

Projector System Installation Inspection Check List

1. Does the work done match the scope of work?	☐ Yes	☐ No
Notes:		
2. Does the Visio match what was installed?	☐ Yes	☐ No
Notes:		
3. Are all of the test results completed?	☐ Yes	☐ No
Notes:		
4. SmartBoard		
a. Is existing whiteboard re-mounted correctly w/ white block style trim butted against end-cuts?	☐ Yes	☐ No
Notes:		
5. Projector		
a. Is it mounted to the backboard and firmly affixed (back-board reaches studs)?	☐ Yes	☐ No
b. Is it ceiling mounted in an approved manner (2 T-bar rods per mount)?	☐ Yes	☐ No
c. Is there dedicated 115 VAC?	☐ Yes	☐ No
d. Are the cables bundled neatly in the raceway?	☐ Yes	☐ No
e. Are all of the parts used in the Lodi USD specifications?	☐ Yes	☐ No
f. Is everything labeled in front to Lodi USD specifications?	☐ Yes	☐ No
Notes:		
6. Wiring (if it is run in the ceiling)		
a. Spot check the wire in the ceiling – is it supported every 4' to 8' per EIA/TIA?	☐ Yes	☐ No
b. No black tape is to be used. Is there any black tape?	☐ Yes	☐ No
c. No zip ties are to be used. Are there any zip ties?	☐ Yes	☐ No
d. Is the pipe/raceway not overfilled per EIA/TIA?	☐ Yes	☐ No
e. Was slack-loop provided?	☐ Yes	☐ No
Notes:		

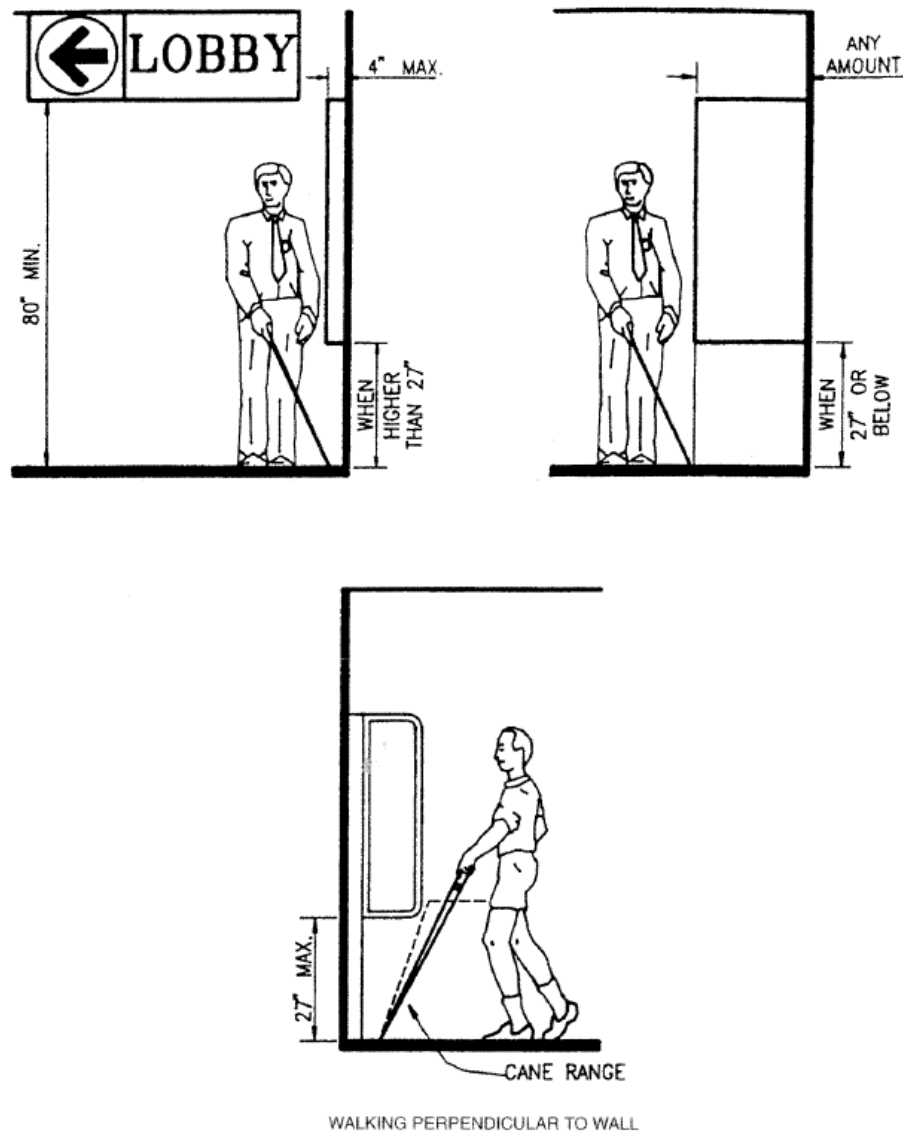


Enclosure J – Projector System Install Inspection Check List – Sample Continued

7. Stations (if Cat5/6 wire and applicable)		
a. Is each device labeled and have a wraparound label on the wire as per EIA/TIA?	☐ Yes	☐ No
b. Is each device mounted with approved hardware?	☐ Yes	☐ No
Notes:		
8. Pipe/Raceway (if applicable)		
a. Is all raceway Panduit?	☐ Yes	☐ No
b. Are all pipe runs rigid when below 8' or on the roof as per Lodi USD specifications?	☐ Yes	☐ No
c. Does the firewall have 3' of pipe on each side of the wall as per building code?	☐ Yes	☐ No
d. No set screw fitting shall be used. Is there any set screw fitting?	☐ Yes	☐ No
e. Whenever pulling into a pipe/raceway, a pull string is required per Lodi USD specifications. Is there a string?	☐ Yes	☐ No
Notes:		
9. Penetrations (if applicable)		
a. Do penetrations to an outside wall have a nipple and is it sealed with silicon on both the outside and inside?	☐ Yes	☐ No
b. Were the penetrations approved by the Lead and Asbestos Manager?	☐ Yes	☐ No
Notes:		
10. Does the Site Administrator approve and are they happy?		☐ Yes ☐ No
Notes:		
Additional Notes:		

Inspected by: _____ Print Name: _____ Date: _____

Enclosure K – Accessible Requirements for Cabinet Mounting (Images below for reference only)



THESE DIAGRAMS ILLUSTRATE THE SPECIFIC REQUIREMENTS OF THESE REGULATIONS AND ARE INTENDED ONLY AS AN AID FOR BUILDING DESIGN AND CONSTRUCTION.

FIGURE 11B-7A—PROTRUDING OBJECTS