SENMC - LIBRARY FAMILY STUDY ROOM 1500 UNIVERSITY DR. CARLSBAD, NM 88220

DESIGN CODES

2021 INTERNATIONAL EXISTING BUILDING CODE (IEBC)

CODE REVIEW	
PROJECT DATA:	
PROJECT TYPE:	TENANT IMPROVEMENT - LEVEL 2 ALTERATIONS
TOTAL # OF STRUCT. PROPOSED:	NONE
Per IBC 2021 OCCUPANCY CLASSIFICATION:	B - EDUCATIONAL ABOVE THE 12TH GRADE
TOTAL WORK AREA:	
LIBRARY FAMILY ROOM: 578 SF	
OCCUPANT LOAD:	
BUISNESS - 150 GSF/OCC - LIBRARY	- 578/150 = 3.85 = 4 OCCUPANTS
EXIT AND EXIT ACCESS -	
ONLY ONE EXIT REQUIRED - OCCUP	ANT LOAD LESS THAN 50 - ONE PROVIDED
FIRE ALARM -	
EXISTING SYSTEM TO BE MODIFIED TAREAS.	TO INCLUDE NEWLY CONFIGURATED
FIRE PROTECTION -	
FIRE SPRINKLER SYSTEM TO BE MC AREAS.	DIFY TO INCLUDE NEWLY CONFIGURATED
PARKING REQUIREMENTS - SOUTH EAST NEW MEXICO COLLEGE PARKING ADDED	E - EXISTING PARKING USED - NO NEW

VICINITY MAP





OWNER'S APPROVAL

ELEVATION SYMBOLS ELEVATION NUMBER SIM A1/A101 SIMLAR, TYPIC SIM A1/A101 SIMLAR, TYPIC SIM SIM SHEET NUMBER BUILDING SECTION SYMBOL SHEET NUMBER SHEET SHEET SH	
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	CEILING TAG SYMBOL

ANCHOR ACOUS ACOUSTI ADJUSTAE AGGREGA ALTERNAT ADJ AGG ALT SYMBOL LEGEND **SCOPE OF WORK** ALUMINUN ACCESS F ALUM AP ARCH ARCHITE ABOVE FI AFF *THIS LIST IS NOT ALL INCLUSIVE - REFER TO THE DRAWINGS FOR FULL DETAILS OF BULLETIN WORK REFERENCE KEYNOTE SYMBOL BRD BM BOARD BEAM **KEYED NOTE - REFERS** CONSTRUCTION AND SITE WORK FOR (1) ONE TENANT IMPROVEMENT CHALKBO CB TO KEYNOTE LEGEND ON EACH SHEET CENTER CERAMIC NEW APPROX. 400 SF LIBRARY FAMILY ROOM - 02 00 00.ĘC CONTRUC **INTERIOR WORK INCLUDES -**JOINT/CO CLG CLR CMU COL COMP CONC CONT CEILING CLEAR CONCRET TWO LETTER CODE -NEW LIGHT FIXTURES -NEW PLUMBING FIXTURES BRIEF DESCRIPTION O KEYED NOTE COLUMN COMPACT CONCRET CONTINUC -NEW FLOORING CAL, OR ERENCE **6 DIGIT CSI DIVISION** -NEW WALL TILE/PAINT NUMBER RELEVANT TO -NEW ALUMINUM STORE FRONT WITH DOOR -NEW CEILING DEMOLIT DEMO -NEW METAL LETTERS DETAIL DRINKING DET 400 SF TENANT IMPROVEMENT FOR THE ANCHOR TENANT TO INCLUDE WALL SECTION SYMBOL DIA DIM DIAMETE RESTROOMS, AND ALL SPACES AS INDICATED ON THE DRAWINGS. THE REST DIMENSIC OF THE SPACES ARE EXISTING TO REMAIN DOWN DOOR ALL ASSOCIATED PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS FOR A BUILDING SECTION NUMBER DOWNSP FULLY FUNCTIONING FAMILY ROOM (400 SF) DWGS DRAWING SIM 1 EACH SIN EDGE BA EACH DIR \A101 \A101/ EXPANSIO ELEC ELEV EP ELEVATIO ELECTRIC EACH WAY EP EW EWC EXIST EXP EXT EQUIP ELECTRIC EXISTING EXTERIOR OLS DETAIL SYMBOL FEET FOUNDAT FDN FBO FURNISH FBR FIBERGLA FLOOR D FIRE EXT FIRE EXT \A101 SIMILAR, TYPICAL, OR MIRRORED REFERENCE FIRE HOS FIN FINISH MATERIAL LEGEND FINISH FL FLASH FLR FLOUR FR FTG FURR FLASHING FLOURES FIRE RESI FOOTING FURRING DETAIL PROJECTION (PLAN / ELEVATION) CUT (SECTION) TYPE GAUGE MEMBRANE ROOFING A101 🥆 GALVANIZ GALV GB GENERAL GALVANIZED IROI E3/A504 EARTH STUCCO GLASS DETAIL / SHEET # GWE HARDB'D HARDBOARD HOSE BIBB HEAD HB HD RIGID INSULATION FIRE RATED WALL CORE HDWD HARDWOOD HOLLOW METAL T LOAD BATT INSULATION HORIZ HORIZONTAL HEIGHT SPOT DIMENSIONS НW HARDWARE HMAC HOT MIX ASPHALT CONCRETE IEIGHT INDICATION (ABOVE WOOD BLOCKIN INSUL INSULATION RESPECTIVE GROUND FLOOR LEVEL INVERT INTERIOR TION (ABOVE OR LEVEL ELEVATION) JANITOR JAN SPRAYED INSULATION JOIST JOINT

CONSTRUCTION DOCUMENTS



NINE DEGREES ARCHITECTURE + DESIGN, INC 101 MAGUEY CT - SUITE 2 SUNLAND PARK, NM 88063 CELL 915-526-8739 FAX 915-533-3282 CESARM@NINE-DEGREES.COM

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AD01 DEMOLITION PLAN

ARCHITECTURAL

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01	ENLARGED FLOOR PLANS & INTERIOR ELEVATIONS
02	ENLARGED FLOOR PLANS & INTERIOR ELEVATIONS
601	SCHEDULES
00	RENDERS

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P100	PLUMBING FLOOR PLAN
200	PLUMBIN SCHEDULES AND SCHEMATICS

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02/07/2024

MECHANICAL, ELECTRICAL, PLUMBING

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ISSUED: 02/07/2024

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LAM

LTWT LTG

MAS MAT

MAX MCB

MFD MFG

MULL

NIC

NON

NTS

OPG OPP

OH

OVH

PTN

PCP

QTY

RAD

RD

REF

REINF REQ

SCW

STD STD'S

STRUC SUSP

U.N.O.

VERT VEST

WSCT

W/O

WDO

WWF

WP

VCT

STL

PL

STANDARD ABBREVIATIONS

KEENES CEMENT

LAMINATE/LAMINATED

KITCHEN

LAVATORY

LIGHTING

MASONRY

LIGHT WEIGHT

BOLT C BLE ATE TE M PANEL CTURAL NISH FLOOR I BOARD
ARD FO CENTER TILE CTION NTROL JOINT
TE MASONRY UNIT TED OUS ON GFOUNTAIN R DN
OUT is
NDED/EDGE BANDING ECTION DN JOINT SAL N SAL PANEL Y WATER COOLER DN R NT
TION ED BY OWNER ASS RAIN INGUISHER INGUISHER CABINET E CABINET OOR
CENT ISTANT

AND AT

GYPSUM WALL BOARD

MATERIAL MAXIMUM METAL CORNER BEAD MECH MECHANICAL MANUFACTURED MANUFACTURER'S MINIMUM/MINUTE METAL LATH MASONRY OPENING METAL MULLION NOT IN CONTRACT NUMBER NOMINAL NOT TO SCALE ON CENTER ON CENTER EACH WAY OWNER FURNISHED, OCEW OFOI OWNER INSTALLED OPENING OPPOSITE OPPOSITE HAND OVERHEAD PARTITION PRECAST CONCRETE PANE PLATE PLAS PLAM PLYWD PLASTER PLASTIC LAMINATE PLYWOOD QUANTITY QUARRY TILE RADIUS ROOF DRAIN REFERENCE REINFORCE REQUIRED ROOM SOLID CORE WOOD SCHED SECT SHT SIM SPEC

SCHEDULE SECTION SHEET SIMILAR SPECIFIED/SPECIFICATIONS STAINLESS STEEL STREET STANDARD STANDARD'S STEEL STRUCTURAL SUSPENDED SPACING SQUARE FEET TREAD TACKBOARD TOP OF CURB THICK TOP OF WALL TYPICAL TOP OF BEAM

TOP OF PARAPET UNDERWRITERS LABORATORIES INC. UNLESS NOTED OTHERWISE VINYL COMPOSITION TILE VERTICAL VESTIBULE

WAINSCOT WITH WITHOUT WOOD WINDOW WATERPROOFING WELDED WIRE FABRIC SENMC

03 30 00 Cast-in-Place Concrete

Concrete infill where there is existing plumbing. Concrete shall meet min 3,000 psi @ 28 days - infilled areas shall contain drilled/epoxy #4 dowelsinto existing, tied to and frames to be painted with color to be selected by the Architect. existing reinforcement where possible.

06 41 16 Plastic-Laminate-Clad Architectural Cabinets

containing no urea formaldehyde; Particleboard - Grade M-2-Exterior Glue; Plywood - Grade BC- Inserts, Bolts, and Fasteners: Hot-dip galvanized. Exterior Glue.

Cabinet fronts, door faces and edges, drawer faces and edges, apron panel faces and edges, exposed sides: High-Pressure Decorative Laminate: 0.050 inch thick, NEMA LD 3, general purpose grade, color, texture and pattern to be selected by Architect. Shelves: Particleboard, 3/4-inch thickness; Melamine-faced, with square corners and banded

front edge. Brackets and Standards: No. 256PZC Heavy duty brackets; No. PK255WH36 regular duty standards; size as required by shelves; as manufactured by Knape & Vogt or equal.

Countertops: Provide matching backsplash, sidesplash, aprons, shelves, and other accessories as shown on Drawings in same material, color and finish as countertops. Corian (Dupont) Solid Surface Countertops at the lactation room countertop: Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin for Type 5 or Type 6, without a precoated finish or similar approved.

06 41 93 Cabinet and Drawer Hardware

Hinges: Blum Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 135 degrees of opening. Pulls: Amerock, back mounted, solid metal, BP19541CSG9 Bar Pull, Sterling Nickel; 5-1/16" hole

spacing. Drawer Slides: Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension

type: zinc-plated steel ball-bearing slides. Exposed Hardware Finishes: Satin Stainless Steel: BHMA 630.

Door Bumpers: 4mm Clear plastic, Blum TP1950 or equal.

Cabinet Shelf Supports: Provide Blum SHB-340010, nylon with 5mm steel pin or equal.

07 21 16 Blanket Insulation R-13 Batt insulation in interior walls.

07 84 00 Firestopping

Provide through-penetration firestop systems at all rated walls. Firestop systems are to be compatible with one another; with the substrates forming openings; and with the items, if any, demonstrated by through-penetration firestop system manufacturer based on testing and field hand access or 24 inches by 24 inches for body access.

experience. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with Part 1 "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by qualified testing and inspecting agency for firestop systems indicated.

Acceptable manufacturers: A/D Fire Protection Systems Inc.

- Grace, W. R. & Co.
- Hilti, Inc.
- Johns Manville.
- Nelson Firestop Products. NUCO Inc.
- The RectorSeal Corporation
- Specified Technologies Inc.

3M; Fire Protection Products Division. Tremco; Sealant/Weatherproofing Division.

USG Corporation

07 91 23 Backer Rods

Provide backer rods where shown on architectural drawings or in joints greater than ¼" wide. Cylindrical Sealant Backings: Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bi-cellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

07 92 00 Joint Sealants

Neutral-Curing Silicone Low Modulus Joint Sealant: Type: Single component (S); Grade: Nonsag (NS); Class: 100.

Urethane Joint Sealant: Type: Multi-component (M); Grade: Non-sag (NS); Class: 50. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex; Type OP; Grade NF.

JOINT-SEALANT SCHEDULE

Joint Sealant Application: Exterior joints in vertical surfaces and horizontal non-traffic surfaces. Laminated-Glass Types Joint Sealant: Urethane, multi-component, non-sag, Class 50. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors. Construction joints in cast-in-place concrete.

- Joints in exterior insulation and finish systems.
- Joints between metal panels. Joints between different materials listed above.

Perimeter joints between materials listed above and frames of doors, windows and

louvers.

Control and expansion joints in other joints as indicated. Joint Sealant Application: All exterior weatherseal applications.

Joint Sealant: Silicone.

Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors. Joint-Sealant Application: Interior joints in horizontal traffic surfaces. Isolation joints in cast-in-place concrete slabs.

Control and expansion joints in tile flooring.

Other joints as indicated.

Joint Sealant: Urethane, multi-component, non-sag, traffic grade, Class 50. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors. Joint-Sealant Application: Interior joints in vertical surfaces.

Joint Sealant: Latex. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors. Control and expansion joints on exposed interior surfaces of exterior walls. Perimeter joints of exterior openings where indicated.

- Tile control and expansion joints.
- Vertical joints on exposed surfaces of walls and partitions.
- Perimeter joints between interior wall surfaces and frames of interior doors, windows,

and elevator entrances. Other joints as indicated. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-

traffic surfaces.

Joint Sealant: Silicone, single component, non-sag, neutral curing.

If retaining material designations in Part 2, insert designation number in first subparagraph below.

Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors. Joints between plumbing fixtures and adjoining walls, floors, and counters. Tile control and expansion joints where indicated.

Other joints as indicated.

Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal non-traffic surfaces.

Joint Sealant: Acoustical. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

Acoustical joints where indicated.

Other joints as indicated.

Other related materials: Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant

manufacturer Primer: Material recommended by joint sealant manufacturer where required for adhesion of

sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

08 11 13 Hollow Metal Doors and Frames Service area doors and exterior flush exit doors and welded hollow metal steel frames. All s

Cold-Rolled Steel Sheet: Commercial Steel, Type B; suitable for exposed applications. Metallic Coated Steel Sheet: Commercial Steel, Type B with minimum A40 metallic coating Frame Anchors: Commercial Steel, 40Z coating designation; mill phosphatized. Materials: Hardboard - AHA A135.4; Medium-Density Fiberboard - Grade MD, made with binder For anchors built into exterior walls, steel sheet, hot-dip galvanized, Class B.

Grout: Maximum slump of 4 inches. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil thickness per coat.

- Acceptable manufacturers:
 - Amweld Building Products, LLC. Benchmark; a division of Therma-Tru Corporation.
 - Ceco Door Products; an Assa Abloy Group company
 - Commercial Door and Hardware, Inc. Curries Company; an Assa Abloy Group company.
 - Deansteel Manufacturing Company, Inc.
 - Fleming Door Products Ltd.; an Assa Abloy Group company. Habersham Metal Products Company.
 - Kewanee Corporation (The).
 - Mesker Door Inc.
 - Pioneer Industries, Inc. Rocky Mountain Metals, Inc.
 - Security Metal Products Corp.
- Southwestern Hollow Metal. Steelcraft; an Ingersoll-Rand company.

Windsor Republic Doors.

08 31 16 Access Panels and Frames

Flush Access Doors and Trimless Frames: Fabricated from metallic-coated steel sheet. Si appropriate for type of access required; not less than 8 inches by 8 inches for hand access inches by 24 inches for body access.

- Locations: Wall surfaces.
- Door: Minimum 0.060-inch-thick sheet metal.
- Frame: Minimum 0.060-inch-thick sheet metal with drywall bead flange. Hinges: Continuous piano.

Lock: Self-latching device with cylinder lock. Fire-Rated, Insulated, Flush Access Doors and Trim-less Frames: Fabricated from metallic penetrating through-penetration firestop systems, under conditions of service and application, as steel sheet. Sized as appropriate for type of access required; not less than 8 inches by 8 in

Fire-Resistance Rating: Not less than that of adjacent construction. Door: Flush panel with a core of mineral-fiber insulation enclosed in sheet metal w

- minimum thickness of 0.036 inch. Frame: Minimum 0.060-inch-thick sheet metal with drywall bead.
- Hinges: Continuous piano. Automatic Closer: Spring type.

08 41 13 Aluminum-Framed Entrances and Storefronts Storefront System: Kawneer Trifab451, 1-3/4"x 4". Interior frames center glazed, or similar Entrance Doors: Kawneer 500 Wide Stile Doors.

08 71 00 Door Hardware

Finish: Bronzed to Match Existing

As scheduled. Coordinate with Owner/Tenant prior to ordering doors and hardware in case are preferred.

Hinges:	lves	IVES
Exit Devices:	Von Duprin	VON
Door Closers:	LCN	LCN
Locksets:	Yale	YALE
Thresholds & Weatherstrip:	Pemko, National Guard, Reese, Zero	NA
Stops & Door Trim:	lves, Trimco, Rockwood, glynn johnson	IVES
Kickplates:	Ives, Trimco, Rockwood, glynn johnson	IVES
Silencers:	Ives, Trimco, Rockwood, glynn johnson	IVES
Coat Hooks:	American Specialties	ASI
Operators:	LCN	LCN

Access Control Devices: Verify with Owner for compatibility with existing systems.

08 81 00 Glass Glazing

Monolithic Float-Glass Units

Float-Glass Units, Type I: Kind A (annealed), Class I (clear), float glass, 6.0 mm t Uncoated Clear Float-Glass Units, Type III: Class 1 (clear), Kind FT (fully tempered glass, 6.0 mm thick.

- Clear laminated glass with two plies of fully tempered float glass.
- Thickness of Each Glass Ply: 1/8 inch, 3.0 mm. Interlaver Thickness: 0.030 inch (0.76 mm).
- Provide safety glazing labeling.

Glazing Gaskets

Insulating-Glass Type Glass Type: Low-e-coated, tinted insulating glass, Type II.

Overall Unit Thickness: 1 inch.

	3 Hollow Metal Doors and Frames e area doors and exterior flush exit doors and welded hollow metal steel frames. All steel doors mes to be painted with color to be selected by the Architect. olled Steel Sheet: Commercial Steel, Type B; suitable for exposed applications. c Coated Steel Sheet: Commercial Steel, Type B with minimum A40 metallic coating. Anchors: Commercial Steel, 40Z coating designation; mill phosphatized. chors built into exterior walls, steel sheet, hot-dip galvanized, Class B.	08 83 00 Mirrors Bradley 780. Standard flat mirrors mounted with the bottom edge against the countertop. Frame (except where noted, otherwise frameless): Stainless-steel angle, 0.05 inch thick. Corners: Manufacturer's standard. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below. One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.	 09 68 13 Tile Carpeting (C1) Interface - Aerial Collection AE312, Color 105406 Fog/Accent , 19.69 x 19.69 Location: Library Study Room S100 flooring, adhesive & installation as per manufacture instructions. 09 51 13 Acoustical Panel Ceilings Type IV, Form 2, Pattern E, Fire Class A.
	Bolts, and Fasteners: Hot-dip galvanized. Maximum slump of 4 inches. ous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film ss per coat.	Provide hanger spacer to create 1/2-inch space behind the mirror. Sizes and Locations: 18"Wx46"HCentered on, and mounted 0" above, the sinks in restrooms room R101	2 ft x 2 ft; Armstrong Ceiling ULTIMA Tegular fine texture, 9/16" beveled tegular system. Color: White. LR: Not less than 0.80. NRC: Not less than 0.70. Type E-400 mounting per ASTM E 1264.
<text></text>	Able manufacturers: Amweld Building Products, LLC. Benchmark; a division of Therma-Tru Corporation. Ceco Door Products; an Assa Abloy Group company. Commercial Door and Hardware, Inc. Curries Company; an Assa Abloy Group company. Deansteel Manufacturing Company, Inc. Fleming Door Products Ltd.; an Assa Abloy Group company. Habersham Metal Products Company. Kewanee Corporation (The). Mesker Door Inc. Pioneer Industries, Inc. Rocky Mountain Metals, Inc. Security Metal Products Corp. Southwestern Hollow Metal	09 21 16 Gypsum Board Assemblies Interior Gypsum Board Available Manufacturers: American Gypsum Co. BPB America Inc. G-P Gypsum Lafarge North America Inc. National Gypsum Company. PABCO Gypsum. TempleInland. USG Corporation. Regular Type: Regular-type gypsum panels Thickness: 5/8 inch. Use 1/4- and 3/8-inch for curved surfaces. Long Edges: Tapered and featured (rounded or beveled) for prefilling	 CAC: Not less than 35. Other acceptable manufacturers: USG; BPB USA; Ecophon CertainTeed, Inc. Other pro subject to Architect's approval. installation as per manufacturers instructions. 09 65 13 Resilient Base and Accessories (RB1) Johnsonite BaseWorks Thermoset 4" Rubber Coved Base. Color Charcoal WB or approved Location: Library Study Room S100 (RB2) Johnsonite BaseWorks Thermoset 4" Rubber Coved Base. Color Fawn CB or sim approved Location: Lactation Room 102 Johnsonite Resilient Transition Strips, carpet to carpet or approved similar. Location: Transition between existing Library carpet to Libary Study Room S100 carpet Schluter Reno U from tile to carpet or similar approved
<text></text>	Steelcraft; an Ingersoll-Rand company. Windsor Republic Doors.	Type X: Thickness: 5/8 inch. Long Edges: Tapered and featured (rounded or beveled) for prefilling.	09 72 00 Presentation Dry-Erease Wallcovering Koroseal Walltalkers Mag-Rite: Woven backed, ferrous sheet bonded with white
	 Access Paners and Frames Access Doors and Trimless Frames: Fabricated from metallic-coated steel sheet. Sized as riate for type of access required; not less than 8 inches by 8 inches for hand access or 24 by 24 inches for body access. Locations: Wall surfaces. Door: Minimum 0.060-inch-thick sheet metal. Frame: Minimum 0.060-inch-thick sheet metal with drywall bead flange. Hinges: Continuous piano. Lock: Self-latching device with cylinder lock. ted, Insulated, Flush Access Doors and Trim-less Frames: Fabricated from metallic-coated neet. Sized as appropriate for type of access required; not less than 8 inches by 8 inches for ccess or 24 inches by 24 inches for body access. Fire-Resistance Rating: Not less than that of adjacent construction. Door: Flush panel with a core of mineral-fiber insulation enclosed in sheet metal with a minimum thickness of 0.036 inch. Frame: Minimum 0.060-inch-thick sheet metal with drywall bead. Hinges: Continuous piano. Automatic Closer: Spring type. 3 Aluminum-Framed Entrances and Storefronts ont System: Kawneer Trifab451, 1-3/4"x 4 ". Interior frames center glazed, or similar approved. ac poors: Kawneer 500 Wide Stile Doors.	 Moistule- and Moid-Resistant Type. With Moistule- and Moid-Resistant Core and surfaces. Core: 5/8 inch, Type X. Long Edges: Tapered. Lead-lined: Ray-Bar U.L. labeled Fire Rated and regular Lead Backed Gypsum Board. Thickness: 5/8 inch + 1/16 inch lead lining. Height: Lead to full height of wall: 9'-0". Installation: All lead backed drywall must be installed vertically. All penetrations must be backed with sheet lead of the same thickness as required for the wall or partition. (Penetrations include electrical boxes, outlets, conduit, pipes, plumbing, ducts, medical gas lines, HVAC, air, etc.) Framing is performed by the customer's licensed contractor. The metal stud system must be a minimum of 20ga steel stud (i.e.: 18ga, 16ga, 14ga, etc.) and no more than 16" on center spacing or less (i.e.: 12" on center) for proper support. Standard steel screw fastener spacing will apply per code (8" on center perimeter and 12" on center field U.O.N.). Steel screw fastener type must be a minimum of 1-1/4" length type S-12. Exterior Gypsum Board For Soffits, Wall Sheathing: Glass-Mat Gypsum Sheathing Board. Acceptable products: "GreenGlass" by TempleInland, "DensGlass Gold" and "DensDeck" by G-P Gypsum, "GlasRoc" by BPB America Inc. or equivalent. Core: 5/8 and 1/4 inch, moisture resistant type where indicated on Drawings. Tile Backing Panels Cementitious Backer Units. Acceptable products: 	 vinyl and capped with semi-gloss, dry erase film. M248-00: 48 inch width, woven backing. Pattern Match: Straight Match, Reverse Hang 09 91 23 Interior Painting Primers/Sealers: Interior Latex Primer/Sealer: MPI #50. Base Coat: United States Gyps Product "First Coat", or equal. Metal Primers: Rust Inhibitive Latex Metal Primer: MPI #107. Waterborne Galvanized-M MPI #134. Wood Primers: Interior Latex-Based Wood Primer: MPI #39. Solvent-Based Coatings: Alkyd Varnish, Interior, Semi-Gloss (Gloss Level 5): MPI #74. Latex Paints: Interior Latex (Satin): MPI #43 (Gloss Level 3). Interior Latex (Semigloss): (Gloss Level 5). Interior Latex Fire Retardant: MPI #64. Interior Painting Schedule Steel Substrates: All exposed metal shall be painted. Structural steel with fabricator's markings: All markings shall be ground completely off be painting. Quick-Drying Latex Enamel System: MPI INT 5.1B. Gloss Level 5 Prime Coat: Rust Inhibitive Water Based primer. Intermediate Coat: W.B. Light Industrial Coating. Topcoat: W.B. Light Industrial Coating. Galvanized-Metal Substrates: All exposed metal shall be painted. Latex over Waterborne Primer System: MPI INT 5.31. Gloss Level 5
 M. Versee Status Base A status Base	0 Door Hardware eduled. Coordinate with Owner/Tenant prior to ordering doors and hardware in case changes	C-Cure; C-Cure Board 990. CertainTeed Corp.; FiberCement BackerBoard. Custom Building Products; Wonderboard.	Prime Coat: Waterborne galvanized-metal primer. Intermediate Coat: Interior latex matching topcoat. Topcoat: Interior latex.
(CTW1) Daltile, Aesthetic, Frequency rectangle AS22, 12 x 36 Locations: Above sink counters and sides in Lactation room 102 (CTW2) Daltile, Advantage, Portrait White Rectangle AQ001, 10 x 14 Satin Locations: All restroom walls in Restroom R101 (CT1) Daltile, Prime Beige Rectangle EL31, 4 x 12 Matte	osers: LCN LCN LCN is: Yale YALE Jds & Weatherstrip: Penko, National Guard, Reese, Zero NA , Door Trim: Ives, Trimco, Rockwood, dynn Johnson IVES is: Ives, Trimco, Rockwood, dynn Johnson IVES is: Ives, Trimco, Rockwood, dynn Johnson IVES is: Ives, Trimco, Rockwood, dynn Johnson IVES Tris: LCN LCN LCN Control Devices: Verify with Owner for compatibility with existing systems. O Glass Glazing hic Float-Glass Units Float-Glass Units: Type I: Kind A (annealed), Class I (clear), float glass, 6.0 mm thick. Uncoated Clear Float-Glass Units, Type III: Class 1 (clear), float glass, 6.0 mm thick. Uncoated Clear Float-Glass Units, Type III: Class 1 (clear), float glass, 6.0 mm thick. Uncoated Clear Float-Glass Units, Type III: Class 1 (clear), float glass, 6.0 mm thick. Uncoated Glass With two plies of fully tempered float glass. Thickness of Each Glass IPy: 1/8 inch, 3.0 mm. Interlayer Thickness: 0.030 inch (0.76 mm). Frovide sately glazing labeling. ng-Glass Type: Glass Type: Low-e-coated, linted insulating glass, Type II. Overall Unit Thickness: 1 inch. Thickness of Each Glass Lie: 6.0 mm. Outdoor Lie: Class 2 (linted), second surface. Type I, heat-strengthened float glass or Type III, I, fully tempered float glass where indicated on Drawings. Thickness of Each Gray (approved equals). Interspace Content: Air: Low-E Coating: Solarban 60, Sputtered on third surface. Visible Light Transmittance: 30 percent minimum. Winter Nighttime U-Factor: 0.20 maximum. Solar Heat Gain Coefficient: 0.35 maximum. Solar Heat Gain Coefficient: 0.30 maximum. Materials: Neoprene; EPDM; Silicone; Thermoplastic polyolefin rubber.	 USG Corporation; DUROCK Comment Board. Thickness: 1/2 into Accessories Material: Galvanizad or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet. Shapes: Commerbed. LC-Beast: J-shaped; exposed long flange receives joint compound. L-Beast: J-shaped; exposed long flange receives joint compound. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is comparison of the interior Gypsum Wallboard: For each coat use formulation that is compared by best pringe compound. Metadding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound. Shin Coat: For third coat Leve 5 flinsh, Lue dering type, ell-purpose compound. Hindsh Coat: For third coat Leve 5 flinsh, Lue dering type, ell-purpose compound. Joint Compound for The Backing Panels: Water-Resistant Gypsum Backing Board: As recommended by backer unit manufacturer. Joint Compound for The Backing Panels: Water-Resistant Gypsum Backing Board: As recommended by backer unit manufacturer. Joint Compound for The Backing Panels: Water-Resistant Gypsum Backing Board: As recommended by backer unit manufacturer. Joint Compound for The Backing Panels: Water-Resistant Gypsum Backing Board: As recommended by backer unit for and/phich back for standard-weight doors. For flanni	Intermediate Coat: Exterior latex matching topcoat. Topcoat: Exterior latex (semigloss). Wood Panel Substrates: Intermediate Coat: Interior latex-based wood primer. Intermediate Coat: Interior latex-based wood primer. Intermediate Coat: Interior latex matching topcoat. Sysum Board Substrates: Gypsum Board Substrates: Gypsum Board Substrates: Intermediate Coat: Interior latex and thing topcoat. Prime Coat: Interior latex granters: Topcoat: Interior latex (Sater). Intermediate Coat: Interior latex strates: Intermediate Coat: Interior latex strates: Topcoat: Interior latex (Sater). Intermediate Coat: Interior latex strates: Intermediate Coat: Interior lates strates: Intermediate Coat: Interior lates: Intermediate Coat: Interior l
(CT1) Daltile Prime Beige Rectangle FL31 4 x 12 Matte		Locations: Above sink counters and sides in Lactation room 102 (CTW2) Daltile, Advantage, Portrait White Rectangle AQ001, 10 x 14 Satin Locations: All restroom walls in Restroom R101	
		(CT1) Daltile, Prime Beige Rectangle EL31, 4 x 12 Matte	$\frac{1}{9} = \frac{1}{1}$ $\frac{1}{1} = \frac{1}{1} = \frac{1}$

2





FLOORING LEGEND - DEMO



EXISTING CARPET - CUT AS SHOWN ON DRAWINGS

EXISTING TILE - TO BE REMOVED

	DEMO KEYED NOTES
02 00 00.17	EXISTING DOOR TO REMAIN - RESAND AND RESTAIN, ADD NEW HARE
02 41 00.D3	REMOVE FLOORING IN ITS ENTIRETY - PREPARE AREA FOR NEW FLC
02 41 00.D18	REMOVE FIRE ALARM PULL STATION - CLEAN AND PREPARE FOR REI NEW WORK - REFER TO ELECTRICAL
02 41 00.D19	REMOVE CEILING TILES AS NEEDED FOR ACCESS TO NEW WORK.
02 41 00.D20	REMOVE LIGHT FIXTURES, CLEAN, PROTECT, AND PREPARE FOR RE NEW LOCATION IN NEW WORK.
02 41 00.D21	ADJUST/RELOCATE SMOKE DETECTOR - REFER TO ELECTRICAL
02 41 00.D22	EXISTING SPRINKLER HEAD TO BE RELOCATED OR EXTENDED TO NE HEIGHT. CONTRACTOR SHOULD HIRE FIRE SUPPRESSOR PROTECTION FOR MODIFICATION OF EXISTING SPRINKLER HEAD.
02 41 00.D27	REMOVE FIRE EXTINGUISHER CABINET AND PREPARE FOR WALL INF
02 41 00.D28	REMOVE CARPET AND PREPARE AREA FOR NEW WORK. CUT AT PRO SHOWN AS STRAIGHT AS POSSIBLE - EXISTING CARPET WILL REMAIN ROOM AREA - PROTECT DURING CONSTRUCTION
02 41 00.D29	REMOVE CERAMIC TILE FROM WALL AND PREPARE AREA FOR NEW V
02 41 00.D31	REMOVE EXHAUST FAN - REFER TO MECHANICAL
02 41 00.D32	REMOVE GRID AND TILE SYSTEM. PREPARE ARE FOR WORK.
02 41 00.D33	EXISTING TOILET FLANGE TO BE INFILLED WITH CONCRETE, PREPAR WORK.
02 41 00.D34	EXISTING TOILET FLANGE TO REMAIN AND BE RECONNECTED TO NE FIXTURE - REFER TO PLUMBING





ARC



	KEYNOTE LEGEND
08 43 13.AS	ALUMINUM-FRAMED STOREFRONT WITH DARK BRONZE FRAME - TO MATCH EXISTING
09 21 16.GB58	GYPSUM BOARD 5/8", STANDARD, TEXTURE AND PAINT - COLOR AS SELECTED BY ARCHITECT
09 51 00.AC	NEW 2'X2' ARMSTRONG CEILING ULTIMA TEGULAR FINE TEXTURE, 9/16 BEVELED TEGULAR SYSTEM OR APPROVED SIMILAR
10 14 14.ML	8" METAL LETTERS TIMES NEW ROMAN - BRUSHED ALUMINUM FINISH TO MATCH OTHERS IN LIBRARY
21 00 00.F	POSSIBLE LOCATION OF FIRE SPRINKLER HEAD, CONTRACTOR TO HIRE LICENSED FIRE PROTECTION ENGINEER FOR MODIFICATION OF EXISTING SPRINKLER HEAD, TYP.
21 00 00.FS	POSSIBLE LOCATION OF FIRE SPRINKLER HEAD - EXTENDED TO NEW DROP CEILING, CONTRACTOR TO HIRE LICENSED FIRE PROTECTION ENGINEER FOR MODIFICATION OF EXISTING SPRINKLER HEAD, TYP.
21 00 00.FS2	NEW FIRE SPRINKLER HEAD - CONTRACTOR TO HIRE LICENSED FIRE PROTECTION ENGINEER FOR MODIFICATION OF EXISTING SPRINKLER HEAD, TYP.
21 00 00.SD	RELOCATED SMOKE DETECTOR - REFER TO ELECTRICAL
21 00 00.SD1	POSSIBLE LOCATION OF NEW SMOKE DETECTOR - REFER TO ELECTRICAL
23 00 00.EF	NEW EXHAUST FAN CONNECTED TO EXISTING DUCTWORK TO ROOF - REFER TO MECHANICAL
23 00 00.SD	MECHANICAL SUPPLY DIFFUSER, EXTEND TO NEW DROP CEILING - REFER TO MECHANICAL
26 00 00.E	NEW CEILING-MOUNTED EXIST SIGN - REFER TO ELECTRICAL
26 00 00.LF	NEW LIGHT FIXTURE - REFER TO ELECTRICAL
26 00 00.RL	RELOCATED LIGHTS FIXTURES - REFER TO ELECTRICAL

TIFUI	i anniy	Type	Conn
DW	Summit Appliance Built-In Dishwasher, 24 In Wide, ADA Compliant, Top Controls, White Door - Model WBB3124519	23 1/2" x 22 1/2" x 32" 1/2	OR APPOVE - CONTRAC PROVIDED CONTRACT INSTALLED
FEC	10 Fire Extinguisher Cabinet	Semirecessed	EXISTING RELOCATE
GB 36"	10 Toilet - Grab Bar	36"	OWNER PR CONTRACT INSTALLED
GB 42"	10 Toilet - Grab Bar	42"	OWNER PR CONTRACT INSTALLED
М	10 Toilet - Mirror	24 X 36	OWNER PR CONTRACT INSTALLED
MB	Mackboard	10 Markerboard Wall Surface	EXISTING
PD	10 Toilet - Paper Towel Dispenser	Adult	OWNER PR CONTRACT INSTALLED
SD	10 Toilet - Liquid Soap Dispenser	Adult	OWNER PR CONTRACT INSTALLED
SND	SanitaryDisposal_SurfaceMount_ASI_FrontDoor	Without Lock (0473-A)	OWNER PR CONTRACT INSTALLED
TD	ToiletTissueDispenser_SemiRecessed_ASI_Rova _Single_HideARoll	¥20030	OWNER PR CONTRACT INSTALLED
VGB	GrabBar_Straight_ASI_SnapFlange_1.25InchDi _Vertical	a18" Length Smooth (3701-18)	OWNER PR CONTRACT INSTALLED

DRAWING COORDINATION ARCHITEC GENERAL CONTRACTOR AND ALL SUB-CONTRACTO



KEYNOTE LEGEND

FLOOR TRANSITION TO BE PROVIDED AT NEW TO EXISTING CARPET TRANSITION - RESILIENT TRANSITION STRIPS OR APPROVED SIMILAR 09 00 00.FT2 FLOOR TRANSITION TO BE PROVIDED AT NEW CARPET TO NEW PORCELAIN TILE TRANSITION - SCHLUTER RENO U OR SIMILAR APPROVED

- CERAMIC TILE FLOORING COLOR AND PATTERN AS SELECTED BY ARCHITECT - REFER TO FINISH SCHEDULE
- NEW CARPET TILE INTERFACE AE312 (FOG/ACCENT)
- MAGNETIC WRITABLE WALLTALKERS KOROSEAL MAG-RITE 59 (M289-00) OR APPROVED SIMILAR - TO BE 48" AFF
- SUMMIT APPLIANCE BUILT-IN DISHWASHER OR APPROVED SIMILAR -CONTRACTOR PROVIDED, CONTRACTOR INSTALLED
- FURNITURE AS PURCHASED AND SUPPLIED BY OWNER CONTRACTOR SHALL COORDINATE INSTALLATION OF FURNITURE UPON ARRIVAL

FURNITURE SCHEDULE

Туре	Coun
1 FURNITURE - EXPLORER X-LARGE 18" SENIOR CHAIR	6
1 FURNITURE - SOFT SEATING 14" D SHAPE PAD, FIXED	4
1 FURNITURE - INTEGRITY KIDNEY SHAPE 48" X 72"	2
1 FURNITURE - HABA PRO RECTANGLE PLAY BENCH 12"	'H 1
LDREN'S FURNITURE CO. LEAF AND ANIMAL FUN SHAPE TERFLY, COLOR NATURAL	40
KERBOARD BRAINSTORMING TABLE, 30" H, ROUND	1
ER SPACE CHILDRENS'S STEM/STEAM BUILDING TABL	E1,
TNELL TRAYS FROM GRESSCO, MEDIUM 6"H	4
TNELL TRAYS FROM GRESSCO, SMALL 3" H, COLOR	16

C1 - COLOR AS SELECTED BY ARCHITECT

CT1 - COLOR AS SELECTED BY ARCHITECT

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		- 12

GHT	COMMENTS
'-0"	NO WORK THIS AREA - COVER AND PROTECT
'-6"	
-0"	EXISTING CEILING - PATCH, FLOAT, RE-TEXTURE AND PAINT
-0"	EXISTING CEILING - PATCH, FLOAT, RE-TEXTURE AND PAINT

3							4						5			
						DOOF	R AN	D FR/	AME SC	CHEDL	JLE					OF MEW IN
		DOOR						FRAME		DE	TAILS		FIRF	MISC		
MARK WIDTH	HT	THK	ELEV	MATL	GLZ	ELEV	MATL	WIDTH	GLZ	HEAD	JAMB	HDW SET	LABEL	COMMENTS		ESAR R. MOLINA
206 3' - 0" 7' - 206A 3' - 0" 7' -	- 0" - 0"	0' - 1 3/4" 0' - 1 3/4"	A B	ALUM HM	-	REF A/A601 1	ALUM HM	4EXIST2"	SEE WIN ELEV -	BY MANUF EXIST	BY MANUF EXIST	BY MANUF 01	-	ELECTRONIC ACCESS CONTROL EXISTING - SAND FRAME AND DOOR - REPAINT AND REFINISH - NEW HARDWARE	REC	STERED ARCHINE
206B 3' - 0" 7' -	- 0"	0' - 1 3/4"	B		- 1"	1 REF A/A601		<u>4' - 0 1/2"</u>	- SEE WIN ELEV		EXIST	01	-	EXISTING - SAND FRAME AND DOOR - REPAINT AND REFINISH - NEW HARDWARE	·	02/07/2024
DOOR NUMBER: <i>R101, 102</i> EACH TO HAVE: 3 EA HINGE 1 EA PRIVACY LOCK 1 EA FSIC CORE 1 EA KICK PLATE 1 EA WALL STOP 3 EA SILENCERS		VARE ERIOR DOORS 5BB1 4.5 X ND405 RHC 23-030 8400 10" X 3 WS406/4070 SR64	2" LDW B-	-CS (652 IVE 626 SCI 626 SCI 630 IVE 630 IVE GRY IVE	- - - - - - - - - - - - - - - - - - -										E DEGREES STURE + DESIGN, INC 1 MAGUEY CT. SUITE 2 NLAND PARK, NM 88063 26-8739 FAX 915-533-3282
6'-9 1/2" 3 3/4" 2" 3'-1 3/4 11 1 1 1 1 1 1 1 1 1 1 1 1	/4"	2" 2'-9" 2" 6'-8" 2" 2" 2" 2" 2" 2" 2" 2" 2" 2" 2" 2" 2"				GL/ 1. 1T.	\ZIN 1" INSUL 1" TEMP	G SC ATED GLA ERED INSU	HEDUL SS INTERIOR JLATED GLAS	- CLEAR	2 - CLEAR				A PROJECT FOR :	SENMC - LIBRARY FAMILY STUDY ROON 1500 UNIVERSITY DF CARLSBAD, NM 8822
															Sheet 1 Sheet 1 CONS Project Date: Sheet 1	DATE DATE The: SCHEDULES STRUCTION DOCUMENTS No: 02/07/2024 No:
											THIS D AN INS DOCU PROJE DOCU SPECI THIS N	DOCUMENT, WHETHER IN STRUMENT OF SERVICES MENT IS NOT INTENDED ECT OR ANY OTHER PRO MENT, WITHOUT WRITTE FIC PURPOSE INTENDED MATERIAL MAY RESULT IN	HARD COPY OR MA IN RESPECT TO TH OR AUTHORIZED FO JECT. ANY REUSE, II N PERMISSION FRO IS A VIOLATION OF N CIVIL AND/OR CRIN	ACHINE READABLE FORMAT, IS COPYRIGHTED AND E PROJECT FOR WHICH IT WAS PREPARED. THIS I'R REUSE BY ANY PARTY ON EXTENSIONS OF SUCH NCLUDING COPYING AND/OR MODIFYING THE M NINE DEGREES ARCITECTURE, INC. FOR THE FEDERAL COPYRIGHT LAW. UNAUTHORIZED USE OF MINAL PENALTIES.	SHEE	4601 T 21 OF 22



١T	DOORS	TO ALL	REST	ROOMS





1					
MECHA	NICAL SYMBOL LEGEND				
SYMBOL	DESCRIPTION				
	EXISTING EQUIPMENT TO BE REMOVED AND DISPOSED OF AS INSTRUCTED.				
	NEW EQUIPMENT				
Ŵ	DEMOLITION KEYED NOTE				
	NEW WORK KEYED NOTE				
xx-##	EXISTING EQUIPMENT INDICATORS WILL NOT HAVE A SYMBOL. (EXAMPLE: B-1 = EXIST. BOILER (1)				
\frown					

SYMBOL

<u>г</u> – – –

 \boxtimes

 \square

CFM

CFMT

D

В

REMOVE EXISTING PIPING (EQUIPMENT) EILING DIFFUSER XHAUST RETURN OR EXHAUST ALANCING DAMPER (BD)

FM VALUE FOR AREA

TOTAL CFM VALUE FOR AIR HANDLER (AH)

OBD OPPOSED BLADE DAMPER SIDE WALL REGISTER WITH OBD SW EF EXHAUST FAN SUPPLY FAN SF AIR HANDLING UNIT AHU CONDENSING UNT ROOF TOP UNIT (PACKAGE) RTU 0 DUCT DETECTOR (SMOKE) ACU R CONDINTIONING UNIT (ACU) 20/10 DUCT SIZE 20=PLAN VIEW (WIDTH) DUCT SIZE AND REFRIGERANT LIQUID (RL) —— RL — REFRIGERANT SUCTION (RS) — RS— Condensate Drain (CD) — CD -C CONTROL SWITCH A) U.N.O. UNLESS NOTED OTHERWIS <<u>∽ 20x12</u> < EXISTING DUCTWORK <<u>20×12</u> < NEW DUCTWORK INSULATED R=3W/2 CTANGULAR DUCT RADIUS ELBOW SUPPLY AIR DUCT UP IN DIRECTION OF AIR FLOW ≥ 20×20 🔀 20x20 RETURN, EXHAUST OR OUTSIDE AIR INTAKE 20x20 EXHAUST DUCT UP (NEGATIVE PRESSURE) 20x20 SUPPLY AIR DUCT DOWN IN DIRECTION OF AIR 20x20 RETURN, EXHAUST OR OUTSIDE AIR INTAKE DUCT DOWN IN DIRECTION OF AIR FLOW 20x20 EXHAUST DUCT DN (NEGATIVE PRESSURE) 18" PROUND DUCT DOWN IN DIRECTION OF AIR FLOW 180 ROUND DUCT UP IN DIRECTION OF AIR FLOW

CHANGE OF ELEVATION, RISE OR DROP (D) IN DIRECTION OF ARROW (SEE DUCT DETAILS). ACCESS DOOR (AD), BOTTOM (UNLESS OTHERWISE <u>∽</u> ∧0⊡ ∽ NOTED) SIZE AS NOTED OR SPECIFIED ACCESS DOOR (AD), SIDE, SIZE AS NOTED OR ACOUSTICAL DUCT LINING (FIGURES SHOWN ARE INSIDE DUCT DIMENSIONS <u>20x20</u>

≤∎⊰ DUCT FLEXIBLE CONNECTION (FC) FLEXIBLE DUCT & SQUARE TO ROUND TRANSITION (SEE DUCT DETAILS)

R=3D/2 - 🗡

72×6 200

≶ --- <

XX

NEV

R=3W/2

TRANSITION CONCENTRIC UNLESS TOP LEVEL(TOP LVL) OR BOTTOM LEVEL(BOT LVL) IS NOTED TRANSITION, RECTANGULAR TO ROUND CONCENTRIC UNLESS TOP LEVEL (TOP LVL) OR BOTTOM LEVEL (BOT LVL) IS NOTED

RECTANGULAR DUCT SQUARE ELBOW WITH URNING VANES

ECTANGULAR DUCT RADIUS ELBOW

ROUND DUCT RADIUS ELBOW AND FLEX DUCT BENDS.

CEILING DIFFUSER (CD) "A" - PER EQUIPMENT SCHEDULE WITH 18"x18" FACE SIZE & RATED FOR 700 CFM. (4-WAY UNLESS OTHERWISE INDICATED). PROVIDE TRANSITIONS AS REQUIRED. 18×18 14*9

LINEAR DIFFUSER (LD) "C" PER EQUIPMENT SCHEDULE WITH 72x6 CORE SIZE AND RATED FOR 'OR 200 CFM.

CEILING DIFFUSER (CD), SQUARE OR RECTANGULAR "F" PER EQUIPMENT SCHEDULE WITH 20x12 CORE SIZE AND RATED 400 CFM.

CEILING RETURN (CR) OR EXHAUST AIR REGISTER "K" PER EQUIPMENT SCHEDULE WITH 6x6 CORE SIZE RATED FOR 60 CFM

RROW INDICATES DIRECTION OF AIR FLOW HERMOSTAT(TSTAT) HUMIDISTAT (HSTAT)

45° ENTRY BRANCH FITTING WITH BALANCING DAMPER FOR DUCT BRANCH

SPIN-IN OR BELL MOUTH WITH BALANCING DAMPER FOR DUCT BRANCH

OUTSIDE AIR (OA) INTAKE LOUVER WITH BIRD

NOTES: GENERAL LEGEND NOT ALL ITEMS APPLICABLE TO THIS PROJECT

REMOVE EXISTING HVAC DUCTWORK (EQUIPMENT) EW-TO-EXISTING POINT OF CONNECTION

MECHANICAL GENERAL NOTES:

- 1. THESE MECHANICAL GENERAL NOTES ARE APPLICABLE TO ALL MECHANICAL SHEETS IN THIS PROJECT SET. 2. THE MECHANICAL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE APPLICABLE AND ADOPTED PROVISIONS OF THE FOLLOWING CODES:
 - 2015 INTERNATIONAL BUILDING CODE 2015 UNIFORM PLUMBING CODE 2015 UNIFORM MECHANICAL CODE 2015 INTERNATIONAL FIRE CODE 2015 INTERNATIONAL FUEL CODE

2015 INTERNATIONAL ENERGY CONSERVATION CODE AS ADOPTED AND INTERPRETED BY THE STATE OF NEW MEXICO, CITY OF SUNLAND PARK, AND THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) REGULATIONS, CURRENT ADOPTED EDITION REGARDING PLUMBING SYSTEMS. FIRE PROTECTION AND ALARM SYSTEMS AND ELECTRICAL SYSTEMS. ALL LABOR AND MATERIALS NECESSARY T COMPLY WITH RULES, REGULATIONS AND ORDINANCES SHALL BE PROVIDED. WHERE THE DRAWINGS INDICATE MATERIALS OR CONSTRUCTION IN EXCESS OF CODE REQUIREMENTS, THE DRAWINGS SHALL GOVERN. THE CONTRACTOR SHALL HOLD AND SAVE THE OWNER, ARCHITECT AND ENGINEER FREE AND HARMLESS FROM LIABILITY OF ANY NATURE OR KIND ARISING FROM HIS FAILURE TO COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.

- 3. THE CONTRACTOR SHALL COORDINATE WITH OWNER, ARCHITECT, AND ENGINEER ANY WORK THAT HAS THE POTENTIAL TO HINDER MECHANICAL AND PLUMBING SERVICES TO AREA OUTSIDE OF THIS CONTRACT. ALL SHUT-DOWNS OR TIE-INS RELATING TO THESE SYSTEMS SHALL BE SCHEDULED AND SUBMITTED IN WRITING AND TO BE APPROVED BY THE OWNER, ARCHITECT, AND THIS ENGINEER OFFICE. CONTRACTOR SHALL SUBMIT IN WRITING A SCHEDULE FOR PHASING OF CONSTRUCTION THAT INDICATES AREAS OF FIRST PRIORITY DURING EACH PHASE AND ANTICIPATED COMPLETION TIMES. SCHEDULES SHALL BE SUBMITTED A MINIMUM OF ONE WEEK PRIOR TO COMMENCING WORK. OWNER, ARCHITECT AND ENGINEER SHALL REVIEW THESE SCHEDULES AND NOTIFY CONTRACTOR OF ACCEPTANCE PRIOR TO COMMENCEMENT OF WORK.
- . ALL MATERIALS AND LABOR NECESSARY TO COMPLY WITH CODES AND RULES, REGULATIONS AND ORDINANCES SHALL BE PROVIDED. WHERE THE DRAWINGS AND/OR SPECIFICATIONS INDICATE MATERIALS OR CONSTRUCTION IN EXCESS OF CODE REQUIREMENTS, THE DRAWINGS AND/OR SPECIFICATIONS SHALL GOVERN. THE CONTRACTOR SHALL HOLD AND SAVE THE OWNER, ARCHITECT AND ENGINEERS FREE AND HARMLESS FROM LIABILITY OF ANY NATURE OR KIND ARISING FORM HIS FAILURE TO COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.
- . BIDDERS SHALL VISIT THE SITE AND SHALL BE RESPONSIBLE FOR HAVING ASCERTAINED PERTINENT LOCAL CONDITIONS SUCH AS LOCATION, ACCESSIBILITY AND GENERAL CHARACTER OF THE SITE, THE CHARACTER AND EXTENT OF THE WORK WITHIN THE BUILDING AND TO BECOME FAMILIAR WITH ALL OTHER WORK TO BE PERFORMED IT THIS TIME. NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO CONTRACTOR'S FAILURE TO DETERMINE ALL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED
- 6. EACH CONTRACTOR SHALL GIVE ALL REQUISITE NOTICES AND FILLED OUT APPLICATIONS, OBTAIN AND PAY FOR ALL PERMITS, DEPOSITS AND FEES (INCLUDING UTILITY CONNECTIONS FEES, ANY UTILITY EXTENSION FEES, TAP FEES, DEVELOPMENT FEES, AND IMPACT FEES) NECESSARY FOR THE INSTALLATION OF WORK UNDER THESE NOTES. TWO (2) COPIES OF CERTIFICATES OF APPROVAL SHALL BE OBTAINED FROM ALL AUTHORITIES ISSUING SAME AND SHALL BE TURNED OVER TO OWNER, ARCHITECT, ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE WORK,
- . REQUIRED INSURANCE SHALL BE PROVIDED BY THIS CONTRACTOR FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF WORK. CONTRACTOR SHALL SECURE AND PAY ALL PERMITS, FEES, INSPECTIONS, AND TESTS UNLESS OTHERWISE INDICATED, COORDINATE WITH ARCHITECT, ENGINEER, OWNER, SUBSTITUTIONS REQUESTED BY THE CONTRACTOR SHALL BE PAID FOR BY THE CONTRACTOR
- 8. ALL WORK SHALL CONFORM WITH FEDERAL, STATE, AND LOCAL CODES, RULES, AND REGULATIONS. ALL WORK SHALL BE PERFORMED BY A LICENSED CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE SYSTEMS SHALL BE INSTALLED COMPLETE AND FULLY OPERATIVE UNLESS OTHERWISE INDICATED
- 9. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND PROVIDE A WRITTEN REPORT TO THE ARCHITECT AND THE ENGINEERING OFFICES. THIS REPORT SHALL DESCRIBE EXISTING DAMAGE OR OTHER CONDITIONS THAT MAY INTERFERE WITH THIS PROPOSED NEW WORK. THIS SITE SURVEY SHALL ALSO INCLUDE VERIFICATION OF SIZES, LOCATIONS, AND CONDITIONS OF EXISTING UTILITIES. QUESTIONS REGARDING THESE DRAWINGS SHALL BE ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDING OF THE CONTRACT. OTHERWISE THE ENGINEER'S INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL BE FINAL
- 10. DURING CONSTRUCTION IF THE CONTRACTOR ENCOUNTER AND DAMAGES THE EXISTING UNDERGROUND INFRASTRUCTURE THE CONTRACTOR SHALL REPAIR THE INFRASTRUCTURE AT NO ADDITIONAL COSTS TO THE OWNER, WHERE STRUCTURE IS ALTERED OR DAMAGES DURING CONSTRUCTION, INSTALLATION AND REMOVAL OF EQUIPMENT OR FIXTURES, THE CONTRACTOR SHALL REPAIR THE AREA TO MATCH SURROUNDING AREA PER ARCHITECTURAL SPECIFICATIONS CUTTING, TRENCHING AND PENETRATIONS THROUGH FIRE WALL, CONCRETE AND OTHER STRUCTURES ARE A PART OF THIS PROJECT SCOPE AND SHALL BE INCLUDED IN THE CONTRACTOR'S BID. ALL EXCAVATION AND BACKFILLING REQUIRED FOR PLUMBING WORK IS ALSO INCLUDED AS PART OF THIS CONTRACT AND SHALL BE INCLUDED IN CONTRACTOR'S BID.
- 11. ALL SYSTEMS AND COMPONENTS SHALL BE APPROVED FOR THE PURPOSE FOR WHICH THEY ARE INSTALLED. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND FROM ESTABLISHED AMERICAN SUPPLIERS UNLESS OTHERWISE INDICATED.
- 12. ALL EQUIPMENT PARAMETERS SHOWN ARE FOR PERFORMANCE AT SITE ALTITUDE. SUPPLIERS SHALL SELECT AND DEMONSTRATE THAT THEIR EQUIPMENT MEETS THE DESIGN CONDITIONS AT SITE ALTITUDE. 13. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR THE ELECTRICAL REQUIREMENTS.
- INCLUDING POWER, CONTROL, COMMUNICATION, AND MONITORING, OF EACH DEVICE PROVIDED AND/OR INSTALLED BY MECHANICAL CONTRACTOR 14. SUPPORT SYSTEM FOR PIPING MATERIALS AND EQUIPMENT SUPPORTED BY THE BUILDING STRUCTURE SHALL BE
- SUBMITTED TO THE STRUCTURAL ENGINEER AND ARCHITECT FOR APPROVAL PRIOR TO PURCHASE AND INSTALLATION. NO WIRE OR PERFORATED STRAP WILL BE PERMITTED FOR ANY HANGER OR SUPPORT 15. CONTRACTOR SHALL NOT CUT, DRILL, OR ALTER ANY ELEMENT OF ANY WALLS, FLOORS CEILINGS, ROOFS, AND
- SLABS WITHOUT FIRST RECEIVING INSTRUCTIONS FROM ARCHITECT, ENGINEER. ALL CUTS SHALL BE MADE WITH A CUTTING TOOL.
- 16. PATCHING OR SEALING OF CUTS OR PENETRATIONS SHALL BE DONE BY CONTRACTOR PER INSTRUCTIONS FROM AND TO FINAL APPROVAL OF ARCHITECT AND ENGINEER. COORDINATE WITH GENERAL CONTRACTOR.
- 17. CONTRACTOR SHALL FIELD VERIFY CONDITION OF EXISTING EQUIPMENT AND PROVIDE NECESSARY COMPONENTS TO ASSEMBLE AND TO START-UP COMPLETE AND FULLY OPERATIONAL SYSTEMS.
- 18. BEFORE INSTALLATION, EQUIPMENT AND DEVICES INCLUDING, BUT NOT LIMITED TO, ANY DEVICE WITH ELECTRICAL CONNECTIONS, DUCTWORK, INSULATION, PIPING, VALVES, AND AIR DEVICES SHALL NOT BE STORED DIRECTLY ON GRADE OR ON A SLAB OR FLOOR. BEFORE AND AFTER INSTALLATION, SUCH EQUIPMENT AND DEVICES SHALL BE ROTECTED FROM ENTRY OF DIRT, TRASH WATER (EXCEPT AS REQUIRED), VERMIN.
- 19. CONTRACTOR SHALL COORDINATE ACTUAL LOCATIONS OF AIR DEVICES AND DUCTWORK WITH LIGHTS, CEILING PANELS, JOIST SPACING AND ARCHITECTURAL REFLECTED CEILING PLAN (REF. ELECTRICAL PLANS AND ARCHITECTURAL PLANS).
- 20. PROVIDE THE OWNER WITH THREE (3) COPIES OF OPERATION AND MAINTENANCE (O&M'S) MANUALS. THE O&M'S SHALL INCLUDE ALL INSTALLATIONS INSTRUCTIONS FOR PRODUCT DATA, WARRANTIES, CONTACT INFORMATION DURING WARRANTY PERIOD, COPIES OF ALL PERMIT INFORMATION, AND AIR AND HYDRONIC TESTING AND BALANCING REPORTS IN 3-RING BINDERS AND CD VERSION. ALL LABOR AND MATERIALS PROVIDED FROM CONTRACTOR SHALL HAVE COMPLETE ONE (1) YEAR WARRANTY. ALL COMPRESSORS SHALL BE WARRANTIED FOR FIVE (5) YEARS, INCLUDING LABOR AND MATERIALS.
- 21. OPERATING TESTS AND CLEANING PROCEDURES SHALL BE PERFORMED AND REPORTS SHALL BE ISSUED PER CODE REQUIREMENTS, MANUFACTURER'S RECOMMENDATIONS.
- 22. PIPING ROUTED ON THE ROOF SHALL BE SUPPORTED BY FACTORY MADE PIPE SUPPORTS PER MANUFACTURER'S RECOMMENDATIONS
- 23. CONTRACTOR SHALL PROVIDE AND INSTALL IDENTIFICATION TAGS FOR EQUIPMENT AND PIPING PER ASME 13.1 SCHEME OF IDENTIFICATION FOR PIPING.
- 24. LOCATIONS OF CEILING, ROOF AND ATTIC MECHANICAL EQUIPMENT ARE APPROXIMATE AS SHOWN. MECHANICAL CONTRACTOR SHALL FIELD ADJUST AS REQUIRED.
- 25. CONTRACTOR SHALL TAKE PRECAUTIONS PER THE ARCHITECT'S INSTRUCTIONS TO PROTECT EXISTING TREES AND /OR OTHER SITE VEGETATION.
- 26. THE MECHANICAL/PLUMBING CONTRACTOR SHALL PROVIDE AND HAVE INSTALLED ANY ACCESS DOOR REQUIRED TO ACCESS NEW AND EXISTING MECHANICAL OR PLUMBING EQUIPMENT THAT REQUIRES ACCESS BEHIND GYPBOARD OR HARD CEILINGS AND IN WALLS. THE MECHANICAL/PLUMBING CONTRACTOR SHALL PROVIDE THE GENERAL CONTRACTOR WITH THESE ACCESS DOORS FOR INSTALLATION IN THE CEILING OR WALL. ACCESS DOORS SHALL BE RATED FOR THE WALL, FLOOR, OR CEILING TYPE AND SHALL BE A MINIMUM SIZE OF 12"X12" OR SIZED PER DRAWING
- 27. ALL MATERIAL INSTALLED IN CEILING SPACE SHALL BE NONCOMBUSTIBLE PLENUM RATED MATERIALS.
- 28. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ALTERNATES AND ALLOWANCES FOR THIS PROJECT.
- 29. ALL PIPING, PLUMBING AND DUCTWORK OPENINGS SHALL BE CAPPED DURING DEMOLITION AND CONSTRUCTION.
- 30. EXISTING MECHANICAL EQUIPMENT, COMPONENTS, AND PIPING BEING REUSED SHALL BE INSPECTED, CLEANED, AND PRESSURE TESTED PER THE TESTING REQUIREMENTS STATED BELOW. CONTRACTOR SHALL FIELD VERIFY EXISTING MECHANICAL EQUIPMENT, COMPONENTS, AND PIPING CONDITIONS AND PROVIDE A WRITTEN REPORT TO THIS ENGINEERING OFFICES. THIS REPORT SHALL DESCRIBE EXISTING CONDITION AND ANY DAMAGE OR OTHER CONDITIONS THAT MAY INTERFERE WITH THIS PROPOSED NEW WORK.
- 31. SITE VISIT REPORTS DURING THE COURSE OF THE JOB, THE ENGINEER WILL MAKE SITE VISITS TO OBSERVE WORK IN PROGRESS AND WILL SUBSEQUENTLY PREPARE A WRITTEN SITE VISIT REPORT. WHICH WILL BE SENT TO THE CONTRACTOR AND TO WHOMEVER ELSE THE ENGINEER DESIRES. THE CONTRACTOR SHALL PREPARE A WRITTEN AND TYPED RESPONSE WITHIN SEVEN (7) CALENDAR DAYS OF HIS RECEIVING THE SITE VISIT REPORT. THE CONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING THIS FINAL PUNCHLIST VISIT UPON THE REQUEST OF THE ENGINEER. THE GENERAL CONTRACTOR SHALL INCLUDE IN HIS RESPONSE THE FOLLOWING INFORMATION. A. DATE OF SITE VISIT BY THE ENGINEER,
 - B. DATE OF RECEIPT OF THE SITE VISIT REPORT
 - NAME AND TITLE OF THE PREPARER OF THE RESPONSE AN ITEM NUMBER REFERENCED TO THE SITE REPORT. A BRIEF THREE OR FOUR WORD DESCRIPTION OF THE ITEM
 - THE CONTRACTOR OR SUBCONTRACTOR AFFECTED, THE PROPOSED COURSE OF ACTION, AND
- H. AN EXPECTED TIME OF COMPLETION OF THE ACTION.
- 32. FINAL PUNCH REPORT AT THE COMPLETION OF THE JOB, THE ENGINEER WILL MAKE PUNCHLIST SITE VISITS TO OBSERVE COMPLETED WORK AND WILL SUBSEQUENTLY PREPARE A WRITTEN SITE VISIT PUNCHLIST REPORT, WHICH WILL BE SENT TO THE CONTRACTOR AND TO WHOMEVER ELSE THE ENGINEER DESIRES. THE CONTRACTOR UPON COMPLETION OF THE LISTED PUNCHLIST ITEMS SHALL PREPARE A TYPE WRITTEN RESPONSE TO THE LIST INDICATING COMPLETION OF EACH ITEM. THE CONTRACTOR SHALL INCLUDE IN HIS RESPONSE THE RESOLUTION OF EACH ITEM. THE CONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING THIS FINAL PUNCHLIST VISIT UPON THE REQUEST OF THE ENGINEER.

- 33. SUBSTITUTED PRODUCTS MATERIAL OR EQUIPMENT SPECIFIED BY MANUFACTURER'S NAME IS BEING USED AS A BASIS OF STANDARD. NO SUBSTITUTION IS ALLOWABLE WITHOUT ENGINEER'S WRITTEN APPROVAL TEN (10) DAYS PRIOR TO BID DUE DATE UNLESS THE MANUFACTURER IS LISTED ON THE DRAWINGS OR IN THE SPECIFICATION AS BEING A PREAPPROVED ALTERNATIVE MANUFACTURER. ANY SUBMITTAL RECEIVED WITHOUT SUCH WRITTEN APPROVAL OR PRIOR APPROVAL IS SUBJECT TO UNQUALIFIED REJECTION. B. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT SUBMITTED SUBSTITUTE EQUIPMENT WILL FIT IN SPACE AVAILABLE. THE CONTRACTOR'S SUBMITTAL FOR ACCEPTANCE OF THE SUBSTITUTE SHALL INCLUDE A WRITTEN STATEMENT OF WHETHER OR NOT SUCH ACCEPTANCE WOULD REQUIRE ANY SUBSEQUENT OR ASSOCIATED CHANGES TO THE DRAWINGS OR SPECIFICATIONS. ANY SUCH CHANGES SHALL BE DESCRIBED IN WRITING, BRIEFLY BUT COMPLETE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COSTS OF ANY SUCH MODIFICATIONS DUE TO SUBSTITUTION OF MATERIALS OR EQUIPMENT FOR THAT WHICH WAS SPECIFIED OR SCHEDULED. THE COST SHALL BE COMPLETE, THAT IS, IT SHALL INCLUDE THE COST EFFECT OF ANY AND ALL OTHER TRADES. THE ENGINEER MAY REQUEST DETAILED SHOP DRAWING OR PLAN LAYOUTS OF MECHANICAL ROOMS OR
 - SYSTEMS OF THE SUBSTITUTED EQUIPMENT. SHOULD A SUBSTITUTION BE APPROVED BY THE ENGINEER (BASED UPON THE SUBSTITUTION SUBMITTAL REVIEW) AND ACCEPTED, AND SHOULD THE SUBSTITUTE MATERIAL OR EQUIPMENT PROVE DEFECTIVE, NOT MEETING DESIGN PARAMETERS, OR OTHERWISE UNSATISFACTORY FOR THE SERVICE INTENDED WITHIN THE GUARANTEE PERIOD, THIS MATERIAL OR EQUIPMENT SHALL BE REPLACED WITH THE MATERIAL OR EQUIPMENT SPECIFIED AT NO ADDITIONAL COST TO THE OWNER.
- 34. SUBMITTAL REQUIREMENTS A. THE INTENT OF THIS SECTION IS TO GIVE GENERAL SUBMITTAL INFORMATION, REFER TO SPECIFIC SUBMITTAL INFORMATION IN THE SUBSEQUENT ELECTRICAL SECTIONS. WITHIN 10 DAYS AFTER AWARD OF THE CONTRACT, AND BEFORE ORDERS ARE PLACED, CONTRACTOR SHALL SUBMIT SPECIFIC INFORMATION ON LIST OF EQUIPMENT AND PRINCIPAL MATERIALS SPECIFIED, CONTRACTOR SHALL INDICATE AND/OR PROVIDE NAMES OF MANUFACTURERS, CATALOG AND MODEL NUMBERS, CUT SHEETS, AND SUCH OTHER SUPPLEMENTARY INFORMATION AS NECESSARY FOR EVALUATION. MINIMUM OF SIX (6) COPIES, OR AS DIRECTED BY THE ENGINEER, OF EACH SHALL BE SUBMITTED AND SHALL INCLUDE ALL ITEMS MENTIONED BY MODEL NUMBER AND/OR MANUFACTURER'S NAME IN THE SPECIFICATIONS OR IN SCHEDULES ON THE DRAWINGS.
 - REQUIREMENTS FOR EACH SUBMITTAL: BEAR A DATED STAMP OR SPECIFIC WRITTEN INDICATION THAT THE CONTRACTOR HAS REVIEWED AND APPROVED ALL SUBMITTAL PRIOR TO SUBMISSION TO ENGINEER, HAVE ALL INFORMATION DELETED BY CONTRACTOR THAT PERTAINS TO THE MEANS AND METHODS OF ONSTRUCTION OR TO FABRICATION, ASSEMBLY, INSTALLATION, OR ERECTION (APPROVAL BY
 - ENGINEER SHALL NOT EXTEND TO THESE AREAS UNLESS SPECIFICALLY NOTED BY ENGINEER), BE CLEARLY AND SPECIFICALLY MARKED AS TO WHICH SPECIFIC PIECE OF EQUIPMENT IS BEING SUBMITTED, BY USE OF A PERMANENT MARKER, STAMP, ETC., SO AS TO DISTINGUISH IT FROM OTHER
 - PIECES OF EQUIPMENT THAT MAY OCCUR ON THE SAME PAGE. 4. BE CLEARLY AND SPECIFICALLY MARKED AS TO WHICH AVAILABLE OPTIONS ARE BEING SUBMITTED THAT ARE ASSOCIATED WITH A PIECE OF EQUIPMENT, AND BE COMPLETE WITH RESPECT TO QUANTITIES, DIMENSIONS, SPECIFIC PERFORMANCE, MATERIALS, AND SIMILAR DATA TO ENABLE THE
 - NGINEER TO REVIEW THE PROPOSED EQUIPMENT. BE COMPLETE WITH RESPECT TO QUANTITIES, DIMENSIONS, SPECIFIC PERFORMANCE, MATERIALS, AND
 - SIMILAR DATA TO ENABLE THE ENGINEER TO REVIEW THE PROPOSED EQUIPMENT 6. BE CLEARLY AND SPECIFICALLY MARKED AS TO ANY AND ALL SUBMITTAL DEVIATIONS FROM THE
 - DESIGN SPECIFICATION REQUIREMENTS SHALL BE PROVIDED IN WRITTEN FORM. OMISSION BY CONTRACTOR OF ANY OF THE ABOVE REQUIREMENTS OR SUBMITTALS WILL SUBJECT SUBMITTAL TO AUTOMATIC REJECTION WITHOUT REVIEW. ANY SUBMITTALS RECEIVED BY ENGINEER THAT WERE NOT REQUESTED SHALL BE RETURNED WITHOUT
 - REVIEW OF ANY KIND. SUBMITTALS SHALL INDICATE MINIMUM ACCESS AND SERVICE CLEARANCES IF REQUIRED BY THE SUBMITTED EQUIPMENT. INSTALLATION INSTRUCTIONS - FOR CERTAIN PRODUCTS OR SYSTEMS AS IDENTIFIED IN SUBSEQUENT SPECIFICATIONS SECTIONS OR ON THE DRAWINGS. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE COPIES OF MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH THE SUBMITTAL. WHEN REQUIRED AS SUCH. HE INSTALLATION INSTRUCTIONS ARE CONSIDERED PART OF THE SUBMITTAL AND THEIR OMISSION MAY RESULT IN AUTOMATIC REJECTION OF THE SUBMITTAL. WHERE MORE THAN ONE IDENTICAL DEVICE ARE SCHEDULED, ONLY ONE SET OF INSTALLATION INSTRUCTIONS NEEDS TO BE SUBMITTED, E.G. IF SEVEN 10 TON RTUS ARE SCHEDULED, ONLY ONE OF EACH TYPE OF RTU INSTALLATION INSTRUCTION NEEDS TO BE SUBMITTED. SIMILARLY, IF ONE SET OF INSTALLATION INSTRUCTIONS IS IDENTIFIED BY THE MANUFACTURER AND ON THE INSTRUCTIONS TO BE APPLICABLE TO MORE THAN ONE TYPE OR SIZE OF DEVICES, E.G. IF ONE SET OF RTU INSTRUCTIONS IS GOOD FOR EACH TYPE OF RTU, THEN ONLY ONE INSTRUCTION SET IS REQUIRED
 - FOR THESE DEVICES. THIS ENGINEER WILL REVIEW THE SUBMITTALS FOR APPROVAL TWICE. ANY ADDITIONAL REVIEWS THAT ARE REQUIRED BY THE ENGINEER FOR WHATEVER REASON AFTER THE INITIAL TWO REVIEWS WILL RESULT IN ADDITIONAL COMPENSATION FOR THE ENGINEER'S TIME BY THE SUBMITTING CONTRACTOR AT THE ENGINEER'S RATE.
- 35. REQUIRED SHOP DRAWING SUBMITTALS , ROOF TOP AIR CONDITIONING UNITS
 - EXHAUST FANS
 - KITCHEN HOODS AND MAKEUP AIR UNIT AIR DEVICES
 - INSULATED FLEXIBLE ROUND DUCT THERMOSTAT, HUMIDISTAT, AND REMOTE SENSORS
 - VOLUME DAMPERS
 - TURNING VANES SUBMIT SHOP DRAWINGS OF SHEET METAL DUCTWORK AS FOLLOWS: FOR THE ENGINEER, PROVIDE ONE BLUE LINE PLAN SET AND ONE PAPER REPRODUCIBLE
 - RANSLUCENT PLAN SET OF SHOP DRAWINGS. DRAW TO A SCALE NOT LESS THAN 1/4-INCH TO ONE FOOT.
 - PROVIDE SHEETS SIZES EQUAL OR EQUIVALENT TO CONTRACT DRAWINGS.
 - THESE DRAWINGS SHALL USE HVAC EQUIPMENT DIMENSIONAL INFORMATION FROM THE APPROVED EQUIPMENT SHOP DRAWINGS. 5. IF APPROVED HVAC EQUIPMENT CHANGES DURING CONSTRUCTION AND DUCTWORK MODIFICATIONS ARE REQUIRED THE MECHANICAL CONTRACTOR SHALL RESUBMIT THE RELEVANT SHOP DRAWINGS
 - INDICATING THESE MODIFICATIONS. INDICATE DUCTS AND DUCT FITTINGS, PARTICULARS SUCH AS GAGES, SIZES, AND WELDS. SHOW FITTING DETAILS. SHOW AIR DEVICES LOCATIONS AND AIRFLOW QUANTITIES.
 - DRAWINGS SHALL SHOW INSTALLATION OF APPROVED HVAC EQUIPMENT AND ALL ACCESS CLEARANCES REQUIRED BY THE APPROVED HVAC EQUIPMENT. THESE DRAWINGS SHALL INDICATE ANY INTERFERENCE PROBLEMS BETWEEN THE DUCTWORK AND HVAC EQUIPMENT?S ACCESS REQUIREMENTS.
 - 10. DRAWINGS SHALL SHOW COORDINATION WITH LIGHTS, STRUCTURAL MEMBERS AND WALLS. DRAWINGS SHALL SHOW COORDINATION WITH KITCHEN HOOD, KITCHEN EQUIPMENT UNDER HOOD, KITCHEN HOOD FIRE SUPPRESSION SYSTEM AND WALLS.
 - DRAWINGS SHALL SHOW COORDINATION AND INTERACTION OF DUCTWORK WITH OTHER MAJOR PIPING, CONDUITS, ETC., THAT REQUIRE COORDINATION OF INSTALLATION.
 - 13. DUCT SCHEDULE: PROVIDE A DUCT SCHEDULE OR TABLE INDICATING AT A MINIMUM THE FOLLOWING INFORMATION. ACCORDING TO THE APPROPRIATE PRESSURE CLASS: o) EACH DUCT SIZE GROUP (AS DEFINED IN SMACNA - ?HVAC DUCT CONSTRUCTION STANDARDS? DUCT SHEETMETAL GAUGE. DUCT JOINT AND REINFORCEMENT SPACING, TRAVERSE JOINT CONSTRUCTION
 - INTERMEDIATE REINFORCEMENT CONSTRUCTION AND HANGER TYPE AND SPACING.
- 36. BALANCING (NEEB CERTIFIED) CONTRACTOR SHALL BALANCE THE HVAC SYSTEMS USING AABC OR NEBB STANDARDS. PROVIDE 3 COPIES OF BALANCING REPORT USING STANDARD NEBB FORMS. THE BALANCING CONTRACTOR SHALL WORK FOR THE OWNER OR GENERAL CONTRACTOR ONLY NOT FOR THE MECHANICAL
- 37. DEVICES THAT MIGHT CAUSE OR OPERATE WITH VIBRATION OR NOISE SHALL BE ISOLATED PER MANUFACTURER'S RECOMMENDATIONS
- 38. DUCTWORK SHALL BE GALVANIZED STEEL (G90) AND DIMENSIONS ARE INTERNAL SHEETMETAL SIZES. DUCTWORK TO BE WRAPPED WITH EXTERNAL INSULATION AND VAPOR SEALED PER ENERGY CODE - DUCTWORK INSULATION CRITERIA SCHEDULE.
- 39. DUCT CONSTRUCTION, SUPPORT, FITTINGS, AND CONNECTIONS SHALL BE IN CONFORMANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS. LATEST EDITION. AIR HANDLER DUCT SHALL BE CONSTRUCTED FOR +- 1" W.G. DUCTWORK CLASS CONSTRUCTION. ALL TRANSVERSE JOINTS. LONGITUDINAL SEAMS, AND SHEET METAL DUCT WALL PENETRATIONS SHALL BE SEALED PER SMACNA RECOMMENDATIONS. EACH 90-DEGREE DUCT ELBOWS, FITTINGS, AND SPLITTERS SHALL HAVE TURNING VANES. PROVIDE AND INSTALL VOLUME EXTRACTOR AT BRANCH TAKE-OFFS SERVING MORE THAN ONE DEVICE OR WHERE SHOWN.
- 40. FLEXIBLE DUCT SHALL BE INSULATED TYPE MIN. R-8 AND ANY ONE PIECE SHALL NOT EXCEED (5'-0") (7'-0") IN LENGTH. EACH TAP FOR FLEXIBLE DUCT SHALL BE MADE WITH A FACTORY MADE CONICAL SPIN-IN WITH SCOOP (DOVE-TAIL NOT ALLOWED) SHEETMETAL COLLAR HERCULES SPIN-IN FITTING MODEL #9100 OR APPROVED EQUAL. EACH TAP FOR SUPPLY AIR SHALL HAVE AN INTEGRAL BALANCING DAMPER WITH EXTENDED LENGTH OPERATOR. REFER TO DUCTING DETAILS ON DRAWINGS.
- 41. CONTRACTOR SHALL PROVIDE MEANS OF ACCESS TO AIR HANDLERS, WATER VALVES, FANS, CLEANOUTS, PIPING, CONDUITS, AIR BALANCE DAMPERS, FIRE/SMOKE DAMPERS AND OTHER MECHANICAL DEVICES AFTER CONSTRUCTION IS COMPLETE TO PROVIDE BUILDING MAINTENANCE PERSONNEL ADEQUATE CLEARANCE AND PASSAGE TO SERVICE THESE ITEMS. IN ADDITION, CONTRACTOR SHALL PROVIDE ACCESS AS PER CODE REQUIREMENTS FOR INSPECTION, TESTING AND OPERATION OF SYSTEMS.
- 42. FIBERGLASS DUCT BOARD INSULATION JOINTS AND SEAMS SHALL BE CLOSED WITH OUTWARD CLINCHING STAPLES (1/2" MIN.) ON 2" CENTERS. JOINTS AND SEAMS SHALL BE SEALED EITHER WITH A COAT OF MASTIC (COMPLYING WITH U.L. 181), AN EMBEDDED LAYER OF GLASS FABRIC, AND A SECOND COAT OF MASTIC OR WITH A HEAT-SEALABLE TAPE (COMPLYING WITH U.L. 181) APPLIED WITH A 500 DEGREE F. IRON (HEAT GUN NOT ACCEPTABLE)
- 43. CONTRACTOR SHALL INSULATE AND VAPOR SEAL METAL PARTS OF SUPPLY AND RETURN AIR DEVICES EXPOSED TO THE ATTIC OR CEILING SPACE WITH FIBERGLASS WRAP INSULATION WITH FOIL VAPOR BARRIER PER THE DUCT INSULATION SCHEDULE.
- 44. TESTS:
- A TESTS SHALL BE COMPLETE AND APPROVED PRIOR TO FINAL INSPECTION AND PRIOR TO COVERING WITH INSULATION OR EARTH. B ALL PRESSURE TESTS SHALL BE CHARTED USING A STRIPE CHART RECORDER WITH ENOUGH PAPER FOR THE DURATION OF THE TEST SHOWN. REFER TO OTHER SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. THE TEST RESULTS SHALL INCLUDE TEST RUN, TEST DATE, PERSON DOING THE TESTING, AND ENGINEER OR
- AUTHORITY HAVING JURISDICTION SIGNATURE. C ALL TESTS SHALL BE WITNESSED AND APPROVED BY THE ENGINEER AND THE LOCAL AUTHORITY HAVING JURISDICTION BEFORE COVERING OR INSULATING. PROVIDE ENGINEER WITH A MINIMUM OF 24 HOUR WRITTEN NOTICE PRIOR TO ANY TESTING
- D AIR PRESSURE TEST ALL DUCT SYSTEMS TO ONE AND ONE-HALF (1-1/2) TIMES THE SMACNA DESIGNATED PRESSURE RATING. TEST TO BE HELD FOR A MINIMUM OF SIX (6) HOURS.
- THE SATISFACTORY OPERATION OF BLOWERS, PUMPS AND OTHER EQUIPMENT WITH MOVING PARTS SHALL BE DEMONSTRATED TO THE ENGINEER. EQUIPMENT WITHOUT MOVABLE PARTS SHALL HAVE PRESSURE OR OTHER TESTS PERFORMED BY THE CONTRACTOR TO DEMONSTRATE SATISFACTORY OPERATION
- FURNISH ALL INSTRUMENTS, PUMPS, BLOWERS AND EQUIPMENT REQUIRED FOR THE TESTING PROVIDE WRITTEN APPROVED COPIES OF THESE TEST REPORTS FOR INCLUSION ON THE OPERATIONS AND MAINTENANCE MANUALS AND SUBMIT ONE COPY TO THE MECHANICAL ENGINEER.

NOTES

- 1 INNER LINER OF FLEX DUCT TO BE DOUBLE STRAPPED (WITH PLASTIC TIE-WRAPS) TO DIFFUSER OR DUCT END FIRST THEN DUCT TAPED OVER STRAPS. ALL CONNECTIONS TO BE AIR TIGHT. 2 PULL FLEX DUCT'S INSULATION AND OUTER LINER OVER INNER LINER UP TO DIFFUSER NECK THEN DOUBLE STRAP (WITH PLASTIC TIF WRAPS) TIGHTLY. TOTAL OF 4 TIE WRAPS PER CONNECTION. 3 RUN A MAXIMUM OF 5 LINEAR
- EET OF FLEX DUCT FOR ALL AIR (INLETS AND OUTLETS AS SHOWN. INSTALL WITHEVEN RADIUS BENDS TO ALLOW FULL FLOW WITH NO RESTRICTIONS. RADIUS OF ELBOW TO BE 2 TIMES THE DUCT DIAMETER. SUPPORT FROM STRUCTURE WITH NO RESTRICTIONS.
- (4) FACTORY CONICAL SPIN-IN ITTING W/SCOOP AND VOLUME DAMPER SHOWN IN THIS VIEW. EXTENDED BRANCHES AND OTHER DUCT ARRANGEMENTS ALSO APPLY. INSULATION NOT SHOWN.
- (5) VOLUME DAMPER WITH CONTROL HANDLE EXTENDED BEYOND INSULATION BLANKET

TYPICAL FLEXIBLE DUCT **CONNECTION SCHEMATIC M-000** SCALE: NONE

	ENERGY CODE	- DUCTWORK INSUL
DUCT	INTERIOR UNCONDITIONED SPACE	CE
SYSTEM	SPECIFIED MIMIMUM	CODE REQUIRED (1)
SUPPLY	2" –R 5.2	R-5
OUTSIDE AIR	2" –R 5.2	R-5
RETURN	2" –R 5.3	R-5
NOTE:		
1. REQUIRED F	PER REQUIREMENTS OF ICC ENER	RGY CONSERVATION CODE 2018

DUCTWORK MATERIAL AND PRESS	SURE	CLA
AIR SYSTEM		Ν
Low Pressure Supply (System with Cooling Coil)	Steel,	
Return and Relief	Steel,	
General Exhaust	Steel,	

NOIES	•:						
1	STEEL	DUCTWORK	SHALL	BE	GALVANIZED	(G90)	STEEL

	EXHAUST FAN SCHEDULE
SYMBO	L
	SERVES
	LOCATION
	TYPE
	CFM
	DRIVE
	EXTERNAL STATIC PRESSURE (IN. W.G.)
-	SOUND LEVEL IN SONES
	FAN MOTOR POWER – HP (WATTS)
	NOMINAL FAN R.P.M.
	VOLTAGE / PHASE
	METHOD OF CONTROL
	WEIGHT (LB)
LOREN	COOK MODEL NO.
NOTES	
1.	FANS ARE SCHEDULED TO BE MANUFACTURED BY LORI
	CITY, BROAN, AND CARNES ARE CONSIDERED EQUIVALE
2.	AIRFLOW CONDITIONS RATED AT 3,200 FEET ALTITUDE.
3.	EACH DIRECT DRIVE FAN SHALL BE PROVIDED AND INS
	STATE SPEED CONTROLLER FOR BALANCING AND DISCO
4.	PROVIDE AND INSTALL FLEXIBLE CONNECTIONS ON OUT
	CONNECTIONS AS NOTED ON DRAWINGS.
5.	EXHAUST FANS – SEQUENCE OF OPERATIONS:
	FE A EAOLI CLIALL DE OVOLED EDONA TOU ET DOOM TU

- EF-1: EACH SHALL BE CYCLED FROM TOILET ROOM TIME DELAY SWITCH. EF-2: EACH SHALL BE CYCLED FROM TOILET ROOM TIME DELAY SWITCH. 6. FANS SHALL HAVE VIBRATION HANGERS, TIME DELAY SWITCH, 277V:120V
- TRANSFORMER (IF REQUIRED), METAL EXHAUST REGISTER (IF REQUIRED) AND GRAVITY BACK DRAFT DAMPER. CONTRACTOR TO COORDINATE WITH ELECTRICAL THE INSTALLATION OF TIME
- DELAY LIGHT SWITCH. SWITCH TO CONTROL EXHAUST FAN AND LIGHTS.

SYMBOL	TYPE	DESCRIPTION
A	CEILING	ALL STEEL, PERFORATED FLUSH FACE, NON
	SUPPLY	CEILING SPECIFIED. ,4-WAY THROW UNLESS
В	CEILING	ALL STEEL, PERFORATED FLUSH FACE, NON
	SUPPLY	CEILING SPECIFIED. ,4-WAY THROW UNLESS
С	CEILING	ALL STEEL, PERFORATED FLUSH FACE, NON
	RETURN	CEILING SPECIFIED.
NOTES :	•	
1	AIR DEVICES SCHED	ULED TO BE MANUFACTURED BY TITUS. KRU QUIVALENT MANUFACTURERS.

- UNLESS SCHEDULED OTHERWISE, AIR DEVICES SHALL BE WHITE OR OFF-WHITE IN COLOR. ON ALL SIDES OF THE AIR DEVICE.
- NO ENERGY CODE REQUIRED **USING EXISTING EQUIPMENT**

LINER OF

IF – WRAF

NOT SHOWN.

FLEX DUCT





EAX: 915-781-205 EMAIL: SUPPORT@EMCELPASO.COM EMC PROJECT #2306009

Sheet No;

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		PLUM	BING SYMBOL LEGEND	<u>Pl</u>	LUMBING GENERAL NOTES
	ABBRV	SYMBOL	DESCRIPTION	GENE	RAL THESE PLUMBING GENERAL NOTES ARE APPLICABLE TO ALL PLUMBING S
	GENERAL			2.	THE PLUMBING WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WI PROVISIONS OF THE FOLLOWING CODES:
			NORTH DIRECTION		2021 NEW MEXICO PLUMBING CODE 2021 NEW MEXICO PLUMBING CODE 2021 NEW MEXICO FICHANICAL CODE 2021 NEW MEXICO FIRE CODE 2021 NEW MEXICO FUEL CODE
			-DETAIL NUMBER		2018 NEW MEXICO COMMERCIAL ENERGY CONSERVATION CODE 2020 NEW MEXICO ELECTRICAL CODE
D		A-5A-7	-SHEET NUMBER OF DRAWING WHERE DETAIL IS SHOWN		COLLEGE BUILDING STANDARDS, AND THE NATIONAL FIRE PROTECTION AS CURRENT ADOPTED EDITION REGARDING PLUMBING SYSTEMS, FIRE PROTE
			- SHEET NUMBER OF DRAWING WHERE DETAIL IS REFERENCED		ELECTRICAL SYSTEMS. ALL LABOR AND MATERIALS NECESSARY TO COMPL ORDINANCES SHALL BE PROVIDED. WHERE THE DRAWINGS INDICATE MATE
			DIRECTION OF SITE OF ELEV. ON PLAN		ARCHITECT AND ENGINEER FREE AND HARMLESS FROM LIABILITY OF ANY FAILURE TO COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.
			SHEET NUMBER OF DRAWING WHERE ELEV. IS	3.	THE CONTRACTOR SHALL COORDINATE WITH OWNER, ARCHITECT, AND ENG
		A-5	- Drawing Number - Sheet Reference		DOWNS OR TIE-INS RELATING TO THESE SYSTEMS SHALL BE SCHEDULED APPROVED BY THE OWNER, ARCHITECT, AND THIS ENGINEER OFFICE. CO SCHEDULE FOR PHASING OF CONSTRUCTION THAT INDICATES AREAS OF
		××-##	FIXTURE I.D SEE FIXTURE SCHEDULES		COMMENCING WORK. OWNER, ARCHITECT AND ENGINEER SHALL REVIEW T CONTRACTOR OF ACCEPTANCE PRIOR TO COMMENCEMENT OF WORK.
		$\langle xx - xx \rangle$	NEW EQUIPMENT ABBREVIATION AND NO.	4.	ALL MATERIALS AND LABOR NECESSARY TO COMPLY WITH CODES AND R
					SHALL BE PROVIDED. WHERE THE DRAWINGS AND/OR SPECIFICATIONS I EXCESS OF CODE REQUIREMENTS, THE DRAWINGS AND/OR SPECIFICATION SHALL HOLD AND SAVE THE OWNER, ARCHITECT AND ENGINEERS FREE A
		(_ (UNDERGROUND	_	NATURE OR KIND ARISING FORM HIS FAILURE TO COMPLY WITH ALL APP
	(SYMBOL) E	-(SYMBOL) E	INDICATES EXISTING SERVICE	5.	BIDDERS SHALL VISIT THE SITE AND SHALL BE RESPONSIBLE FOR HAVIN CONDITIONS SUCH AS LOCATION, ACCESSIBILITY AND GENERAL CHARACTE EXTENT OF THE WORK WITHIN THE BUILDING AND TO BECOME FAMILIAR
	CW	w	UTILITY WATER SERVICE		AT THIS TIME. NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO ALL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED.
	HW		DOMESTIC HOT WATER	6.	BEFORE YOU DIG ALL EXISTING UTILITIES I.E. WATER, SEWER, GAS, FIRE IRRIGATION LINES. SHALL BE LOCATED AND CLEARLY MARKED IN ORDER
	HWR		DOMESTIC HOT WATER RECIRCULATING		AND EMERGENCY.
	SAN	s	SANITARY WASTE/SEWER VENT	7.	EACH CONTRACTOR SHALL GIVE ALL REQUISITE NOTICES AND FILLED OUT PERMITS, DEPOSITS AND FEES (INCLUDING UTILITY CONNECTIONS FEES, A DEVELOPMENT FEES, AND IMPACT FEES) NECESSARY FOR THE INSTALLAT TWO (2) COPIES OF CERTIFICATES OF APPROVAL SHALL BE OBTAINED FI
		C	NATURAL GAS	8	SHALL BE TURNED OVER TO OWNER, ARCHITECT, ENGINEER PRIOR TO F
		<u>ج</u>	ELBOW, TURNED DOWN	0.	PROPERTY DAMAGE FOR THE DURATION OF WORK. CONTRACTOR SHALL S INSPECTIONS, AND TESTS UNLESS OTHERWISE INDICATED. COORDINATE W
		0	ELBOW, TURNED UP		SUBSTITUTIONS REQUESTED BY THE CONTRACTOR SHALL BE PAID FOR B
С		ب عبر	TEE, OUTLET DOWN	9.	ALL WORK SHALL CONFORM WITH FEDERAL, STATE, AND LOCAL CODES, SHALL BE PERFORMED BY A LICENSED CONTRACTOR IN A FIRST CLASS SHALL BE INSTALLED COMPLETE AND FULLY OPERATIVE UNLESS OTHERW
			TEE, OUTLET UP	10.	CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND PROVIDE A
			EXPANSION LOOP		THE ENGINEERING OFFICES. THIS REPORT SHALL DESCRIBE EXISTING DAM INTERFERE WITH THIS PROPOSED NEW WORK. THIS SITE SURVEY SHALL LOCATIONS, AND CONDITIONS OF FXISTING UTILITIES, QUESTIONS REGARD
		≻ →	ISOLATION VALVE, BALL TYPE UNLESS SPECIFIED OTHERWISE		ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDING OF THE CONTR INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL
	.	ہــــُ جُ	VALVE IN RISER (TYPE AS SPECIFIED OR NOTED)	11.	DURING CONSTRUCTION IF THE CONTRACTOR ENCOUNTER AND DAMAGES INFRASTRUCTURE THE CONTRACTOR SHALL REPAIR THE INFRASTRUCTURE OWNER. WHERE STRUCTURE IS ALTERED OR DAMAGES DURING CONSTRUCT
	GLV PIV		GLOBE VALVE POST INDICATOR VALVE		EQUIPMENT OR FIXTURES, THE CONTRACTOR SHALL REPAIR THE AREA TO ARCHITECTURAL SPECIFICATIONS CUTTING, TRENCHING AND PENETRATIONS OTHER STRUCTURES ARE A DATE OF THIS PROJECT SCORE AND SHALL
			GAS COCK		ALL EXCAVATION AND BACKFILLING REQUIRED FOR PLUMBING WORK IS A CONTRACT AND SHALL BE INCLUDED IN CONTRACTOR'S BID.
	BLV	جــــــــــــــــــــــــــــــــــــ		12.	ALL SYSTEMS AND COMPONENTS SHALL BE APPROVED FOR THE PURPOS EQUIPMENT AND MATERIALS SHALL BE NEW AND FROM ESTABLISHED AMI
	DIFLY			13.	ALL EQUIPMENT PARAMETERS SHOWN ARE FOR PERFORMANCE AT SITE A
					DEMONSTRATE THAT THEIR EQUIPMENT MEETS THE DESIGN CONDITIONS A
				14.	INCLUDING POWER, CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR BY PLUMBING CONTRACTOR.
			ANGLE VALVE	15.	SUPPORT SYSTEM FOR PIPING MATERIALS AND EQUIPMENT SUPPORTED & SUBMITTED TO THE STRUCTURAL ENGINEER AND ARCHITECT FOR APPROV
	PRV		PRESSURE REGULATING VALVE		INSTALLATION. NO WIRE OR PERFORATED STRAP WILL BE PERMITTED FOR
		ی <u>ہ</u>	PRESSURE REGULATOR IN RISER	16.	CONTRACTOR SHALL NOT CUT, DRILL, OR ALTER ANY ELEMENT OF ANY SLABS WITHOUT FIRST RECEIVING INSTRUCTIONS FROM ARCHITECT, ENGIN A CUTTING TOOL.
			3-WAY VALVE	17.	PATCHING OR SEALING OF CUTS OR PENETRATIONS SHALL BE DONE BY AND TO FINAL APPROVAL OF ARCHITECT AND ENGINEER. COORDINATE WI
		<u>ג</u> ת _(0R) ג ^{יש} ג ר	RELIEF VALVE	18.	CONTRACTOR SHALL FIELD VERIFY CONDITION OF EXISTING EQUIPMENT
	AD	~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ACCESS DOOR - MIN. 18"x18" UNLESS	19.	BEFORE INSTALLATION, EQUIPMENT AND DEVICES INCLUDING, BUT NOT LI
В					GRADE OR ON A SLAB OR FLOOR. BEFORE AND AFTER INSTALLATION, SI PROTECTED FROM ENTRY OF DIRT, TRASH WATER (EXCEPT AS REQUIRE
	BFP		BACKFLOW PREVENTER WITH AIR GAP FUNNEL DRAIN AS SPECIFIED	20.	CONTRACTOR SHALL COORDINATE ACTUAL LOCATIONS OF AIR DEVICES AN
	RPBP		REDUCED PRESSURE PRIN' BACKFLOW PREVENTER		ARCHITECTURAL PLANS).
	wco		WALL CLEANOUT, FLUSH WITH FINISHED WALL	∠1.	SHALL INCLUDE ALL INSTALLATIONS INSTRUCTIONS FOR PRODUCT DATA, DURING WARRANTY PERIOD, COPIES OF ALL PERMIT INFORMATION, AND A
	СО		IN-LINE CLEANOUT, EXPOSED OR ACCESSIBLE		BALANCING REPORTS IN 3-RING BINDERS. ALL LABOR AND MATERIALS P COMPLETE ONE (1) YEAR WARRANTY.
	CO, COG, FCO	$\sim - \Phi \longrightarrow$	CLEAN-OUT, (TO GRADE=COG, FLUSH W/FLR=FCO)	22.	OPERATING TESTS AND CLEANING PROCEDURES SHALL BE PERFORMED A CODE REQUIREMENTS, MANUFACTURER'S RECOMMENDATIONS.
	DCO, 2-WAY CO	ᡔᠪᠪᡇ᠊ᡕ᠙᠋ᡊᡕ᠋ᠶᡋᠪᡇᡕ	2-WAY (DUAL) CLEANOUT	23.	CONTRACTOR SHALL PROVIDE AND INSTALL IDENTIFICATION TAGS FOR EQ
	FD, FS	\sim	FLOOR DRAIN OR SINK, SIZE PER PLANS	24.	LOCATIONS OF CEILING, ROOF, AND ATTIC PLUMBING EQUIPMENT ARE AP
			STRAINER	25	CONTRACTOR SHALL FIELD ADJUST AS REQUIRED.
			UNION	25.	ACCESS MECHANICAL / PLUMBING CONTRACTOR SHALL PROVIDE AND HAVE INS ACCESS MECHANICAL OR PLUMBING EQUIPMENT THAT REQUIRES ACCESS AND IN WALLS. THE MECHANICAL/PLUMBING CONTRACTOR SHALL PROVI
		کہ ک ی ک	GAS METER		THESE ACCESS DOORS FOR INSTALLATION IN THE CEILING OR WALL. ACC WALL, FLOOR, OR CEILING TYPE AND SHALL BE A MINIMUM SIZE OF 12
				26.	ALL MATERIAL INSTALLED IN CEILING SPACE SHALL BE NONCOMBUSTIBLE WRAPPED WITH ONE (1) HOUR U.L. FIRE WRAP.
			PUMP (AS SPECIFIED)	27.	CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICA
	VTR	`	VENT THRU ROOF, SIZED PER PLANS	28.	ALL PIPING, PLUMBING AND DUCTWORK OPENINGS SHALL BE CAPPED DU
				29.	SITE VISIT REPORTS
	HB,WH	⊂ ⊕	HOSE BIBB, WALL HYDRANT		PROGRESS AND WILL SUBSEQUENTLY PREPARE A WRITTEN SITE VISIT RE CONTRACTOR AND TO WHOMEVER ELSE THE ENGINEER DESIRES THE C
	NOTES: GENERAL LE	GEND NOT ALL ITEMS APPLI	ICABLE TO THIS PROJECT]	WRITTEN NOTICE TO THE ENGINEER FOR ALL TESTING AND CITY INSPECT INSPECTIONS. THE CONTRACTOR SHALL PREPARE A WRITTEN AND TYPED
	^	NEW MEXICO	"ONE CALL SYSTEM"		UATS OF HIS RECEIVING THE SITE VISIT REPORT. THE CONTRACTORS SI THIS FINAL PUNCHLIST VISIT UPON THE REQUEST OF THE ENGINEER. TH IN HIS RESPONSE THE FOLLOWING INFORMATION.
А		17'	S THE LAW		A. DATE OF SITE VISIT BY THE ENGINEER, B. DATE OF RECEIPT OF THE SITE VISIT REPORT, C. NAME AND TITLE OF THE PREPARED OF THE DESPONSE
-	CALL TW YOU DIG	O WORKING DA	AYS BEFORE 800-321-ALERT 505-260-1990		C. NAME AND TILL OF THE PREPARER OF THE RESPONSE, D. AN ITEM NUMBER REFERENCED TO THE SITE REPORT, E. A BRIEF THREE OR FOUR WORD DESCRIPTION OF THE ITEM, F. THE CONTRACTOR OR SUBCONTRACTOR AFFECTED, G. THE PROPOSED COURSE OF ACTION. AND

THE PLUMBING WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE FOLLOWING CODES: 2021 NEW MEXICO COMMERCIAL BUILDING CODE 2021 NEW MEXICO PLUMBING CODE 2021 NEW MEXICO MECHANICAL CODE 2021 NEW MEXICO FIRE CODE 2021 NEW MEXICO FUEL CODE 2018 NEW MEXICO COMMERCIAL ENERGY CONSERVATION CODE 2020 NEW MEXICO ELECTRICAL CODE AS ADOPTED AND INTERPRETED BY THE STATE OF NEW MEXICO, CITY OF CARLSBAD, SOUTH COLLEGE BUILDING STANDARDS, AND THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CURRENT ADOPTED EDITION REGARDING PLUMBING SYSTEMS, FIRE PROTECTION AND ALARM ELECTRICAL SYSTEMS. ALL LABOR AND MATERIALS NECESSARY TO COMPLY WITH RULES, REG ORDINANCES SHALL BE PROVIDED. WHERE THE DRAWINGS INDICATE MATERIALS OR CONSTRU CODE REQUIREMENTS, THE DRAWINGS SHALL GOVERN. THE CONTRACTOR SHALL HOLD AND ARCHITECT AND ENGINEER FREE AND HARMLESS FROM LIABILITY OF ANY NATURE OR KIND FAILURE TO COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES. THE CONTRACTOR SHALL COORDINATE WITH OWNER, ARCHITECT, AND ENGINEER ANY WORK POTENTIAL TO HINDER MECHANICAL AND PLUMBING SERVICES TO AREA OUTSIDE OF THIS CO DOWNS OR TIE-INS RELATING TO THESE SYSTEMS SHALL BE SCHEDULED AND SUBMITTED IN APPROVED BY THE OWNER, ARCHITECT, AND THIS ENGINEER OFFICE. CONTRACTOR SHALL SU SCHEDULE FOR PHASING OF CONSTRUCTION THAT INDICATES AREAS OF FIRST PRIORITY DURI ANTICIPATED COMPLETION TIMES. SCHEDULES SHALL BE SUBMITTED A MINIMUM OF ONE WEI COMMENCING WORK. OWNER, ARCHITECT AND ENGINEER SHALL REVIEW THESE SCHEDULES A CONTRACTOR OF ACCEPTANCE PRIOR TO COMMENCEMENT OF WORK. ALL MATERIALS AND LABOR NECESSARY TO COMPLY WITH CODES AND RULES, REGULATIONS SHALL BE PROVIDED. WHERE THE DRAWINGS AND/OR SPECIFICATIONS INDICATE MATERIALS EXCESS OF CODE REQUIREMENTS. THE DRAWINGS AND/OR SPECIFICATIONS SHALL GOVERN. SHALL HOLD AND SAVE THE OWNER, ARCHITECT AND ENGINEERS FREE AND HARMLESS FROM NATURE OR KIND ARISING FORM HIS FAILURE TO COMPLY WITH ALL APPLICABLE CODES AND BIDDERS SHALL VISIT THE SITE AND SHALL BE RESPONSIBLE FOR HAVING ASCERTAINED PER CONDITIONS SUCH AS LOCATION. ACCESSIBILITY AND GENERAL CHARACTER OF THE SITE. THE EXTENT OF THE WORK WITHIN THE BUILDING AND TO BECOME FAMILIAR WITH ALL OTHER WO AT THIS TIME. NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO CONTRACTOR'S FAIL ALL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. BEFORE YOU DIG ALL EXISTING UTILITIES I.E. WATER, SEWER, GAS, FIRE LINE, ELECTRICITY, IRRIGATION LINES, SHALL BE LOCATED AND CLEARLY MARKED IN ORDER TO AVOID UNNECESS AND EMERGENCY. EACH CONTRACTOR SHALL GIVE ALL REQUISITE NOTICES AND FILLED OUT APPLICATIONS, OBT PERMITS, DEPOSITS AND FEES (INCLUDING UTILITY CONNECTIONS FEES, ANY UTILITY EXTENSIO DEVELOPMENT FEES, AND IMPACT FEES) NECESSARY FOR THE INSTALLATION OF WORK UNDE TWO (2) COPIES OF CERTIFICATES OF APPROVAL SHALL BE OBTAINED FROM ALL AUTHORITIE SHALL BE TURNED OVER TO OWNER, ARCHITECT, ENGINEER PRIOR TO FINAL ACCEPTANCE O REQUIRED INSURANCE SHALL BE PROVIDED BY THIS CONTRACTOR FOR PROTECTION AGAINST PROPERTY DAMAGE FOR THE DURATION OF WORK. CONTRACTOR SHALL SECURE AND PAY ALI INSPECTIONS, AND TESTS UNLESS OTHERWISE INDICATED. COORDINATE WITH ARCHITECT, ENGI SUBSTITUTIONS REQUESTED BY THE CONTRACTOR SHALL BE PAID FOR BY THE CONTRACTOR 9. ALL WORK SHALL CONFORM WITH FEDERAL, STATE, AND LOCAL CODES, RULES, AND REGULA SHALL BE PERFORMED BY A LICENSED CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNI SHALL BE INSTALLED COMPLETE AND FULLY OPERATIVE UNLESS OTHERWISE INDICATED 10. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND PROVIDE A WRITTEN REPORT THE ENGINEERING OFFICES. THIS REPORT SHALL DESCRIBE EXISTING DAMAGE OR OTHER CON INTERFERE WITH THIS PROPOSED NEW WORK. THIS SITE SURVEY SHALL ALSO INCLUDE VERIF LOCATIONS. AND CONDITIONS OF EXISTING UTILITIES. QUESTIONS REGARDING THESE DRAWING ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDING OF THE CONTRACT. OTHERWISE THE INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL BE FINAL. DURING CONSTRUCTION IF THE CONTRACTOR ENCOUNTER AND DAMAGES THE EXISTING UNDE INFRASTRUCTURE THE CONTRACTOR SHALL REPAIR THE INFRASTRUCTURE AT NO ADDITIONAL OWNER. WHERE STRUCTURE IS ALTERED OR DAMAGES DURING CONSTRUCTION. INSTALLATION EQUIPMENT OR FIXTURES, THE CONTRACTOR SHALL REPAIR THE AREA TO MATCH SURROUND ARCHITECTURAL SPECIFICATIONS CUTTING, TRENCHING, AND PENETRATIONS THROUGH FIRE WA OTHER STRUCTURES ARE A PART OF THIS PROJECT SCOPE AND SHALL BE INCLUDED IN TH ALL EXCAVATION AND BACKFILLING REQUIRED FOR PLUMBING WORK IS ALSO INCLUDED AS CONTRACT AND SHALL BE INCLUDED IN CONTRACTOR'S BID. 2. ALL SYSTEMS AND COMPONENTS SHALL BE APPROVED FOR THE PURPOSE FOR WHICH THEY EQUIPMENT AND MATERIALS SHALL BE NEW AND FROM ESTABLISHED AMERICAN SUPPLIERS OTHERWISE INDICATED. 13. ALL EQUIPMENT PARAMETERS SHOWN ARE FOR PERFORMANCE AT SITE ALTITUDE. SUPPLIERS DEMONSTRATE THAT THEIR EQUIPMENT MEETS THE DESIGN CONDITIONS AT SITE ALTITUDE. 14. PLUMBING CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR THE ELECTRICAL INCLUDING POWER, CONTROL, COMMUNICATION, AND MONITORING, OF EACH DEVICE PROVIDED BY PLUMBING CONTRACTOR. 15. SUPPORT SYSTEM FOR PIPING MATERIALS AND EQUIPMENT SUPPORTED BY THE BUILDING STF SUBMITTED TO THE STRUCTURAL ENGINEER AND ARCHITECT FOR APPROVAL PRIOR TO PURCH INSTALLATION. NO WIRE OR PERFORATED STRAP WILL BE PERMITTED FOR ANY HANGER OR 16. CONTRACTOR SHALL NOT CUT, DRILL, OR ALTER ANY ELEMENT OF ANY WALLS, FLOORS CEI SLABS WITHOUT FIRST RECEIVING INSTRUCTIONS FROM ARCHITECT, ENGINEER. ALL CUTS SHAL A CUTTING TOOL. 17. PATCHING OR SEALING OF CUTS OR PENETRATIONS SHALL BE DONE BY CONTRACTOR PER AND TO FINAL APPROVAL OF ARCHITECT AND ENGINEER. COORDINATE WITH GENERAL CONTRA 18. CONTRACTOR SHALL FIELD VERIFY CONDITION OF EXISTING EQUIPMENT AND PROVIDE NECES TO ASSEMBLE AND TO START-UP COMPLETE AND FULLY OPERATIONAL SYSTEMS. 19. BEFORE INSTALLATION, EQUIPMENT AND DEVICES INCLUDING, BUT NOT LIMITED TO, ANY DEVIC CONNECTIONS, DUCTWORK, INSULATION, PIPING, VALVES, AND AIR DEVICES SHALL NOT BE S GRADE OR ON A SLAB OR FLOOR. BEFORE AND AFTER INSTALLATION, SUCH EQUIPMENT AND PROTECTED FROM ENTRY OF DIRT, TRASH WATER (EXCEPT AS REQUIRED), VERMIN, 20. CONTRACTOR SHALL COORDINATE ACTUAL LOCATIONS OF AIR DEVICES AND DUCTWORK WITH I PANELS, JOIST SPACING AND ARCHITECTURAL REFLECTED CEILING PLAN (REF. ELECTRICAL PL ARCHITECTURAL PLANS). 21. PROVIDE THE OWNER WITH THREE (3) COPIES OF OPERATION AND MAINTENANCE (O&M'S) MSHALL INCLUDE ALL INSTALLATIONS INSTRUCTIONS FOR PRODUCT DATA, WARRANTIES, CONTAC DURING WARRANTY PERIOD, COPIES OF ALL PERMIT INFORMATION, AND AIR AND HYDRONIC BALANCING REPORTS IN 3-RING BINDERS. ALL LABOR AND MATERIALS PROVIDED FROM CON COMPLETE ONE (1) YEAR WARRANTY. 22. OPERATING TESTS AND CLEANING PROCEDURES SHALL BE PERFORMED AND REPORTS SHALL CODE REQUIREMENTS, MANUFACTURER'S RECOMMENDATIONS. 23. CONTRACTOR SHALL PROVIDE AND INSTALL IDENTIFICATION TAGS FOR EQUIPMENT AND PIPING STANDARDS AND ANSI/ASME 13.1-2015 - SCHEME FOR THE IDENTIFICATION FOR PIPING SY 24. LOCATIONS OF CEILING, ROOF, AND ATTIC PLUMBING EQUIPMENT ARE APPROXIMATE AS SHOW CONTRACTOR SHALL FIELD ADJUST AS REQUIRED. 25. THE MECHANICAL/PLUMBING CONTRACTOR SHALL PROVIDE AND HAVE INSTALLED ANY ACCESS ACCESS MECHANICAL OR PLUMBING EQUIPMENT THAT REQUIRES ACCESS BEHIND GYPBOARD AND IN WALLS. THE MECHANICAL/PLUMBING CONTRACTOR SHALL PROVIDE THE GENERAL CO THESE ACCESS DOORS FOR INSTALLATION IN THE CEILING OR WALL. ACCESS DOORS SHALL WALL, FLOOR, OR CEILING TYPE AND SHALL BE A MINIMUM SIZE OF 12"X12" OR SIZED PER 26. ALL MATERIAL INSTALLED IN CEILING SPACE SHALL BE NONCOMBUSTIBLE PLENUM RATED MATI WRAPPED WITH ONE (1) HOUR U.L. FIRE WRAP. 27. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ALTERNA ALLOWANCES FOR THIS PROJECT. 28. ALL PIPING, PLUMBING AND DUCTWORK OPENINGS SHALL BE CAPPED DURING DEMOLITION AND CONSTRUCTION. 29. SITE VISIT REPORTS

DURING THE COURSE OF THE JOB, THE ENGINEER WILL MAKE SITE AND INSPECTION VISITS TO OBSERVE WORK IN PROGRESS AND WILL SUBSEQUENTLY PREPARE A WRITTEN SITE VISIT REPORT, WHICH WILL BE SENT TO THE CONTRACTOR AND TO WHOMEVER ELSE THE ENGINEER DESIRES. THE CONTRACTOR SHALL PROVIDE 48 HOUR WRITTEN NOTICE TO THE ENGINEER FOR ALL TESTING AND CITY INSPECTION SO THEY CAN ATTEND THESE INSPECTIONS. THE CONTRACTOR SHALL PREPARE A WRITTEN AND TYPED RESPONSE WITHIN SEVEN (7) CALENDAR DAYS OF HIS RECEIVING THE SITE VISIT REPORT. THE CONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING THIS FINAL PUNCHLIST VISIT UPON THE REQUEST OF THE ENGINEER. THE GENERAL CONTRACTOR SHALL INCLUDE IN HIS RESPONSE THE FOLLOWING INFORMATION.

- A. DATE OF SITE VISIT BY THE ENGINEER, B. DATE OF RECEIPT OF THE SITE VISIT REPORT,
- C. NAME AND TITLE OF THE PREPARER OF THE RESPONSE, D. AN ITEM NUMBER REFERENCED TO THE SITE REPORT,
- E. A BRIEF THREE OR FOUR WORD DESCRIPTION OF THE ITEM, THE CONTRACTOR OR SUBCONTRACTOR AFFECTED,
- G. THE PROPOSED COURSE OF ACTION, AND H. AN EXPECTED TIME OF COMPLETION OF THE ACTION.

30. FINAL PUNCH REPORTS AT THE COMPLETION OF THE JOB. THE ENGINEER WILL MAKE PUNCHLIST SITE VISITS TO OBSERVE COMPLETED WORK AND WILL SUBSEQUENTLY PREPARE A WRITTEN SITE VISIT PUNCHLIST REPORT, WHICH WILL BE SENT TO THE CONTRACTOR AND TO WHOMEVER ELSE THE ENGINEER DESIRES. THE CONTRACTOR UPON COMPLETION OF THE LISTED PUNCHLIST ITEMS SHALL PREPARE A TYPE WRITTEN RESPONSE TO THE LIST INDICATING COMPLETION OF EACH ITEM. THE CONTRACTOR SHALL INCLUDE IN HIS RESPONSE THE RESOLUTION OF EACH ITEM. THE CONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING THIS FINAL PUNCHLIST VISIT UPON THE REQUEST OF THE ENGINEER.

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LUMBING GENERAL NOTES		
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THESE PLUMBING GENERAL NOTES ARE APPLICABLE TO ALL PLUMBING SHEETS IN THIS PROJECT SET. THE PLUMBING WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE APPLICABLE AND ADOPTED PROVISIONS OF THE FOLLOWING CODES: 2021 NEW MEXICO COMMERCIAL BUILDING CODE 2021 NEW MEXICO PLUMBING CODE 2021 NEW MEXICO PLUMBING CODE 2021 NEW MEXICO FIRE CODE 2021 NEW MEXICO FIRE CODE 2021 NEW MEXICO FIRE CODE 2021 NEW MEXICO FUEL CODE 2020 NEW MEXICO FUEL CODE 2020 NEW MEXICO COMMERCIAL ENERGY CONSERVATION CODE 2020 NEW MEXICO ELECTRICAL CODE AS ADOPTED AND INTERPRETED BY THE STATE OF NEW MEXICO, CITY OF CARLSBAD, SOUTHEAST NEW MEXICO COLLEGE BUILDING STANDARDS, AND THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) REGULATIONS, CURRENT ADOPTED EDITION REGARDING PLUMBING SYSTEMS, FIRE PROTECTION AND ALARM SYSTEMS AND ELECTRICAL SYSTEMS. ALL LABOR AND MATERIALS NECESSARY TO COMPLY WITH RULES, REGULATIONS AND ORDINANCES SHALL BE PROVIDED. WHERE THE DRAWINGS INDICATE MATERIALS OR CONSTRUCTION IN EXCESS OF	 31. SUBSTITUTED PRODUCTS A. MATERIAL OR EQUIPMENT SPECIFIED BY MANUFACTURER'S NAME IS BEING USED AS A BASIS OF STANDARD. NO SUBSTITUTION IS ALLOWABLE WITHOUT ENGINEER'S WRITTEN APPROVAL TEN (10) DAYS PRIOR TO BID DUE DATE UNLESS THE MANUFACTURER IS LISTED ON THE DRAWINGS OR IN THE SPECIFICATION AS BEING A PREAPPROVED ALTERNATIVE MANUFACTURER. ANY SUBMITTAL RECEIVED WITHOUT SUCH WRITTEN APPROVAL OR PRIOR APPROVAL IS SUBJECT TO UNQUALIFIED REJECTION. B. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT SUBMITTED SUBSTITUTE EQUIPMENT WILL FIT IN SPACE AVAILABLE. THE CONTRACTOR'S SUBMITTAL FOR ACCEPTANCE OF THE SUBSTITUTE SHALL INCLUDE A WRITTEN STATEMENT OF WHETHER OR NOT SUCH ACCEPTANCE OF THE SUBSTITUTE SHALL BE DESCRIBED IN WRITING, BRIEFLY BUT COMPLETE. C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COSTS OF ANY SUCH MODIFICATIONS DUE TO SUBSTITUTION OF MATERIALS OR EQUIPMENT FOR THAT WHICH WAS SPECIFIED OR SCHEDULED. THE COST SHALL BE COMPLETE, THAT IS, IT SHALL INCLUDE THE COST EFFECT OF ANY AND ALL OTHER TRADES. D. THE ENGINEER MAY REQUEST DETAILED SHOP DRAWING OR PLAN LAYOUTS OF MECHANICAL ROOMS OR SYSTEMS OF THE SUBSTITUTED EQUIPMENT. 	NO ENERGY CODE REQUIRED NO NEW EQUIPMENT REUSING EXISTING EQUIPMENT
CODE REQUIREMENTS, THE DRAWINGS SHALL GOVERN. THE CONTRACTOR SHALL HOLD AND SAVE THE OWNER, ARCHITECT AND ENGINEER FREE AND HARMLESS FROM LIABILITY OF ANY NATURE OR KIND ARISING FROM HIS FAILURE TO COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.	E. SHOULD A SUBSTITUTION BE APPROVED BY THE ENGINEER (BASED OPON THE SUBSTITUTION SUBMITTAL REVIEW) AND ACCEPTED, AND SHOULD THE SUBSTITUTE MATERIAL OR EQUIPMENT PROVE DEFECTIVE, NOT MEETING DESIGN PARAMETERS, OR OTHERWISE UNSATISFACTORY FOR THE SERVICE INTENDED WITHIN THE GUARANTEE PERIOD, THIS MATERIAL OR EQUIPMENT SHALL BE REPLACED WITH THE MATERIAL OR FOUNDMENT SPECIFIED AT NO ADDITIONAL COST TO THE OWNER	
THE CONTRACTOR SHALL COORDINATE WITH OWNER, ARCHITECT, AND ENGINEER ANY WORK THAT HAS THE POTENTIAL TO HINDER MECHANICAL AND PLUMBING SERVICES TO AREA OUTSIDE OF THIS CONTRACT. ALL SHUT- DOWNS OR THE-INS RELATING TO THESE SYSTEMS SHALL BE SCHEDULED AND SUBMITTED IN WRITING AND TO BE	32. SUBMITTAL REQUIREMENTS	
APPROVED BY THE OWNER, ARCHITECT, AND THIS ENGINEER OFFICE. CONTRACTOR SHALL SUBMIT IN WRITING A SCHEDULE FOR PHASING OF CONSTRUCTION THAT INDICATES AREAS OF FIRST PRIORITY DURING EACH PHASE AND ANTICIPATED COMPLETION TIMES. SCHEDULES SHALL BE SUBMITTED A MINIMUM OF ONE WEEK PRIOR TO COMMENCING WORK. OWNER, ARCHITECT AND ENGINEER SHALL REVIEW THESE SCHEDULES AND NOTIFY CONTRACTOR OF ACCEPTANCE PRIOR TO COMMENCEMENT OF WORK.	 A. THE INTENT OF THIS SECTION IS TO GIVE GENERAL SUBMITTAL INFORMATION, REFER TO SPECIFIC SUBMITTAL INFORMATION IN THE SUBSEQUENT ELECTRICAL SECTIONS. B. WITHIN 10 DAYS AFTER AWARD OF THE CONTRACT, AND BEFORE ORDERS ARE PLACED, CONTRACTOR SHALL SUBMIT SPECIFIC INFORMATION ON LIST OF EQUIPMENT AND PRINCIPAL MATERIALS SPECIFIED. CONTRACTOR SHALL INDICATE AND/OR PROVIDE NAMES OF MANUFACTURERS, CATALOG AND MODEL NUMBERS, CUT SHEETS, AND SUCH OTHER SUPPLEMENTARY INFORMATION AS NECESSARY FOR EVALUATION. MINIMUM OF SIX (6) COPIES OR AS DIRECTED BY THE ENGINEER OF FACH SHALL BE SUBMITTED AND SHALL INCLUDE ALL 	
ALL MATERIALS AND LABOR NECESSART TO COMPLY WITH CODES AND ROLES, REGULATIONS AND ORDINANCES SHALL BE PROVIDED. WHERE THE DRAWINGS AND/OR SPECIFICATIONS INDICATE MATERIALS OR CONSTRUCTION IN EXCESS OF CODE REQUIREMENTS, THE DRAWINGS AND/OR SPECIFICATIONS SHALL GOVERN. THE CONTRACTOR SHALL HOLD AND SAVE THE OWNER, ARCHITECT AND ENGINEERS FREE AND HARMLESS FROM LIABILITY OF ANY NATURE OR KIND ARISING FORM HIS FAILURE TO COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES. BIDDERS SHALL VISIT THE SITE AND SHALL BE RESPONSIBLE FOR HAVING ASCERTAINED PERTINENT LOCAL	ITEMS MENTIONED BY MODEL NUMBER AND/OR MANUFACTURER'S NAME IN THE SPECIFICATIONS OR IN SCHEDULES ON THE DRAWINGS. C. REQUIREMENTS FOR EACH SUBMITTAL: 1. BEAR A DATED STAMP OR SPECIFIC WRITTEN INDICATION THAT THE CONTRACTOR HAS REVIEWED AND APPROVED ALL SUBMITTAL PRIOR TO SUBMISSION TO ENGINEER, 2. HAVE ALL INFORMATION DELETED BY CONTRACTOR THAT PERTAINS TO THE MEANS AND METHODS OF	
CONDITIONS SUCH AS LOCATION, ACCESSIBILITY AND GENERAL CHARACTER OF THE SITE, THE CHARACTER AND EXTENT OF THE WORK WITHIN THE BUILDING AND TO BECOME FAMILIAR WITH ALL OTHER WORK TO BE PERFORMED AT THIS TIME. NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO CONTRACTOR'S FAILURE TO DETERMINE ALL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED.	CONSTRUCTION OR TO FABRICATION, ASSEMBLY, INSTALLATION, OR ERECTION (APPROVAL BY ENGINEER SHALL NOT EXTEND TO THESE AREAS UNLESS SPECIFICALLY NOTED BY ENGINEER), 3. BE CLEARLY AND SPECIFICALLY MARKED AS TO WHICH SPECIFIC PIECE OF EQUIPMENT IS BEING SUBMITTED, BY USE OF A PERMANENT MARKER, STAMP, ETC., SO AS TO DISTINGUISH IT FROM OTHER PIECES OF EQUIPMENT THAT MAY OCCUR ON THE SAME PAGE. 4. BE CLEARLY AND SPECIFICALLY MARKED AS TO WHICH AVAILABLE OPTIONS ARE BEING SUBMITTED	
IRRIGATION LINES, SHALL BE LOCATED AND CLEARLY MARKED IN ORDER TO AVOID UNNECESSARY SHUT DOWNS AND EMERGENCY. EACH CONTRACTOR SHALL GIVE ALL REQUISITE NOTICES AND FILLED OUT APPLICATIONS, OBTAIN AND PAY FOR ALL	 THAT ARE ASSOCIATED WITH A PIECE OF EQUIPMENT, AND BE COMPLETE WITH RESPECT TO QUANTITIES, DIMENSIONS, SPECIFIC PERFORMANCE, MATERIALS, AND SIMILAR DATA TO ENABLE THE ENGINEER TO REVIEW THE PROPOSED EQUIPMENT. BE COMPLETE WITH RESPECT TO QUANTITIES, DIMENSIONS, SPECIFIC PERFORMANCE, MATERIALS, 	
PERMITS, DEPOSITS AND FEES (INCLUDING UTILITY CONNECTIONS FEES, ANY UTILITY EXTENSION FEES, TAP FEES, DEVELOPMENT FEES, AND IMPACT FEES) NECESSARY FOR THE INSTALLATION OF WORK UNDER THESE NOTES. TWO (2) COPIES OF CERTIFICATES OF APPROVAL SHALL BE OBTAINED FROM ALL AUTHORITIES ISSUING SAME AND SHALL BE TURNED OVER TO OWNER, ARCHITECT, ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE WORK.	 6. BE CLEARLY AND SPECIFICALLY MARKED AS TO ANY AND ALL SUBMITTAL DEVIATIONS FROM THE DESIGN SPECIFICATION REQUIREMENTS SHALL BE PROVIDED IN WRITTEN FORM. 7. OMISSION BY CONTRACTOR OF ANY OF THE ABOVE REQUIREMENTS OR SUBMITTALS WILL SUBJECT SUBMITTAL TO AUTOMATIC REJECTION WITHOUT REVIEW. 8. ANY SUBMITTALS RECEIVED BY ENGINEER THAT WERE NOT REQUESTED SHALL BE RETURNED WITHOUT 	
PROPERTY DAMAGE FOR THE DURATION OF WORK. CONTRACTOR FOR PROTECTION AGAINST FOBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF WORK. CONTRACTOR SHALL SECURE AND PAY ALL PERMITS, FEES, INSPECTIONS, AND TESTS UNLESS OTHERWISE INDICATED. COORDINATE WITH ARCHITECT, ENGINEER, OWNER. SUBSTITUTIONS REQUESTED BY THE CONTRACTOR SHALL BE PAID FOR BY THE CONTRACTOR.	REVIEW OF ANY KIND. SUBMITTALS SHALL INDICATE MINIMUM ACCESS AND SERVICE CLEARANCES IF REQUIRED BY THE SUBMITTED EQUIPMENT. D. INSTALLATION INSTRUCTIONS - FOR CERTAIN PRODUCTS OR SYSTEMS AS IDENTIFIED IN SUBSEQUENT SPECIFICATIONS SECTIONS OR ON THE DRAWINGS, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE	
ALL WORK SHALL CONFORM WITH FEDERAL, STATE, AND LOCAL CODES, RULES, AND REGULATIONS. ALL WORK SHALL BE PERFORMED BY A LICENSED CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE SYSTEMS SHALL BE INSTALLED COMPLETE AND FULLY OPERATIVE UNLESS OTHERWISE INDICATED	THE INSTALLATION INSTRUCTIONS ARE CONSIDERED PART OF THE SUBMITTAL. WHEN REQUIRED AS SUCH, THE INSTALLATION INSTRUCTIONS ARE CONSIDERED PART OF THE SUBMITTAL AND THEIR OMISSION MAY RESULT IN AUTOMATIC REJECTION OF THE SUBMITTAL. WHERE MORE THAN ONE IDENTICAL DEVICE ARE SCHEDULED, ONLY ONE SET OF INSTALLATION INSTRUCTIONS NEEDS TO BE SUBMITTED, E.G. IF SEVEN 10 TON RTUS ARE SCHEDULED, ONLY ONE OF EACH TYPE OF RTU INSTALLATION INSTRUCTION NEEDS TO BE	
THE ENGINEERING OFFICES. THIS REPORT SHALL DESCRIBE EXISTING DAMAGE OR OTHER CONDITIONS THAT MAY INTERFERE WITH THIS PROPOSED NEW WORK. THIS SITE SURVEY SHALL ALSO INCLUDE VERIFICATION OF SIZES, LOCATIONS, AND CONDITIONS OF EXISTING UTILITIES. QUESTIONS REGARDING THESE DRAWINGS SHALL BE ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDING OF THE CONTRACT. OTHERWISE THE ENGINEER'S INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL BE FINAL.	SUBMITTED. SIMILARLY, IF ONE SET OF INSTALLATION INSTRUCTIONS IS IDENTIFIED BY THE MANUFACTURER AND ON THE INSTRUCTIONS TO BE APPLICABLE TO MORE THAN ONE TYPE OR SIZE OF DEVICES, E.G. IF ONE SET OF RTU INSTRUCTIONS IS GOOD FOR EACH TYPE OF RTU, THEN ONLY ONE INSTRUCTION SET IS REQUIRED FOR THESE DEVICES. E. THIS ENGINEER WILL REVIEW THE SUBMITTALS FOR APPROVAL TWICE. ANY ADDITIONAL REVIEWS THAT ARE REQUIRED BY THE ENGINEER FOR WHATEVER REASON AFTER THE INITIAL TWO REVIEWS WILL RESULT IN	
DURING CONSTRUCTION IF THE CONTRACTOR ENCOUNTER AND DAMAGES THE EXISTING UNDERGROUND INFRASTRUCTURE THE CONTRACTOR SHALL REPAIR THE INFRASTRUCTURE AT NO ADDITIONAL COSTS TO THE OWNER. WHERE STRUCTURE IS ALTERED OR DAMAGES DURING CONSTRUCTION, INSTALLATION AND REMOVAL OF EQUIPMENT OR FIXTURES, THE CONTRACTOR SHALL REPAIR THE AREA TO MATCH SURROUNDING AREA PER ARCHITECTURAL SPECIFICATIONS CUTTING, TRENCHING ,AND PENETRATIONS THROUGH FIRE WALL, CONCRETE AND OTHER STRUCTURES ARE A PART OF THIS PROJECT SCOPE AND SHALL BE INCLUDED IN THE CONTRACTOR'S BID. ALL EXCAVATION AND BACKFILLING REQUIRED FOR PLUMBING WORK IS ALSO INCLUDED AS PART OF THIS CONTRACT AND SHALL BE INCLUDED IN CONTRACTOR'S BID.	ADDITIONAL COMPENSATION FOR THE ENGINEER'S TIME BY THE SUBMITTING CONTRACTOR AT THE ENGINEER'S RATE. 33. REQUIRED SHOP DRAWING SUBMITTALS A. PLUMBING FIXTURES (AS NOTED IN PLUMBING FIXTURE SCHEDULE) B. PIPING MATERIALS, FITTINGS, AND SOLDER C. PIPING INSULATION INCLUDING JACKETING D. PIPING SUPPORTS AND HANGERS	
ALL SYSTEMS AND COMPONENTS SHALL BE APPROVED FOR THE PURPOSE FOR WHICH THEY ARE INSTALLED. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND FROM ESTABLISHED AMERICAN SUPPLIERS UNLESS OTHERWISE INDICATED.	PLUMBING 34. SEE PLUMBING FIXTURE SCHEDULE FOR SIZES OF CONNECTIONS TO INDIVIDUAL FIXTURES. ALL PLUMBING FIXTURES, PIPING, FITTINGS, AND EQUIPMENT SHALL BE LEAD FREE PER THE REDUCTION OF LEAD IN DRINKING WATER ACT 2014.	
ALL EQUIPMENT PARAMETERS SHOWN ARE FOR PERFORMANCE AT SITE ALTITUDE. SUPPLIERS SHALL SELECT AND DEMONSTRATE THAT THEIR EQUIPMENT MEETS THE DESIGN CONDITIONS AT SITE ALTITUDE.	35. PROVIDE EACH COLD AND HOT WATER SYSTEM A MINIMUM OF ONE WATER HAMMER ARRESTOR FOR EACH FIXTURE OR GROUP OF FIXTURES.	
PLUMBING CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR THE ELECTRICAL REQUIREMENTS, INCLUDING POWER, CONTROL, COMMUNICATION, AND MONITORING, OF EACH DEVICE PROVIDED AND/OR INSTALLED BY PLUMBING CONTRACTOR.	36. PROVIDE ISOLATION VALVES IN CW, HW, AND HWR PIPING AS NEEDED OR AS SHOWN FOR ALL GROUPS OF FIXTURES.	
SUPPORT SYSTEM FOR PIPING MATERIALS AND EQUIPMENT SUPPORTED BY THE BUILDING STRUCTURE SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND ARCHITECT FOR APPROVAL PRIOR TO PURCHASE AND INSTALLATION. NO WIRE OR PERFORATED STRAP WILL BE PERMITTED FOR ANY HANGER OR SUPPORT.	 ALL PVC OR CAST IRON PLUMBING TRAPS LOCATED BELOW SLAB OR IN CONCEALED PLACES SHALL BE THE DEEP SEAL TYPE. COLD, HOT AND RECIRCULATING WATER PIPING SHALL BE COPPER TYPE K HARD DRAWN WITH SOLDERED 	
CONTRACTOR SHALL NOT CUT, DRILL, OR ALTER ANY ELEMENT OF ANY WALLS, FLOORS CEILINGS, ROOFS, AND SLABS WITHOUT FIRST RECEIVING INSTRUCTIONS FROM ARCHITECT, ENGINEER. ALL CUTS SHALL BE MADE WITH A CUTTING TOOL.	JOINTS. SOLDER SHALL BE ASIM B-32 95/5 OR SILVER SOLDER AWS 5.8. 39. PROJECT VALVES: A. BALL VALVES: MANUFACTURERS: NIBCO. MILWAUKEE. GRINNELL CORP. OR EQUAL, BRONZE TWO-PIECE BODY (2" OR LESS) CAST STEEL BODY (OVER 2 INCHES) STAINLESS FULL PORTED STEEL BALL TEELON	MINIMUM PIPE MATERIAL REQUIREMENTS UNLESS SPECIFIED OTHERWISE, THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THE MINIMUM ACCEPTABLE MATERIAL TYPES USED FOR EACH PLUMBING APPLICATION LISTED. DEVIATIONS FROM THIS SCHEDULE UNLESS ALLOWED FOR IN THE SPECIFICATIONS PRODUCED BY THIS OFFICE FOR THIS PROJECT ARE AT THE CONTRACTORS PIECE SELECTING
AND TO FINAL APPROVAL OF ARCHITECT AND ENGINEER. COORDINATE WITH GENERAL CONTRACTOR.	SEATS AND STUFFING BOX RING, LEVER HANDLE AND BALANCING STOPS, FLANGED, SOLDER OR THREADED ENDS WITH UNION. THE VALVE ASSEMBLY SHALL BE LEAD FREE.	PIPE MATERIALS OTHER THAN AS SCHEDULED BELOW MUST BE IN ACCORDANCE TO LOCAL, STATE, AND FEDERAL BUILDING STANDARDS INCLUDING NFPA. ANY DEVIATION FROM THIS SCHEDULE AND/OR SPECIFICATIONS FROM THIS PROJECT THEREBY
CONTRACTOR SHALL FIELD VERIFY CONDITION OF EXISTING EQUIPMENT AND PROVIDE NECESSARY COMPONENTS TO ASSEMBLE AND TO START-UP COMPLETE AND FULLY OPERATIONAL SYSTEMS.	40. SEWER AND VENT PIPING BELOW GRADE SHALL BE HUB AND SPIGOT PVC OR CAST IRON. ABOVE GRADE SEWER AND VENT PIPING SHALL BE NO-HUB PVC OR CAST IRON.	WAIVE EMC ENGINEERS, FROM ANY LIABILITY ARISING FROM BUILDING CODE VIOLATIONS. PLUMBING SERVICE LOCATION MATERIALS REQUIRED
BEFORE INSTALLATION, EQUIPMENT AND DEVICES INCLUDING, BUT NOT LIMITED TO, ANY DEVICE WITH ELECTRICAL CONNECTIONS, DUCTWORK, INSULATION, PIPING, VALVES, AND AIR DEVICES SHALL NOT BE STORED DIRECTLY ON GRADE OR ON A SLAB OR FLOOR. BEFORE AND AFTER INSTALLATION, SUCH EQUIPMENT AND DEVICES SHALL BE PROTECTED FROM ENTRY OF DIRT, TRASH WATER (EXCEPT AS REQUIRED), VERMIN.	41. COLD, HOT AND RECIRCULATING WATER PIPING SHALL BE INSULATED WITH 1" FIBERGLASS INSULATION WITH VAPOR BARRIER PER PIPE INSULATION SCHEDULE. PIPING EXPOSED TO THE EXTERIOR SHALL BE HAVE A METAL JACKET PER THE PIPE INSULATION SCHEDULE.	SANITARY WASTE, DRAIN, & VENT BELOW GRADE, OUTSIDE OF 5'-0" OF BUILDING CAST IRON, HUB & SPIGOT SEE NOTE 1 BELOW GRADE, WITHIN OF 5'-0" OF BUILDING CAST IRON, HUB & SPIGOT SEE NOTE 1 2 ABOVE GRADE, WITHIN BUILDING CAST IRON, NO-HUB (HUBLESS), SEE NOTE 1 DOMESTIC WATER BELOW GRADE COPPER TYPE "K" TUBING (SEAMLESS)
CONTRACTOR SHALL COORDINATE ACTUAL LOCATIONS OF AIR DEVICES AND DUCTWORK WITH LIGHTS, CEILING PANELS, JOIST SPACING AND ARCHITECTURAL REFLECTED CEILING PLAN (REF. ELECTRICAL PLANS AND ARCHITECTURAL PLANS).	 42. TESTS: A. TESTS SHALL BE COMPLETE PRIOR TO FINAL INSPECTION AND PRIOR TO COVERING WITH INSULATION OR EARTH. B. ALL PRESSURE TESTS SHALL BE CHARTED USING A STRIPE CHART RECORDER WITH ENOUGH PAPER FOR THE 	(COLD, HOT, & RECIRC.) ABOVE GRADE COPPER TYPE "L" OR PEX TUBING SEE NOTE 4. NOTES:
PROVIDE THE OWNER WITH THREE (3) COPIES OF OPERATION AND MAINTENANCE (O&M'S) MANUALS. THE O&M'S SHALL INCLUDE ALL INSTALLATIONS INSTRUCTIONS FOR PRODUCT DATA, WARRANTIES, CONTACT INFORMATION DURING WARRANTY PERIOD, COPIES OF ALL PERMIT INFORMATION, AND AIR AND HYDRONIC TESTING AND BALANCING REPORTS IN 3-RING BINDERS. ALL LABOR AND MATERIALS PROVIDED FROM CONTRACTOR SHALL HAVE COMPLETE ONE (1) YEAR WARRANTY.	DURATION OF THE TEST SHOWN. REFER TO OTHER SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. THE TEST RESULTS SHALL INCLUDE TEST RUN, TEST DATE, PERSON DOING THE TESTING, AND ENGINEER OR AUTHORITY HAVING JURISDICTION SIGNATURE. C. ALL TESTS SHALL BE WITNESSED AND APPROVED BY THE ENGINEER AND THE LOCAL AUTHORITY HAVING JURISDICTION BEFORE COVERING OR INSULATING. PROVIDE ENGINEER WITH A MINIMUM OF 24 HOUR WRITTEN	 WHEN PVC PIPING IS SUBSTITUTED FOR CAST IRON BELOW GRADE, PIPING SHALL BE HUG & SPIGOT PVC SCHEDULE 40 ASTM D1785 PIPE & FITTINGS AND INSTALLED IN ACCORDANCE WITH ASTM STD D2321-89. JOINTS TO BE ELASTICMERIC GASKETS. PIPE MATERIAL SHALL BE MANUFACTURED PER ASTM D1784. WHEN PVC PIPING IS SUBSTITUTED FOR CAST IRON BELOW GRADE, PIPING SHALL BE SOLVENT CEMENT HUG & SPIGOT PVC SCHEDULE 40 ASTM 1785 PIPE & FITTINGS AND INSTALLED IN ACCORDANCE WITH ASTM STD D2321-89. JOINTS TO BE PER ASTM D2665 SOLVENT WELD WITH ASTM D2564 SOLVENT CEMENT. PIPE MATERIAL SHALL BE MANUFACTURED PER ASTM D1784.
OPERATING TESTS AND CLEANING PROCEDURES SHALL BE PERFORMED AND REPORTS SHALL BE ISSUED PER CODE REQUIREMENTS, MANUFACTURER'S RECOMMENDATIONS.	NOTICE PRIOR TO ANY TESTING.	3. WHEN PVC PIPING IS SUBSTITUTED FOR CAST IRON ABOVE GRADE, PIPING SHALL BE NO-HUB PVC ASTM 1785 AND IN CEILING RETURN PLENUMS SHALL BE WRAPPED WITH 1-HOUR FIRE INSULATING BLANKET PER CODE REQUIREMENTS.
CONTRACTOR SHALL PROVIDE AND INSTALL IDENTIFICATION TAGS FOR EQUIPMENT AND PIPING PER OWNER'S STANDARDS AND ANSI/ASME 13.1–2015 – SCHEME FOR THE IDENTIFICATION FOR PIPING SYSTEMS.	BE HELD FOR A MINIMUM OF SIX (6) HOURS. E. HYDRAULICALLY TEST ALL DOMESTIC COLD. HOT AND RECIRCULATING HOT WATER AND SOFT WATER SERVICE	4. IF THE CONTRACTOR CHOSES TO UTILIZE PEX TUBING THE DOMESTIC COLD WATER SHALL BE OF "BLUE" COLOR PEX TUBING AND THE DOMESTIC HOT AND RECIRCULATION WATER PIPING BE OF "RED" COLOR PEX TUBING. THE PEX TUBING SHALL BE PRE-INSULATED WITH 1" INSULATION.
LOCATIONS OF CEILING, ROOF, AND ATTIC PLUMBING EQUIPMENT ARE APPROXIMATE AS SHOWN. PLUMBING CONTRACTOR SHALL FIELD ADJUST AS REQUIRED.	LINES AT 200 PSIG. TEST TO BE HELD FOR A MINIMUM OF SIX (6) HOURS.	5. PIPING SHALL BE INSULATED AND JACKETED PER ENERGY CODE - DOMESTIC SERVICE WATER PIPING INSULATION CRITERIA SCHEDULE.
THE MECHANICAL/PLUMBING CONTRACTOR SHALL PROVIDE AND HAVE INSTALLED ANY ACCESS DOOR REQUIRED TO ACCESS MECHANICAL OR PLUMBING EQUIPMENT THAT REQUIRES ACCESS BEHIND GYPBOARD OR HARD CEILINGS AND IN WALLS. THE MECHANICAL/PLUMBING CONTRACTOR SHALL PROVIDE THE GENERAL CONTRACTOR WITH THESE ACCESS DOORS FOR INSTALLATION IN THE CEILING OR WALL. ACCESS DOORS SHALL BE RATED FOR THE WALL, FLOOR, OR CEILING TYPE AND SHALL BE A MINIMUM SIZE OF 12"X12" OR SIZED PER DRAWINGS.	 HOT WATER AND SOFT WATER SERVICE LINES AS FOLLOWS: 1. HYDRAULICALLY TEST LINES AT 85 PSIG TO ALLOW SEATING OF THE PROPRESS FITTING?S GASKETS. 2. GASKET SEATING TEST TO BE HELD FOR A MINIMUM OF ONE (1) HOUR. 3. THEN HYDRAULICALLY TEST LINES AT 200 PSIG. 4. FULL HYDRAULIC TEST TO BE HELD FOR A MINIMUM OF SIX (6) HOURS. 	C. ALL FLOWDING FIXTORES, FIFTING, FITTINGS, AND EQUIFMENT SHALL BE LEAD FREE PER THE REDUCTION OF LEAD IN DRINKING WATER ACT 2014. ENERGY CODE - DOMESTIC SERVICE WATER PIPING INSULATION CRITERIA SERVICE PIPING SERVICE DER GENERAL DUIMPING NOTES
ALL MATERIAL INSTALLED IN CEILING SPACE SHALL BE NONCOMBUSTIBLE PLENUM RATED MATERIALS OR FIRE WRAPPED WITH ONE (1) HOUR U.L. FIRE WRAP.	G. THE SATISFACTORY OPERATION OF BLOWERS, PUMPS AND OTHER EQUIPMENT WITH MOVING PARTS SHALL BE DEMONSTRATED TO THE ENGINEER. EQUIPMENT WITHOUT MOVABLE PARTS SHALL HAVE PRESSURE OR	COLD ALL SIZES - 1" THICK I O.24 BTUH/INCH/SQ FT/DEG F 1-1/4" & BELOW - 1/2" WATER 1-1/2" TO 3" - 1" THICK
CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ALTERNATES AND ALLOWANCES FOR THIS PROJECT.	UTHER TESTS PERFORMED BY THE CONTRACTOR TO DEMONSTRATE SATISFACTORY OPERATION. H. FURNISH ALL INSTRUMENTS, PUMPS, BLOWERS AND EQUIPMENT REQUIRED FOR THE TESTING.	HOT AND 1-1/4" & BELOW - 1" THICK @ 0.24 BTUH/INCH/SQ FT/DEG F 1-1/4" & BELOW - 1" THICK @ 0.24 BTUH/INCH/SQ FT/DEG F RECIRCULATING 1-1/2" & ABOVE - 1-1/2" THICK @ 0.24 BTUH/INCH/SQ FT/DEG F 1-1/4" & BELOW - 1" THICK @ 1-1/2" THICK @ 0.24 BTUH/INCH/SQ FT/DEG F
	I. PROVIDE WRITTEN APPROVED COPIES OF THESE TEST REPORTS FOR INCLUSION ON THE OPERATIONS AND	WATER 4" AND ABOVE - 1-1/2"

MAINTENANCE MANUALS AND SUBMIT ONE COPY TO THE MECHANICAL ENGINEER.

NO ENERGY CODE REQUIRED NO NEW EQUIPMENT REUSING EXISTING EQUIPMENT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MELVIN G. GLASS, P.E. 14643 ON FEBRUARY 2	LY REGISTERED	NNG ENME 1464 02/02/20 PROFESS	GV 22 SCA 23 HOWAL
		E DEG CTURE + 1 MAGUEY CT. NLAND PARK, N 26-8739 FA	REES DESIGN, INC SUITE 2 M BBD63 X 915-533-3282
	OJECT FOR :	SENMC - LIBRARY STUDY ROOM	1500 UNIVERSITY DR. CARLSBAD, NM 88220
	APR		Southeast New Mexico College
	Sheet 7 Pl NO Phase: PROG	Title: LUMBING DTES, LEC ENERGY	GENERAL GEND AND CODE

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SHEET 1

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REQUIRED PER REQUIREMENTS OF ICC ENERGY CONSERVATION CODE 2021.

CAST IRON, NO-HUB (HUBLESS), SEE NOTE 1 & 3

NOTES



THIS MATERIAL MAY RESULT IN CIVIL AND/OR CRIMINAL PENALTIES.

CODE REQUIRED SEE NOTE 1 I-1/4" & BELOW - 1/2" THICK @ 0.27 BTUH/INCH/SQ FT/DEG F

1-1/2" TO 3" - 1" THICK @ 0.27 BTUH/INCH/SQ FT/DEG F

4" AND ABOVE - 1" THICK @ 0.27 BTUH/INCH/SQ FT/DEG F

1-1/4" & BELOW - 1" THICK @ 0.27 BTUH/INCH/SQ FT/DEG F

1-1/2" TO 3" - 1-1/2" THICK @ 0.27 BTUH/INCH/SQ FT/DEG F

4" AND ABOVE - 1-1/2" THICK @ 0.27 BTUH/INCH/SQ FT/DEG F



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					PLUMBING FIXTURE SCHEDULE			
	MINIMUM	CONNEC	TIONS (II	NCH)			FIXTURE	
SYMBOL	CW	HW	VENT	WASTE	TYPE	MANUFACTURER	OPTIONS	
WC-1	1/2		2	4	FLOOR MOUNTED TANK TYPE GRAVITY FLUSH ADA COMPLIANT WATER CLOSET	ZURN Z5550	SEAT - ZURN Z5956SS-EL, BEMIS 1655SSC, CHURCH 9500SSC, CENTOCO 1500CCSS,	
					ELONGATED CHINA BOWL, EXTRA HEAVY DUTY OPEN FRONT WHITE SEAT, BOTTOM	AMER. STD 2216.143 CADET II	BENEKE 527SS, KOHLER K4666SC	
					OUTLET, 1.28 GALLON 'PER FLUSH, FLUSH LEVER ON RIGHT WHERE REQUIRED.	KOHLER K-3427		
						CRANE 3-392		
LAV-1	1/2	1/2	1-1/2	1-1/2	WALL MOUNTED ADA COMPLIANT LAVATORY	ZURN Z5361	FAUCET - ZURN Z-82200 AQUASPEC, CHICAGO 2200	
					VITREOUS CHINA, NOMINAL 20 INCH x18 INCH , BACK AND SIDE SPLASHES, FOR	AMER. STD 0355.012 LUCERNE	CARRIER - ZURN Z-1231,	
					CONCEALED ARM CARRIER, SINGLE CENTERED FAUCET HOLE, ADA COMPLIANT SINGLE	KOHLER K-2007 KINGSTON	OR EQUAL BY WADE, JR SMITH	
					LEVER FAUCET (0.35 GPM), LESS ESCUTCHEON PLATE, LESS DRAIN, CAST BRASS	CRANE 1-412H	DRAIN - AMER. STD. 2411.015, ELJER 803-0552	
					CONSTRUCTION, WATER LESS, DRAIN OUTLET WITH GRID STRAINER		OR EQUAL BY WADE 520, JR SMITH	
S-1	1/2	1/2	1-1/2	1-1/2	ADA COMPLIANT COUNTERTOP SINGLE COMPARTMENT	ELKAY LRAD 1919	FAUCET - ZURN Z831B4-XL AQUASPEC - ELKAY LK800GN05T4 OR CHICAGO FAUCET EQUAL	
					18 GA. STAINLESS STEEL, NOMINAL 14 INCH x 16 INCH BOWL, 5 1/2 INCH DEEP, BACK	JUST SL-ADA-2019-A-GR	DRAIN - ZURN Z8746-PC - ELKAY LKAD174	
					AND SIDE FLANGES, ADA COMPLIANT WIDESET GOOSENECK FAUCET (0.35 GPM) WITH			
					HOLES 8 INCH ON CENTER, ADA COMPLIANT WRIST BLADE HANDLE, DRAIN OUTLET WITH			
					GRID STRAINER			
DW		1/2		3/4	DISH/GLASS WASHER	SEE ARCHITECTURAL	DISHWASHER TO BE SELECTED BY ARCHITECT. SUMMIT MODEL #DW242WADA	
					REFER TO ARCHITECTURAL DRAWINGS FOR FURTHER INFORMATION	DRAWINGS		
WCO				AS	WALL CLEANOUT	ZURN Z-1446-BP,	OR EQUAL BY WADE	
				SHOWN	NO-HUB CAST IRON CLEANOUT TEE WITH ROUND STAINLESS STEEL COVER AND	JR SMITH 4422-PB		
				ON DWG	CENTER SCREW, GASKETED SEAL IRON THREADED PLUG WITH RECESSED SOCKET			
NOTES:								
1.	MANUFAC	TURERS	WITH M	ODEL NUI	MBERS ARE BASE ITEMS. OTHER MANUFACTURERS LISTED ARE EQUIVALENT MANUFACTU	RERS.		
2.	FOR MOU	NTING H	EIGHTS C	of Indivie	DUAL WALL-MOUNTED FIXTURES, REFER TO ARCHITECTURAL ELEVATION DRAWINGS.			
3.	EACH UNI	DERSLA	B OR CON	NCEALED	P-TRAP SHALL BE A DEEP-SEAL TYPE.			
4.	+. PROVIDE EACH WALL MOUNTED PLUMBING FIXTURE, SUCH AS SINKS, LAVATORIES, ELECTRIC WATER COOLERS, DRINKING FOUNTAINS, ETC., WITH A FLOOR MOUNTED FIXTURE SUPPORT CARRIER WITH RECTANGULAR LEGS.							
5.	5. UNLESS SCHEDULED OTHERWISE, PROVIDE EACH LAVATORY, SINK, WATER COOLER, ETC. WITH A P-TRAP ASSEMBLY CONSISTING OF A PVC TRAP WITH CLEANOUT PLUG AND C.P. CAST BRASS							
	ESCUTCHEON WITH SETSCREW. LAVATORY OR SINKS WITH CONDENSATE DRAIN CONNECTION SHALL BE PVC PIPING WITH C.P. CAST BRASS ESCUTCHEON WITH SETSCREW.							
6.	6. PROVIDE EACH FIXTURE WHICH REQUIRES COLD AND/OR HOT WATER (EXCEPT FLUSH VALVES) WITH A SUPPLY/STOP ASSEMBLY CONSISTING OF A C.P. BRASS QUARTER TURN STOP VALVE (MIN. 1/2 INCH) WITH LOOSE KEY HANDLE AND							
	LOCK SHIELD, STAINLESS STEEL FLEXIBLE RISER, C.P. BRASS NIPPLE, AND C.P. CAST BRASS ESCUTCHEON WITH SETSCREW.							
7.	7. FOR EACH PUBLIC LAVATORY OR SINK WITH EXPOSED DRAIN AND BOTH COLD AND HOT SUPPLY COMPONENTS, PROVIDE A MANUFACTURED INSULATION KIT MADE FROM MOLDED CLOSED CELL VINYL THAT IS							
	ANTI-MICROBIAL, FORM FITTING, AND SEAMLESS. EACH KIT SHALL COVER THE TAILPIECE, P-TRAP, WALL BEND, BOTH WATER SUPPLY STOPS, AND BOTH WATER RISERS. KITS SHALL BE EQUAL OR EQUIVALENT TO PROWRAP							
	BY McGUI	RE OR L	AV-GUAF	RD BY TRU	UEBRO.			
8.	ALL ITEMS	S SHALL	BE NSF /	APPROVE	ED AND LISTED FOR THEIR USAGE WHERE REQUIRED. ALL FAUCETS, WATER COOLERS, AN	D DRINKING FOUNTAINS SHALL B	E TO NSF 61 AND LISTED WITH NSF. ALL PLUMBING	
	FIXTURES	, PIPING	FITTING	S, AND E	QUIPMENT AS REQUIRED SHALL BE LEAD FREE PER THE REDUCTION OF LEAD IN DRINKING '	WATER ACT 2014.		
9.	PROVIDE	ACCESS	DOORS	FOR ANY	CONCEALED VALVES, SHOCK ABSORBERS, AIR GAP FITTINGS AND ANY OTHER CONCEALE	D FIXTURES THAT REQUIRED MAI	INTENANCE.	
10.	WHERE A	RCHITEC	TURAL P	LANS SH	OW WATER CLOSETS AND URINALS, PROVIDE AND INSTALL FLUSHING VALVE SUCH THAT FI	LUSH HANDLE IS ON WIDE SIDE C	DF WATER CLOSET, THAT IS, THE SIDE AWAY FROM	
	THE ADJA	CENT W	ALL. ALL	WALL MO	DUNTED FIXTURES SHALL BE MOUNTED AT THE REQUIRED ADA AND TAS MOUNTING HEIGHTS	S IN ACCORDANCE WITH THE ARC	CHITECTURAL DRAWINGS.	

SUSCESSION NOT

RR RR RR

ESCUTCHEON EXCEPT

INSULATION: STOP

(ABOVE CEILINGS, ETC.) -

WHERE CONCEALED



*<u>NOTE:</u> ACCOMODATE DISHWASHER DRAIN INTO INSULATION SYSTEM TO COMPLY WITH ADA PROTECTION ON DRAIN PIPING.





1

P-200

SCALE: NONE



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	1 Fl	ECTRICAL GENERAL NOTES:	2	
			31.	SUBSTITUTED PRODUCTS
	1. 2.	THESE ELECTRICAL GENERAL NOTES ARE APPLICABLE TO ALL ELECTRICAL SHEETS IN THIS PROJECT SET.		A. MATERIAL OR EQUIPMENT S NO SUBSTITUTION IS ALLOV DATE UNLESS THE MANUFA
		PROVISIONS OF THE FOLLOWING CODES: 2020 NEW MEXICO ELECTRICAL CODE 2021 NEW MEXICO COMMERCIAL BUILDING CODE		PREAPPROVED ALTERNATIVE APPROVAL OR PRIOR APPR
		2021 NEW MEXICO PLUMBING CODE 2021 NEW MEXICO MECHANICAL CODE 2021 NEW MEXICO FUE CODE		FIT IN SPACE AVAILABLE.
		2021 NEW MEXICO FIRE CODE 2021 NEW MEXICO FUEL CODE 2018 NEW MEXICO COMMERCIAL ENERGY CONSERVATION CODE		SUBSEQUENT OR ASSOCIATI BE DESCRIBED IN WRITING, C. THE CONTRACTOR SHALL B
		AS ADOPTED AND INTERPRETED BY THE STATE OF NEW MEXICO, CITY OF SUNLAND PARK AND THE NATIONAL FIRE FIRE PROTECTION ASSOCIATION (NFPA) REGULATIONS, CURRENT ADOPTED EDITION REGARDING PLUMBING SYSTEMS, FIRE PROTECTION AND ALARM SYSTEMS AND ELECTRICAL SYSTEMS, ALL LABOR AND MATERIALS NECESSARY TO		SUBSTITUTION OF MATERIAL SHALL BE COMPLETE, THAT D. THE ENGINEER MAY REQUE
D		COMPLY WITH RULES, REGULATIONS AND ORDINANCES SHALL BE PROVIDED. WHERE THE DRAWINGS INDICATE MATERIALS OR CONSTRUCTION IN EXCESS OF CODE REQUIREMENTS, THE DRAWINGS SHALL GOVERN. THE CONTRACTOR SHALL HOLD AND SAVE THE OWNER ARCHITECT AND ENCINEER FREE AND HADVIESS FROM HADVIESS		SYSTEMS OF THE SUBSTITU E. SHOULD A SUBSTITUTION E
		OF ANY NATURE OR KIND ARISING FROM HIS FAILURE TO COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES. CODES AND ORDINANCES.		REVIEW) AND ACCEPTED, A MEETING DESIGN PARAMETE GUARANTEE PERIOD, THIS I
	3.	THE CONTRACTOR SHALL COORDINATE WITH OWNER, ARCHITECT, AND ENGINEER ANY WORK THAT HAS THE POTENTIAL TO HINDER ELECTRICAL SERVICES TO AREAS OUTSIDE OF THIS CONTRACT. ALL SHUT-DOWNS OR TIE-INS	32.	SPECIFIED AT NO ADDITION.
		RELATING TO THESE SYSTEMS SHALL BE SCHEDULED AND SUBMITTED IN WRITING TO BE APPROVED BY THE OWNER'S FACILITY MANAGEMENT, OWNER, ARCHITECT, OR ENGINEER. CONTRACTOR SHALL SUBMIT IN WRITING A SCHEDULE FOR PHASING OF CONSTRUCTION THAT INDICATES AREAS OF FIRST PRIORITY DURING FACH PHASE AND		A. THE INTENT OF THIS SECTI INFORMATION IN THE SUBS
		ANTICIPATED COMPLETION TIMES. SCHEDULES SHALL BE SUBMITTED A MINIMUM OF ONE WEEK PRIOR TO COMMENCING WORK. FACILITY MANAGEMENT, OWNER, ARCHITECT OR ENGINEER SHALL REVIEW THESE		SUBMIT SPECIFIC INFORMAT SHALL INDICATE AND/OR P
	4.	ALL MATERIALS AND LABOR NECESSARY TO COMPLY WITH CODES AND RULES, REGULATIONS AND ORDINANCES		SHEETS, AND SUCH OTHER (6) COPIES, OR AS DIRECI ITEMS MENTIONED BY MODI
		SHALL BE PROVIDED. WHERE THE DRAWINGS AND/OR SPECIFICATIONS INDICATE MATERIALS OR CONSTRUCTION IN EXCESS OF CODE REQUIREMENTS, THE DRAWINGS AND/OR SPECIFICATIONS SHALL GOVERN. THE CONTRACTOR SHALL HOLD AND SAVE THE OWNER. ARCHITECT AND ENGINEERS FREE AND HARMLESS FROM LIABILITY OF ANY		SCHEDULES ON THE DRAW C. REQUIREMENTS FOR EACH
	5	NATURE OR KIND ARISING FROM HIS FAILURE TO COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.		APPROVED ALL SU 2. HAVE ALL INFORM
	5.	CONDITIONS SUCH AS LOCATION, ACCESSIBILITY AND GENERAL CHARACTER OF THE SITE, THE CHARACTER AND EXTENT OF THE WORK WITHIN THE BUILDING AND TO BECOME FAMILIAR WITH ALL OTHER WORK TO BE PERFORMED		SHALL NOT EXTEN 3. BE CLEARLY AND
		AT THIS TIME. NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO CONTRACTOR'S FAILURE TO DETERMINE ALL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED.		SUBMITTED, BY US PIECES OF EQUIPM 4. BE CLEARLY AND
	6.	BEFORE YOU DIG ALL EXISTING UTILITIES, I.E. WATER, SEWER, GAS, FIRE LINE, ELECTRICITY, CABLE, TELEPHONE, IRRIGATION LINES, SHALL BE LOCATED AND CLEARLY MARKED IN ORDER TO AVOID UNNECESSARY SHUT DOWNS		THAT ARE ASSOCIA DIMENSIONS, SPEC
	7.	AND EMERGENCE. EACH CONTRACTOR SHALL GIVE ALL REQUISITE NOTICES AND FILLED OUT APPLICATIONS, OBTAIN AND PAY FOR ALL		5. BE COMPLETE WITH SIMILAR DATA TO I
		PERMITS, DEPOSITS AND FEES (INCLUDING UTILITY CONNECTIONS FEES, ANY UTILITY EXTENSION FEES, TAP FEES, DEVELOPMENT FEES, AND IMPACT FEES) NECESSARY FOR THE INSTALLATION OF WORK UNDER THESE NOTES. TWO (2) COPIES OF CERTIFICATES OF APPROVAL SHALL BE OBTAINED FROM ALL AUTHORITIES ISSUING SAME AND SHALL		6. BE CLEARLY AND DESIGN SPECIFICA 7. OMISSION BY CON
	•	BE TURNED OVER TO OWNER, ARCHITECT, ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE WORK.		SUBMITTAL TO AUT 8. ANY SUBMITTALS F
	0.	PROPERTY DAMAGE FOR THE DURATION OF WORK. CONTRACTOR FOR PROTECTION AGAINST POBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF WORK. CONTRACTOR SHALL SECURE AND PAY ALL PERMITS, FEES, INSPECTIONS, AND TESTS UNLESS OTHERWISE INDICATED. COORDINATE WITH ARCHITECT, ENGINEER OR OWNER.		REVIEW OF ANY K REQUIRED BY THE D. INSTALLATION INSTRUCTIONS
	9.	SUBSTITUTIONS REQUESTED BY THE CONTRACTOR SHALL BE PAID FOR BY THE CONTRACTOR.		SPECIFICATIONS SECTIONS COPIES OF MANUFACTURER THE INSTALLATION INSTRUC
		SHALL BE PERFORMED BY A LICENSED CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE SYSTEMS SHALL BE INSTALLED COMPLETE AND FULLY OPERATIVE UNLESS OTHERWISE INDICATED.		RESULT IN AUTOMATIC REJI SCHEDULED, ONLY ONE SE
	10.	. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND PROVIDE A WRITTEN REPORT TO THE ARCHITECT AND THE ENGINEERING OFFICES. THIS REPORT SHALL DESCRIBE EXISTING DAMAGE OR OTHER CONDITIONS THAT MAY		2087/32 PANELS ARE SCH SUBMITTED, SIMILARLY, IF (AND ON THE INSTRUCTIONS
C		INTERFERE WITH THIS PROPOSED NEW WORK. THIS SITE SURVEY SHALL ALSO INCLUDE VERIFICATION OF SIZES, LOCATIONS, AND CONDITIONS OF EXISTING UTILITIES. QUESTIONS REGARDING THESE DRAWINGS SHALL BE ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDING OF THE CONTRACT. OTHERWISE THE ENGINEER'S		SET OF PANEL INSTRUCTIO REQUIRED FOR THESE DEVI F. THIS ENGINEER WILL REVIE
C		INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL BE FINAL.		REQUIRED BY THE ENGINE ADDITIONAL COMPENSATION
		INFRASTRUCTURE THE CONTRACTOR ENCOUNTER AND DAMAGES THE EXISTING UNDERGROUND INFRASTRUCTURE THE CONTRACTOR SHALL REPAIR THE INFRASTRUCTURE AT NO ADDITIONAL COST TO THE OWNER. WHERE STRUCTURE IS ALTERED OR DAMAGED DURING CONSTRUCTION, INSTALLATION AND REMOVAL OF	33.	RATE. REQUIRED SHOP DRAWING SUBMIT
		EQUIPMENT OR FIXTURES, THE CONTRACTOR SHALL REPAIR THE AREA TO MATCH SURROUNDING AREA PER ARCHITECTURAL SPECIFICATIONS. CUTTING, TRENCHING, AND PENETRATIONS THROUGH FIRE WALL, CONCRETE AND OTHER STRUCTURES ARE A PART OF THIS PROJECT SCOPE AND SHALL BE INCLUDED IN THE CONTRACTOR'S BID. ALL		A. LIGHTING FIXTURES (AS NO B. MAIN DISTRIBUTION PANEL C. PANFI BOARDS INCLUDING (
		EXCAVATION AND BACKFILLING REQUIRED FOR PLUMBING WORK IS ALSO INCLUDED AS PART OF THIS CONTRACT AND SHALL BE INCLUDED IN CONTRACTOR'S BID.		D. RECEPTACLES AND COVER E. DISCONNECTS INCLUDING F
	12.	. ALL SYSTEMS AND COMPONENTS SHALL BE APPROVED FOR THE PURPOSE FOR WHICH INSTALLED. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND FROM ESTABLISHED AMERICAN SUPPLIERS UNLESS OTHERWISE INDICATED.		F. GROUNDING G. WIRING H. CONDUIT
	13.	. ALL EQUIPMENT PARAMETERS SHOWN ARE FOR PERFORMANCE AT SITE ALTITUDE. SUPPLIERS SHALL SELECT AND DEMONSTRATE THAT THEIR EQUIPMENT MEETS THE DESIGN CONDITIONS AT SITE ALTITUDE.		I. FIRE ALARM SYSTEM J. ACCESS CONTROL AND SEC K. DATA CABLING, TELEPHONE
	14.	ELECTRICAL CONTRACTOR SHALL COORDINATE WITH MECHANICAL/ PLUMBING CONTRACTOR THE MECHANICAL/		L. JUNCTION BOXES AND ENC
		MONITORING, OF EACH DEVICE PROVIDED AND/OR INSTALLED BY MECHANICAL/PLUMBING CONTRACTOR.	ELECT 34.	ALL EXPOSED CONDUIT SHALL BE
	15.	. SUPPORT SYSTEM FOR EQUIPMENT SUPPORTED BY THE BUILDING STRUCTURE SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER VIA ARCHITECT FOR APPROVAL PRIOR TO PURCHASE AND INSTALLATION. NO WIRE OR PERFORATED STRAP WILL BE PERMITTED FOR ANY HANGER OR SUPPORT.	35.	PROVIDE BLANK METAL COVERPLA ADJACENT SURFACES.
	16.	THE CONTRACTOR SHALL NOT SCALE THE CONTRACT DOCUMENTS. THE CONTRACT DOCUMENTS ARE DIAGRAMMATIC	36.	RECEPTACLE AND DATA OUTLET M CONTRACTOR SHALL BE RESPONSI
	17.	IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOOK THROUGH ALL DRAWINGS ASSOCIATED WITH THIS		THIS REQUIREMENT ALSO APPLIES DEVICE THAT HAS TO BE RELOCAT COUNTERTOPS, CHALKBOARDS, TAK
		PROJECT. WORK ASSOCIATED WITH THE ELECTRICAL CONTRACTOR'S TRADE MAY BE SHOWN ON OTHER DRAWINGS. ANY ADDITIONAL COSTS RESULTING FROM THE FAILURE TO INCLUDE THESE ITEMS SHOWN ON OTHER DRAWINGS WILL BE INCURRED BY THE CONTRACTOR. SHOULD THE CONTRACTOR ENCOUNTER ANY DISCREPANCIES OR	37.	ALL RECEPTACLES TO BE 20A SP RECEPTACLES (IG) WILL BE ORAN
	19	INCONSISTENCIES IN THE CONSTRUCTION DOCUMENTS, THE MORE STRINGENT SHALL GOVERN.	70	GFCI AND SHALL HAVE WHILE IN
	10.	TO ASSEMBLE AND TO START-UP COMPLETE AND FULLY OPERATIONAL SYSTEMS.	38.	OUTLET LOCATIONS AT MILLWORK,
	19.	. POSITIONING OF NEW LAY-IN FIXTURES TAKES PRECEDENCE OVER ARCHITECTURAL REFLECTED CEILING PLAN AND MECHANICAL DIFFUSERS PRIOR TO INSTALLATION OF FIXTURES. CONTRACTOR SHALL COORDINATE ACTUAL LOCATIONS OF LIGHTS WITH AIR DEVICES AND DUCTWORK, CEILING PANELS, JOIST SPACING AND ARCHITECTURAL	39.	WIRING SHALL BE THWN COPPER UNLESS NOTED OTHERWISE.
	20	REFLECTED CEILING PLAN (REF. MECHANICAL PLANS AND ARCHITECTURAL PLANS).	40.	INSTALL WALL MOUNTED LIGHT FIX COORDINATION WITH ARCHITECTUR
	20.	INFORMATION, WARRANTIES, CONTACT INFORMATION DURING WARRANTY PERIOD AND BALANCING REPORTS IN 3-RING BINDERS AND CD VERSION.	41.	FIRESTOPPING OF PENETRATIONS CONTRACTOR. ELECTRICAL CONTRA
	21.	. FOR OUTDOOR EQUIPMENT ON GRADE AND INDOOR FLOOR MOUNTED EQUIPMENT, THE CONTRACTOR SHALL CONSTRUCT LEVEL 3000 PSI CONCRETE(28 DAY COMPRESSIVE STRENGTH) SLABS WITH FINISHED EDGES, WIRE		NEATLY AND WITH A CUTTING TOO NECESSARY, AND THE CONTRACTO CONTRACTOR BEFORE SUCH PENE
В		REINFORCED MINIMUM 6X6 W1.4/1.4 OR HEAVIER PER ASTM A185, MINIMUM 3 1/2" THICK, AND MINIMUM 6" LARGER ON ALL SIDES THAN THE EQUIPMENT BEING SUPPORTED. THE PAD SHALL BE HAVE 2 COATS OF EPOXY SEALANT TO	42.	REFER TO SPECIFICATIONS FOR A
	22.	CONTRACTOR SHALL MAKE NO PENETRATIONS WHATSOEVER OF WALLS FORMING PART OF A STAIRWELL, AN EXIT	43.	W/ PULLCORD FROM COMMUNICAT
	23	PASSAGEWAY, OR OTHER TWO-HOUR RATED WALLS. ALL CONDUITS SHALL RUN PARALLEL TO WALLS.	44.	FIXTURES.
		TO INSTALL NEW UNDERGROUND RACEWAY. REFER TO ARCHITECTURAL SPECIFICATIONS REGARDING PATCHING REQUIREMENTS.		PRESENT, BOTTOM OF BOX SHALL ON DRAWINGS.
	24.	. CONTRACTOR SHALL PROVIDE AND INSTALL IDENTIFICATION TAGS FOR EQUIPMENT AND CONDUITS PER ASME 13.1 SCHEME OF IDENTIFICATION FOR PIPING. BURIED ELECTRICAL CONDUITS SHALL BE MARKED PER CODE	45.	DOUBLE SET SCREW FITTINGS ARE
		REQUIREMENTS WITH UNDERGROUND WARNING TAPE 3" BELOW FINISHED GRADE. TAPE SHALL BE 4" WIDE COLORED RED WITH SUITABLE WARNING LEGEND PER ASME A13.1 SCHEME OF IDENTIFICATION FOR PIPING.	46.	BEFORE INSTALLATION, EQUIPMENT CONNECTIONS, DUCTWORK, INSULA GRADE OR ON A SLAB OR FLOOR
	25.	. CONTRACTOR SHALL TAKE PRECAUTIONS PER THE ARCHITECT'S INSTRUCTIONS TO PROTECT EXISTING TREES AND /OR OTHER SITE VEGETATION.		PROTECTED FROM ENTRY OF DIRT
	26	. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ALTERNATES AND ALLOWANCES FOR THIS PROJECT.	4/.	RECOMMENDATIONS AND/OR PER
	27.	. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND HAVE INSTALLED ANY ACCESS DOOR REQUIRED TO ACCESS NEW AND EXISTING ELECTRICAL EQUIPMENT THAT REQUIRES ACCESS BEHIND GYPBOARD OR HARD CEILINGS AND	48.	SWITCHBOARDS, PANEL BOARDS A APPROVED BY THE ENGINEER.
		IN WALLS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE GENERAL CONTRACTOR WITH THESE ACCESS DOORS FOR INSTALLATION IN THE CEILING OR WALL. ACCESS DOORS SHALL BE RATED FOR THE WALL, FLOOR, OR CEILING TYPE AND SHALL BE A MINIMUM SIZE OF 12"V12" [OR SIZED DEP SECCEDATIONS]	49.	USE THE FOLLOWING WIRING COLO A. FOR WIRE SIZES 10 AWG
	28.	CEILING THE AND SHALL BE A MINIMUM SIZE OF 12 X12 .J [OR SIZED PER SPECIFICATIONS.]		1. BLACK AND RED F 2. BLACK, RED, AND 3. ORANGE, BROWN,
		DURING THE COURSE OF THE JOB, THE ENGINEER WILL MAKE SITE AND INSPECTION VISITS TO OBSERVE WORK IN PROGRESS AND WILL SUBSEQUENTLY PREPARE A WRITTEN SITE VISIT REPORT, WHICH WILL BE SENT TO THE CONTRACTOR AND TO WHOMEVER ELSE THE ENGINEER DESIRES. THE CONTRACTOR SHALL PROVIDE 48 HOUR		B. FOR WIRE SIZES 8 AWG AN SPLICES AND BOXES. COLO
		WRITTEN NOTICE TO THE ENGINEER FOR ALL TESTING AND CITY INSPECTION SO THEY CAN ATTEND THESE INSPECTIONS. THE CONTRACTOR SHALL PREPARE A WRITTEN AND TYPED RESPONSE WITHIN SEVEN (7) CALENDAR		2. BLACK, RED, AND 3. BROWN, ORANGE,
		THIS FINAL PUNCHLIST VISIT UPON THE REQUEST OF THE ENGINEER, THE GENERAL CONTRACTOR SHALL INCLUDE IN HIS RESPONSE THE FOLLOWING INFORMATION.		C. NEUTRAL CONDUCTORS: WH D. BRANCH CIRCUIT CONDUCT UNIQUELY COLOR CODED.
		1 DATE OF SITE VISIT BY THE ENGINEER, 2 DATE OF RECEIPT OF THE SITE VISIT REPORT, 3 NAME AND TITLE OF THE PREPARER OF THE RESPONSE.		E. FEEDER CIRCUIT CONDUCTO F. GROUND CONDUCTORS:
		4 AN ITEM NUMBER REFERENCED TO THE SITE REPORT, 5 A BRIEF THREE OR FOUR WORD DESCRIPTION OF THE ITEM, 6 THE CONTRACTOR OF SUPERAVERSE AND A SUPERAVERSE		2. FOR 4 AWG AND 2 POINTS INCLUDING
		THE CUNTRACTOR OF SUBCONTRACTOR AFFECTED, THE PROPOSED COURSE OF ACTION, AND AN EXPECTED TIME OF COMPLETION OF THE ACTION.	50.	EACH 120 VOLT BRANCH CIRCUIT CIRCUIT BREAKER HANDLF TIFS M
	29.	AT THE COMPLETION OF THE LOR THE ENGINEED WILL MAKE BUILDING SITE VISITS TO OBSERVE CONDUCTOR	51.	PROVIDE ARC-FLASH LABELING OI
		WORK AND WILL SUBSEQUENTLY PREPARE A WRITTEN SITE VISIT PUNCHLIST SITE VISITS TO OBSERVE COMPLETED WORK AND WILL SUBSEQUENTLY PREPARE A WRITTEN SITE VISIT PUNCHLIST REPORT, WHICH WILL BE SENT TO THE CONTRACTOR AND TO WHOMEVER ELSE THE ENGINEER DESIRES. THE CONTRACTOR, UPON COMPLETION OF THE	52.	ALL STEP-DOWN TRANSFORMERS
A		LISTED PUNCHLIST ITEMS, SHALL PREPARE A TYPEWRITTEN RESPONSE TO THE LIST INDICATING COMPLETION OF EACH ITEM. THE CONTRACTOR SHALL INCLUDE IN HIS RESPONSE THE RESOLUTION OF EACH ITEM. THE CONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING THIS FINAL PUNCHLIST VISIT LIPON THE REQUEST OF THE	53.	PROVIDE AN UN-SWITCHED PHASE
			54.	MC CABLE MAY BE USED FOR BR
	30.	. ALL ELECTRICAL CONDULT AND PANEL OPENINGS SHALL BE CAPPED DURING DEMOLITION AND CONSTRUCTION.		

- SPECIFIED BY MANUFACTURER'S NAME IS BEING USED AS A BASIS OF STANDARD. OWABLE WITHOUT ENGINEER'S WRITTEN APPROVAL TEN (10) DAYS PRIOR TO BID DUE ACTURER IS LISTED ON THE DRAWINGS OR IN THE SPECIFICATION AS BEING A MANUFACTURER. ANY SUBMITTAL RECEIVED WITHOUT SUCH WRITTEN ROVAL IS SUBJECT TO UNQUALIFIED REJECTION. ACTOR'S RESPONSIBILITY TO VERIFY THAT SUBMITTED SUBSTITUTE EQUIPMENT WILL THE CONTRACTOR'S SUBMITTAL FOR ACCEPTANCE OF THE SUBSTITUTE SHALL TEMENT OF WHETHER OR NOT SUCH ACCEPTANCE WOULD REQUIRE ANY
- TED CHANGES TO THE DRAWINGS OR SPECIFICATIONS. ANY SUCH CHANGES SHALL BRIEFLY BUT COMPLETE. BE RESPONSIBLE FOR THE COSTS OF ANY SUCH MODIFICATIONS DUE TO ALS OR EQUIPMENT FOR THAT WHICH WAS SPECIFIED OR SCHEDULED. THE COST IS, IT SHALL INCLUDE THE COST EFFECT OF ANY AND ALL OTHER TRADES. EST DETAILED SHOP DRAWING OR PLAN LAYOUTS OF MECHANICAL ROOMS OR UTED EQUIPMENT.
- BE APPROVED BY THE ENGINEER (BASED UPON THE SUBSTITUTION SUBMITTAL AND SHOULD THE SUBSTITUTE MATERIAL OR EQUIPMENT PROVE DEFECTIVE, NOT TERS, OR OTHERWISE UNSATISFACTORY FOR THE SERVICE INTENDED WITHIN THE MATERIAL OR EQUIPMENT SHALL BE REPLACED WITH THE MATERIAL OR EQUIPMENT NAL COST TO THE OWNER.
- CTION IS TO GIVE GENERAL SUBMITTAL INFORMATION, REFER TO SPECIFIC SUBMITTAL SEQUENT ELECTRICAL SECTIONS. WARD OF THE CONTRACT, AND BEFORE ORDERS ARE PLACED, CONTRACTOR SHALL ATION ON LIST OF EQUIPMENT AND PRINCIPAL MATERIALS SPECIFIED. CONTRACTOR PROVIDE NAMES OF MANUFACTURERS, CATALOG AND MODEL NUMBERS, CUT SUPPLEMENTARY INFORMATION AS NECESSARY FOR EVALUATION. MINIMUM OF SIX TED BY THE ENGINEER, OF EACH SHALL BE SUBMITTED AND SHALL INCLUDE ALL DEL NUMBER AND/OR MANUFACTURER'S NAME IN THE SPECIFICATIONS OR IN INGS.
- SUBMITTAL: TAMP OR SPECIFIC WRITTEN INDICATION THAT THE CONTRACTOR HAS REVIEWED AND SUBMITTAL PRIOR TO SUBMISSION TO ENGINEER, MATION DELETED BY CONTRACTOR THAT PERTAINS TO THE MEANS AND METHODS OF TO FABRICATION, ASSEMBLY, INSTALLATION, OR ERECTION (APPROVAL BY ENGINEER ND TO THESE AREAS UNLESS SPECIFICALLY NOTED BY ENGINEER), SPECIFICALLY MARKED AS TO WHICH SPECIFIC PIECE OF EQUIPMENT IS BEING SE OF A PERMANENT MARKER, STAMP, ETC., SO AS TO DISTINGUISH IT FROM OTHER PMENT THAT MAY OCCUR ON THE SAME PAGE. SPECIFICALLY MARKED AS TO WHICH AVAILABLE OPTIONS ARE BEING SUBMITTED ATED WITH A PIECE OF EQUIPMENT, AND BE COMPLETE WITH RESPECT TO QUANTITIES, CIFIC PERFORMANCE, MATERIALS, AND SIMILAR DATA TO ENABLE THE ENGINEER TO POSED EQUIPMENT.
- IT RESPECT TO QUANTITIES, DIMENSIONS, SPECIFIC PERFORMANCE, MATERIALS, AND D ENABLE THE ENGINEER TO REVIEW THE PROPOSED EQUIPMENT SPECIFICALLY MARKED AS TO ANY AND ALL SUBMITTAL DEVIATIONS FROM THE TION REQUIREMENTS SHALL BE PROVIDED IN WRITTEN FORM. NTRACTOR OF ANY OF THE ABOVE REQUIREMENTS OR SUBMITTALS WILL SUBJECT JTOMATIC REJECTION WITHOUT REVIEW.
- RECEIVED BY ENGINEER THAT WERE NOT REQUESTED SHALL BE RETURNED WITHOUT KIND. SUBMITTALS SHALL INDICATE MINIMUM ACCESS AND SERVICE CLEARANCES IF SUBMITTED EQUIPMENT. IS - FOR CERTAIN PRODUCTS OR SYSTEMS AS IDENTIFIED IN SUBSEQUENT
- S OR ON THE DRAWINGS, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ER'S INSTALLATION INSTRUCTIONS WITH THE SUBMITTAL. WHEN REQUIRED AS SUCH, CTIONS ARE CONSIDERED PART OF THE SUBMITTAL AND THEIR OMISSION MAY JECTION OF THE SUBMITTAL. WHERE MORE THAN ONE IDENTICAL DEVICE ARE ET OF INSTALLATION INSTRUCTIONS NEEDS TO BE SUBMITTED, E.G. IF SEVEN 200A CHEDULED, ONLY ONE 200A 208V/3P PANELS INSTALLATION INSTRUCTION NEEDS TO BE ONE SET OF INSTALLATION INSTRUCTIONS IS IDENTIFIED BY THE MANUFACTURER INS TO BE APPLICABLE TO MORE THAN ONE TYPE OR SIZE OF DEVICES, E.G. IF ONE NONS IS GOOD FOR 100A, 150, 200A, PANELS, THEN ONLY ONE INSTRUCTION SET IS
- VIEW THE SUBMITTALS FOR APPROVAL TWICE. ANY ADDITIONAL REVIEWS THAT ARE VIEW FOR WHATEVER REASON AFTER THE INITIAL TWO REVIEWS WILL RESULT IN FOR THE ENGINEER'S TIME BY THE SUBMITTING CONTRACTOR AT THE ENGINEER'S
- VITTALS: NOTED IN LIGHTING FIXTURE SCHEDULE) INCLUDING CIRCUIT BREAKERS CIRCUIT BREAKERS R PLATES FUSES OR MAGNETIC STARTERS
- ECURITY SYSTEM COMPONENTS NE WIRING, AUDIO-VISUAL CABLING ICLOSURES
- PAINTED TO MATCH ADJACENT SURFACES.
- ATES OVER ALL UNUSED OUTLET BOXES. PAINT COVERPLATE TO MATCH
- MOUNTING HEIGHTS INDICATED ON THE DRAWINGS ARE APPROXIMATE. THE NSIBLE FOR COORDINATING WITH OTHER TRADES FOR EXACT HEIGHT REQUIRED. TO SWITCHES, TELEPHONE OUTLETS, DATA OUTLETS, HVAC SENSORS, ETC.. ANY ATED DUE TO CONTRACTOR'S FAILURE TO COORDINATE LOCATION WITH ACKBOARDS, ETC. WILL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
- PECIFICATION GRADE, IVORY. WALL PLATES TO MATCH. ISOLATED GROUND DUPLEX NGE BODY AND FACE PLATE. EXTERIOR RECEPTACLES SHALL BE WEATHERPROOF USE METAL WEATHERPROOF COVERS.
- HER TRADES GIVING SPECIAL CONSIDERATION TO WORK DONE ABOVE CEILINGS, AND SWITCH LOCATIONS IN REGARDS TO DOOR SWINGS. R WITH MINIMUM SIZE OF #12, IN MINIMUM 3/4" (EMT) CONDUIT WITH CU. EGC.,
- IXTURES, SWITCHES, OUTLETS, AND COMMUNICATION DEVICES IN STRICT RAL DETAILS, SECTIONS AND ELEVATIONS, AND ADA REQUIREMENTS.
- IN FIRE-RATED WALLS, FLOORS, ETC, SHALL BE DONE BY A FIRESTOPPING RACTOR SHALL MAKE REQUIRED PENETRATIONS IN RATED WALL, FLOORS, ETC. OOL, THE CONTRACTOR SHALL MAKE THE PENETRATIONS NO LARGER THAN OR SHALL COORDINATE ALL SUCH PENETRATIONS WITH THE FIRESTOPPING NETRATIONS ARE MADE.
- ALL COMMUNICATION SYSTEM REQUIREMENTS. (IN LIEU OF SPECS: PROVIDE 3/4" C. CATION OUTLETS TO 6" ABOVE LAY-IN CEILING.)
- STRUCTURE ABOVE CEILING TILES OR PLASTER. CEILING SHALL NOT SUPPORT
- OUTLETS AND OTHER DEVICES ARE TO CENTER OF BOX. WHERE MILLWORK IS BE MINIMUM OF 2" ABOVE BACK-SPLASH, REGARDLESS OF DIMENSION SHOWN ACCEPTABLE FOR STEEL CONDUIT AND COUPLINGS ONLY.
- AND DEVICES INCLUDING, BUT NOT LIMITED TO, ANY DEVICE WITH ELECTRICAL LATION, PIPING, VALVES, AIR DEVICES, ETC., SHALL NOT BE STORED DIRECTLY ON BEFORE AND AFTER INSTALLATION, SUCH EQUIPMENT AND DEVICES SHALL BE , TRASH, WATER (EXCEPT AS REQUIRED), VERMIN, ETC.
- OPERATE WITH VIBRATION OR NOISE SHALL BE ISOLATED PER MANUFACTURER'S SPECIFICATIONS.
- AND TRANSFORMERS SHALL BE CUTLER-HAMMER, SQUARE-D, OR SIMILAR
- LOR CODE: AND SMALLER, INSTALL WIRE COLORS IN ACCORDANCE WITH THE FOLLOWING: FOR SINGLE PHASE CIRCUITS AT120/240 VOLTS. BLUE FOR CIRCUITS AT 120/208 VOLTS SINGLE OR THREE PHASE. AND YELLOW FOR CIRCUITS AT 277/480 VOLTS SINGLE OR THREE PHASE. AND LARGER, IDENTIFY WIRE WITH COLORED TAPE AT TERMINALS,
- LORS ARE AS FOLLOWS: FOR SINGLE PHASE CIRCUITS AT 120/240 VOLTS. BLUE FOR CIRCUITS AT 120/208 VOLTS SINGLE OR THREE PHASE. AND YELLOW FOR CIRCUITS AT 277/480 VOLTS SINGLE OR THREE PHASE.
- WHITE FOR 208/120V CIRCUITS. GREY FOR 480/277V CIRCUITS. TORS: INSTALL THREE OR FOUR WIRE HOMERUNS WITH EACH PHASE TORS: UNIQUELY COLOR CODE EACH PHASE.
-) SMALLER: GREEN. D LARGER: IDENTIFY WITH GREEN TAPE AT BOTH ENDS AND VISIBLE
- JUNCTION BOXES. SHALL BE PROVIDED WITH A SEPARATE NEUTRAL, ONE FOR EACH PHASE WIRE.
- MAY BE USED INSTEAD OF SEPARATE NEUTRALS. COMPLY WITH ALL CODES. ON ALL ELECTRICAL PANELS, BOTH NEW AND EXISTING. ALL LABELING SHALL BE 70E, OR BY CALCULATIONS.
- 5 SHALL COMPLY WITH THE U.S. DOE 2016 LEGISLATION FOR ENERGY EFFICIENCY. WIRE FROM THE LINE SIDE OF THE ROOM'S LIGHT SWITCH TO THE EMERGENCY
- BRANCH CIRCUITS WHERE ALLOWED BY CODE.

- 55. THE FIRE ALARM SYSTEMS SHOWN ON THESE PLANS ARE FOR COORDINATION AND BIDDING ONLY. THE INFORMATION SHOWN DOES NOT NECESSARILY REPRESENT THE REQUIRED FINAL ALARM SYSTEM LAYOUT REQUIREMENTS. THE FINAL ALARM SYSTEM LAYOUT IS TO BE SUBMITTED FOR PERMIT PURPOSES, AT A LATER DATE BY LICENSED ALARM SYSTEM INSTALLER. THE ALARM SYSTEM LAYOUT SHOWN IS TO BE VERIFIED WITH THE LICENSED INSTALLER PRIOR TO INSTALLATION OF CONDUIT AND DEVICE BOXES. THE FINAL LOCATION OF ALL DETECTORS (EXISTING AND NEW), AUDIO AND VISUAL ALARMS, AND ANY OTHER ALARM EQUIPMENT IS THE RESPONSIBILITY OF THE LICENSED ALARM SYSTEM INSTALLER. EQUIPMENT SPECIFICATION - TYPE, SIZE, RATING, AND ANY OTHER REQUIRED INFORMATION FOR THE REVIEW OF THE ALARM PLANS FOR PERMIT PURPOSES, IS TO BE SUPPLIED BY THE LICENSED ALARM INSTALLER ON THE FINAL ALARM SYSTEMS PLANS.
- 56. WHEN A FIRE SPRINKLER SYSTEM IS INSTALLED THE ASSOCIATED BACKFLOW PREVENTER HOT BOX SHALL HAVE A 20A 120V/1P POWER SUPPLY PROVIDED TO THE HOT BOX FOR CONNECTION THE HEATER. 57. ALL EXTERIOR AND SITE LIGHTING SHALL BE PHOTOCELL AND ASTRONOMICAL TIMER CONTROLLED UNLESS OTHERWISE SPECIFIED.

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US	UNSWITCH LEG	THE WAS			
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0	SURFACE CEILING FIXTURE. TYPE AS INDICATED IN FIXTURE SCHEDULE				
Ŷ	BRACKET LIGHT FIXTURE. TYPE AS INDICATED IN FIXTURE SCHEDULE.				
0	ROUND RECESSED DOWNLIGHT TYPE AS INDICATED IN FIXTURE SCHEDULE.				
	LAY-IN TX4 FIXTURE. TYPE AS INDICATED IN FIXTURE SCHEDULE.				
	LAY-IN 2X2 FIXTURE. TYPE AS INDICATED IN FIXTURE SCHEDULE.				
Ø	CEILING MOUNTED EXIT FIXTURE WITH DIRECTIONAL INDICATOR. TYPE AS INDICATED IN FIXTURE SCHEDULE.		NIN	E DEG	GREES Design, Inc
\bigotimes	SELF-CONTAINED TWO-HEAD EMERGENCY BATTERY PACK. TYPE AS INDICATED IN FIXTURE SCHEDULE.		10 SU CELL 915-5	1 MAGUEY CT NLAND PARK, 26-8739 F	r. Suite 2 NM 88063 AX 915-533-3282
<u> </u>	PACK FIXTURE. TYPE AS INDICATED IN FIXTURE SCHEDULE.				: 0
	INDICATED IN FIXTURE SCHEDULE.			20	DR 22(
	CONNECTED TO EMERGENCY POWER SOURCE, OR HAS INTEGRAL BATTERY PACK 1100 LUMEN MIN.			ŏ	288
<⊡∘	LIGHT POLE AND NUMBER OF LUMINARES SHOWN. TYPE AS INDICATED IN FIXTURE SCHEDULE			K	-ISS MM
\$	SINGLE POLE WALL SWITCH. FLUSH MOUNTED UP 44" UNLESS OTHERWISE INDICATED				Ū,
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\$4	FOUR WAY WALL SWITCH. FLUSH MOUNTED UP 44" UNLESS OTHERWISE INDICATED			ST	SLS LS
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¢	CAMERA		5	Ŕ	7 0
	JUNCTION BOX.			2	
₽	RECEPTACLE OR AS INDICATED. GROUND QUADRUPLEX OUTLET. UP 18" TO CENTER OF			Δ	
⊕ ⊄	RECEPTACLE OR AS INDICATED. SPECIAL PURPOSE RECEPTACLE AT 18" A.F.F. TO				
Ā	CENTER OF DEVICE OR AS INDICATED. FLOOR MOUNTED DUPLEX CONVENIENCE OUTLET.				
	COMBINATION VOICE/DATA OUTLET FLUSH IN WALL, ONE		Ш	M	
	OR AS INDICATED. TELEPHONE SYSTEM OUTLET UP 18" TO CENTER OF) E N	
⊳	DATA OUTLET FLUSH IN WALL, ONE DEVICE COVER, UP		O	U	
₽	(CATV) COAXIAL CABLE OUTLET FLUSH IN WALL, ONE DEVICE COVER, UP 18" TO CENTER OF RECEPTACLE				
₽	OR AS INDICATED. SPECIAL USB OUTLET FLUSH IN WALL, 4 11/16" SQUARE BOX, 2–1/8" DEEP, ONE DEVICE COVER, UP 18" TO CENTER OF RECEPTACLE OR AS			ار	ollege
0	INDICATED. F.A. COMBO WITH AUTOMATIC SMOKE DETECTOR AND CARBON MONOXIDE SENSOR. ZONE NUMBER AS INDICATED				áco C
÷	4'X8'X3/4" FIRE RETARDANT AC PLYWOOD TELEPHONE BACKBOARD WITH #6 GROUND.			∠ ∠	
	SPECIAL CABINET AS NOTED.				New
	PANELBOARD. SEE PANEL SCHEDULE SAFETY SWITCH PROVIDED AND INSTALLED LINDER DIV				ast
4	16. TO HAVE POLES AND RATING REQUIRED. TO BE MOUNTED IN NEMA 3R IF INSTALLED OUTDOORS.				uthe
-EUG-	ELECTRICAL UNDERGROUND CIRCUIT, 2'-0" MINIMUM BELOW GRADE.				So
–ЕОН–	ELECTRICAL OVERHEAD SERVICE. BRANCH CIRCUIT IN WALLS OR CEILING.				1
<u>x-x</u> + }	HOME RUN TO PANEL WITH BRANCH CIRCUIT NUMBERS INDICATED. TIC MARKS REPRESENT NEUTRAL, HOT, SWITCH LEG, AND GROUND CONDUCTORS				DATE
	RESPECTIVELY. CONDUITS WITH NO TIC MARKS SHALL BE: "A HOT AND NEUTRAL", "A HOT AND SWITCH LEG", "A NEUTRAL AND SWITCH LEG", OR "HOT,				
	NEUTRAL, AND GROUND OR ISOLATED GROUND", AS APPLICABLE.		Sheet 7	litle:	
INUIL: SUME	JIMDULJ JEUWIN MAI NUI DE USEU UN IHIS PRUJECI.			ENERAL AND LE	NOTES GEND
			Phase:		
				TESS SET	

Project No:

Sheet No:

SHEET 1

Date:

EMC ENGINEERS

2211 E. MISSOURI AVE. SUITE 312 EL PASO, TEXAS, 79903

PH: 915-781-2030 FAX: 915-781-2055 EMAIL: SUPPORT@EMCELPASO.COM

EMC PROJECT #2306009

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	LIGHTING SCHEDULE									
GENER	GENERAL LIGHTING									
SYMBOL	MANUFACTURER NAME AND NUMBER	LAMPS	VOLTAGE	MOUNTING	DESCRIPTION					
A	ALL	30W LED	MVOLT	SURFACE	4' RECESSED LINEAR					
	3C - 04 - MD - 35 - UNV - WH	4000 LUMEN		MOUNTED						
AE	ALL	30W LED	MVOLT	SURFACE	4' RECESSED LINEAR					
	3C - 04 - MD - 35 - UNV - WH - EM	4000 LUMEN		MOUNTED	WITH BATTERY BACKUP					
В	ALL	75W LED	MVOLT	RECESSED	4' LINEAR DIRECT/INDIRECT, DIMMABLE					
	3R - 04 - HD - 30 - UNV - T1 - WH	9600 LUMEN		IN GRID						
R	EXISTING LIGHT BEING RELOCATED	N/A	EXISTING	SUSPENDED	4' RECESSED LINEAR					
EM	BY OWNER	5W LED	MVOLT	UNIVERSAL	5W LED LED EMERGENCY LIGHT					
					WITH BATTERY BACKUP					
X1	BY OWNER	5W LED	MVOLT	CEILING	5W LED LED EXIT/EMERG LIGHT COMBO					
				MOUNTED	LIGHT WITH BATTERY BACKUP					

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PROJECT MANUAL

SOUTHEAST NEW MEXICO COLLEGE – LIBRARY FAMILY STUDY ROOM SOUTHEAST NEW MEXICO COLLEGE

NINE DEGREES ARCHITECTURE + DESIGN, INC.

CONSTRUCTION DOCUMENTS February 8, 2024

SENMC – LIBRARY FAMILY STUDY ROOM

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

Section 00 00 01 – Title Page (Cover) Section 00 01 03 – Table of Contents Section 00 01 04 – Index to Drawings Section 00 01 05 – Names and Addresses

BID DOCUMENTS & INSTRUCTIONS TO BIDDERS BY SENMC

Asbestos Report

TECHNICAL SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

Section 01 10 00 – Summary Section 01 25 00 - Substitution Procedures Section 01 26 00 - Contract Modification Procedures Section 01 26 20 – Weather Delays Section 01 29 00 – Payment Procedures Section 01 29 73 – Schedule of Values Section 01 31 00 - Project Management and Coordination Section 01 31 19 – Project Meetings Section 01 31 19.13 – Preconstruction Meetings Section 01 32 00 - Construction Progress Documentation Section 01 32 16 – Construction Progress Schedule Section 01 32 33 – Photographic Documentation Section 01 33 00 - Submittal Procedures Section 01 33 23 - Shop Drawings Section 01 40 00 – Quality Requirements Section 01 41 00 – Regulatory Requirements Section 01 42 00 – References Section 01 45 00 – Quality Control Section 01 45 23 – Testing and Inspections Section 01 50 00 – Temporary Facilities and Controls Section 01 60 00 – Product Requirements Section 01 65 00 – Product Delivery Requirements Section 01 66 00 – Product Storage and Handling Section 01 73 00 – Execution Section 01 73 29 - Cutting and Patching Section 01 74 13 - Cleaning Section 01 77 00 – Closeout Procedures Section 01 78 23 - Operation and Maintenance Data Section 01 78 30 - Warranties and Bonds Section 01 78 39 – Project Record Documents Section 01 78 40 - Spare Parts Overages and Maintenance Materials Section 01 79 00 – Demonstration and Training

SENMC – LIBRARY FAMILY STUDY ROOM

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ARCHITECTURAL

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ARCHITECTURAL

A101 – OVERALL FLOOR PLAN A111 – FURNITURE & FLOOR FINISH PLAN A401 – ENLARGED FLOOR PLANS & INTERIOR ELEVATIONS A402 – ENLARGED FLOOR PLANS & INTERIOR ELEVATIONS A601 – SCHEDULES A700 - RENDERS

MECHANICAL

M000 – OVERALL FLOOR PLAN M100 – MECHANICAL FLOOR PLAN

PLUMBING

P000 – PLUMBING GENERAL NOTE, LEGEND AND ENERGY CODE P100 – PLUMBING FLOOR PLAN P200 – PLUMBING SCHEDULES AND SCHEMATICS

ELECTRICAL

E000 – GENERAL NOTES AND LEGEND E100 – ELECTRICAL FLOOR PLAN E200 – ELECTRICAL SCHEDULES AND SCHEMATICS

END OF DRAWING INDEX

SENMC – LIBRARY FAMILY STUDY ROOM

NAMES AND ADDRESSES

PROJECT NAME/ADDRESS:

SOUTHEAST NEW MEXICO COLLEGE LIBRARY STUDY ROOM 1500 UNIVERSITY DR. CARLSBAD, NM 88220

OWNER'S REPRESENTATIVE: DR. KEVIN BEARDMORE, PRESIDENT

ARCHITECT:

NINE DEGREES ARCHITECTURE + DESIGN, INC. 111 MAGUEY CT. SUITE 2 SUNLAND PARK, NEW MEXICO 88063 P. 915-533-8482 F. 915-533-3282

PRINCIPAL ARCHITECT: CESAR MOLINA, AIA ASSOCIATE | PROJECT MANAGER: MICHAEL BLUTH, AAIA

MECHANICAL AND ELECTRICAL ENGINEER:

EMC ENGINEERS 2111 E. MISSOURI AVE. STE 312 EL PASO, TX 79903

CONTACT: MELVIN GLASS, PE | 915.781.2030 EXT. 200

Limited Asbestos Survey at New Mexico State University Carlsbad Campus Carlsbad, New Mexico

Prepared for: New Mexico State University Facilities & Services Office Las Cruces, New Mexico 88003

Prepared by:

Nicolas Rodriguez, Asbestos Inspector TDSHS #60-0932, Expires 01/20/2016

Date of Inspection April 29, 2015

May 11, 2015

New Mexico State University Attn: Ms. Heidi M. Frohnapfel, AIA, LEED, AP P.O. Box 30001, MSC 3545 Las Cruces, New Mexico 88003

RE: Limited Asbestos Survey New Mexico State University (Ceilings and Plenum areas) Carlsbad Campus (Main Building) Carlsbad, New Mexico

Dear Ms. Frohnapfel:

On April 29, 2015, AnE Consulting, Inc., conducted a limited asbestos inspection on the interior building materials associated with the above-referenced facility. The inspection report is attached.

We appreciate the opportunity to be of service to you. Please contact us with questions or comments, or if we may be of further assistance.

Sincerely,

AnE Consulting, Inc. Asbestos Consulting Agency TDSHS License #10-0441, Expires 02/01/2017

NU

Nicolas Rodriguéz Asbestos Inspector TDSHS License #60-0932, Expires 01/20/2016

Enclosures: Asbestos inspection Report. Figures 1- 2 Laboratory reports with chain of custody documentation Licenses

> AnE Consulting, Inc. • 912 Texas, Suite C • El Paso, Texas • 79901 +1 915 532-3788Voice • +1 915 532-3789 Fax • aneconsulting@att.net

Purpose

Ms. Frohnapfel, of New Mexico State University, requested that AnE Consulting, Inc. (AnE) conduct a limited inspection for asbestos-containing materials (ACMs) associated with the occupied structure at the Carlsbad Campus. This inspection is intended for the identification and locations of Asbestos Containing Materials and may be utilized for future renovation and demolition projects.

Subject Property Overview

It was unknown when the structure was built. It is a two story structure with interior building materials consisting of walls and ceilings, Plaster and drywall materials, fire proofing, duct mastic, fiber glass pipe insulation and wall paper were all tested.

Inspection

Field activities were conducted on April 29, 2015, by Mr. Nicolas Rodriguez, with AnE Consulting Inc., Mr. Rodriguez is licensed by the Texas Department of State Health Services (TDSHS) as an Asbestos Building Inspector (license number 60-0932).

The inspection was performed in general accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) issued by the U.S. Environmental Protection Agency (40 CFR 61, Subpart M – National Emission Standard for Asbestos), the Asbestos Hazard Emergency Response Act (AHERA, 40 CFR 763), and the Asbestos School Hazard Abatement Reauthorization Act of 1990 (ASHARA, 40 CFR 763, Appendix C to Subpart E). These regulations generally require that, prior to any construction, renovation, or demolition, the area(s) where the work is to be performed shall be inspected by a properly trained and licensed or certified individual for the presence of ACMs that potentially may be disturbed during the work.

AnE employed a sampling strategy which involved identifying homogeneous materials throughout the proposed areas of work, and collecting bulk samples of the suspect materials for laboratory analysis for asbestos content. The term "homogeneous," as defined by in AHERA, means any material having the same color and texture, and having been installed in the same general time period. AnE collected samples on homogeneous areas that were not previously sampled in past inspections.

The two (2) floors contained fifteen (15) homogeneous areas that were identified; and a total of seventy seven (77) bulk samples were collected. The identified homogeneous materials are summarized in Table 1 that follows.

Table 1 – Summary of Homogenous Materials

Suspect ACM	Location(s)
Ceiling White Plaster Sample #'s NMSUC -01, 02,03,72	First and second floors
2'X4' Ceiling Tile Sample #'s NMSUC- 04,07,08,11,21,26,35,40,41,43,46,52,68,76	First and second floors
2'X4' Ceiling Tile Textured Sample #'s NMSUC- 05,20	Second Floor
Fire Proofing Sample #'s NMSUC- 06,09,10,32,39,45,47,49,54,69,75,77	First and second floors
Gray Dry Wall Sample #'s NMSUC-12	Second floor
Black Dry Wall Sample #'s NMSUC-13	Second floor
2'X2' Ceiling Tile Sample #'s NMSUC- 14,19,24,27,28,34,36,38,50,55,56,57,60,71,73,74	First and second floors
Beige plaster Sample #'s NMSUC-15, 16, 17	Second floor
Spray on Ceiling Sample #'s NMSUC-18	Second floor
Duct Mastic Sample #'s NMSUC-22,33,51,63	First and second floors
Fiberglass Pipe Insulation Sample #'s NMSUC-23,61	First and second floors
Wall Paper Sample #'s NMSUC-25	Second floor
Unfinished Drywall Sample #'s NMSUC-29,30,31,42,48,53,62,70	First and second floors
2'X2' Ceiling Tile Texture Sample #'s NMSUC-37	Second floor

Sample #'s NMSUC-44,58,59,64,65,66,67 First floor	Ceiling Drywall	
	Sample #'s NMSUC-44,58,59,64,65,66,67	First floor

The homogeneous materials were then assessed in terms of friability, condition, and quantity. The term "friable" means a material that when dry can be reduced to a powder using hand pressure (25 TAC § 295.32 (45)). Prior to sampling, each suspect asbestos material was properly wetted, and then each bulk sample was carefully extracted and placed in its own self-sealing container. Each container was wiped, sealed, and labeled with a unique sample number. Appropriate chain of custody paperwork was completed listing each sample collected.

Laboratory Analysis

All samples were shipped under standard chain of custody protocols to Micro Analytical Services, Inc. (MAS) located in Houston Texas. This facility is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos analysis, and licensed by the TDSHS as an asbestos laboratory (license number 30-0341).

The bulk samples were analyzed by Polarized Light Microscopy (PLM) coupled with Dispersion Staining in accordance with EPA Method 600/M4-82-020. Additional analysis by 400 Point Count methods was performed on a subset of samples. The laboratory report with chain of custody documentation is attached to this report.

An ACM is defined as any material or product that contains greater than one percent (1%) asbestos (25 TAC § 295.32 (15). Based on the laboratory data, none of the fifteen (15) identified homogenous materials were found to contain asbestos greater than one percent by PLM.

Summary of Findings

The following is a summary of findings based on the field activities conducted and laboratory analyses performed.

No Asbestos-containing (ACM) materials were identified.

Recommendations

Based on the findings, AnE recommends the following:

- No further action is required.
- If during the renovation or demolition project other suspect materials are encountered, the work must be stopped and the suspect material(s) should be tested for asbestos content.

Qualifications and Limitations

The discussions, findings, and recommendations contained herein are based upon data collected on the day of our investigation, the laboratory analysis of the samples collected, and typical practices accepted by the asbestos consulting profession. The scope of our work was limited to the subject areas and services stated in this report. Those building materials not inspected shall be assumed to contain asbestos unless laboratory analysis indicates otherwise.

FIGURE 2

NVLAP Lab No. 200618-0

TDSHS License No. 30-0341

PLM BULK ASBESTOS ANALYSIS REPORT

CLIENT: AnE Consulting, Inc.

MAS JOB NO.: 11645-00

PROJECT: NMSU Carlsbad Campus Main Bldg. First and Second Floor REPORT DATE: May 4, 2015

IDENTIFICATION: Asbestos, Bulk Sample Analysis, Quantitation by Visual Area Estimation

TEST METHOD: Polarized Light Microscopy with Dispersion Staining EPA Test Method 600/M4-82-020; (40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116

STATEMENT OF LABORATORY ACCREDITATION

These samples were analyzed at Micro Analytical Services, Inc. in the Asbestos Laboratory at 11301 Richmond Ave. Suite K100B, Houston, Texas, 77082. The Laboratory holds accreditation from the National Institute of Standards and Technology under the National Voluntary Laboratory Accreditation Program (NVLAP). This laboratory is also licensed and authorized to perform as an Asbestos Laboratory in the State of Texas within the purview of Texas Civil Statutes, Article 4477-3a, as amended, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.

The samples were analyzed in general accordance with the procedures outlined in the Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/M4-82-020(40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116 or the U.S. Environmental Protection Agency method, under AHERA, for the analysis of asbestos in building materials by polarized light microscopy. The results of each bulk sample relate only to the material tested and the results shall not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

Specific questions concerning bulk sample results shall be directed to the Asbestos Bulk Laboratory at Micro Analytical Services, Inc.

Analyst: Tony T. Dang

Approved Signatory:

to war

Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902

MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

	Project	t Name: NMSU Carlsbad Campus	s Main Bldg.	First and Second	Floor
Field ID/	Layer #	Sample Description	Asbestos	Asbestos	Non-Asbestos
Lab ID			Detected?	Constituents	Constituents
			(Yes/No)	(%)	(%)
NMSUC-01	1	White non-fibrous plaster	No		10% Perlite
MAS341580					60% Aggregate
					30% Other
NMSUC-02	1	White non-fibrous plaster	No		10% Perlite
MAS341581					60% Aggregate
					30% Other
NMSUC-03	1	White non-fibrous plaster	No		10% Perlite
MAS341582					60% Aggregate
					30% Other
NMSUC-04	1	Beige fibrous ceiling tile with	No		20% fibrous Glass
MAS341583		white paint			40% Cellulose
					20% Perlite
					20% Other
NMSUC-05	1	Beige fibrous ceiling tile with	No		20% fibrous Glass
MAS341584		white paint			40% Cellulose
					20% Perlite
					20% Other
NMSUC-06	1	Beige fibrous fire proofing	No		20% Cellulose
MAS341585					20% Mica
					60% Other
NMSUC-07	1	Beige fibrous ceiling tile with	No		40% fibrous Glass
MAS341586		white paint			30% Cellulose
					20% Perlite
					10% Other
NMSUC-08	1	Beige fibrous ceiling tile with	No		40% fibrous Glass
MAS341587		white paint			30% Cellulose
					20% Perlite
				<u>_</u>	10% Other

Samples have been analyzed by the EPA Interim Method 600/M4-82-020(40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116. The test results herein relate only to the sample submitted and analyzed. This report may only be reproduced in full with the approval of the Bulk Asbestos Laboratory of Micro Analytical Services (MAS). The above percentages are visual estimates of area percent. MAS is not responsible for any errors resulting from improper or incorrect sampling or shipping procedures. These samples will be retained for a period of 30 days. Accreditation by NVLAP in no way constitutes or implies product certification, approval, or endorsement by NIST. Some materials, especially floor tiles, contain asbestos fibers too thin to be detected by this method. NVLAP Lab Code: 2000618 TDSHS License: 30-0341

Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang Page 1 of 11

Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902 MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

	Project	t Name: NMSU Carlsbad Campus	s Main Bldg.	First and Second	Floor
Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected? (Yes/No)	Asbestos Constituents (%)	Non-Asbestos Constituents (%)
NMSUC-09 MAS341588	1	Beige fibrous fire proofing	No		20% Cellulose 20% Mica 60% Other
NMSUC-10 MAS341589	1	Beige fibrous fire proofing	No		20% Cellulose 20% Mica 60% Other
NMSUC-11 MAS341590	1	Beige fibrous ceiling tile with white paint	No		20% fibrous Glass 30% Cellulose 30% Perlite 20% Other
NMSUC-12 MAS341591	1	White non-fibrous texture with grey paint	No		100% Other
NMSUC-12 MAS341591	2	White fibrous gypsum with brown paper	No		40% Cellulose 60% Gypsum
NMSUC-13 MAS341592	1	White non-fibrous texture with black paint	No		100% Other
NMSUC-13 MAS341592	2	White fibrous gypsum with brown paper	No		40% Cellulose 60% Gypsum
NMSUC-14 MAS341593	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other
NMSUC-15 MAS341594	1	White non-fibrous joint compound with beige paint	No		100% Other
NMSUC-16 MAS341595	1	White non-fibrous joint compound with beige paint	No		100% Other
NMSUC-17 MAS341596	1	White non-fibrous joint compound with beige paint	No		100% Other

Samples have been analyzed by the EPA Interim Method 600/M4-82-020(40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116. The test results herein relate only to the sample submitted and analyzed. This report may only be reproduced in full with the approval of the Bulk Asbestos Laboratory of Micro Analytical Services (MAS). The above percentages are visual estimates of area percent. MAS is not responsible for any errors resulting from improper or incorrect sampling or shipping procedures. These samples will be retained for a period of 30 days. Accreditation by NVLAP in no way constitutes or implies product certification, approval, or endorsement by NIST. Some materials, especially floor tiles, contain asbestos fibers too thin to be detected by this method. NVLAP Lab Code: 2000618 TDSHS License: 30-0341

Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang Page 2 of 11

Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902

MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

	<u>Project</u>	t Name: NMSU Carlsbad Campus	s Main Bldg.	First and Second	Floor
Field ID/	Layer #	Sample Description	Asbestos	Asbestos	Non-Asbestos
Lab ID			Detected?	Constituents	Constituents
			(Yes/No)	(%)	(%)
NMSUC-18	1	Beige fibrous fire proofing	No		20% Cellulose
MAS341597					20% Mica
					60% Other
NMSUC-19	1	Beige fibrous ceiling tile with	No		20% fibrous Glass
MAS341598		white paint			50% Cellulose
					10% Perlite
					20% Other
NMSUC-20	1	Beige fibrous ceiling tile with	No		20% fibrous Glass
MAS341599		white paint			50% Cellulose
					10% Perlite
				<u> </u>	20% Other
NMSUC-21	1	Beige fibrous ceiling tile with	No		20% fibrous Glass
MAS341600		white paint			30% Cellulose
					30% Perlite
					20% Other
NMSUC-22	1	Beige non-fibrous mastic	No		100% Mastic
MAS341601			·		
NMSUC-22	2	Brown fibrous paper with	No		10% fibrous Glass
MAS341601		foil backing			45% Cellulose
		· · · · · · · · · · · · · · · · · · ·			45% Foil
NMSUC-23	1	Beige fibrous paper with	No		10% fibrous Glass
MAS341602		foil backing			45% Cellulose
					45% Foil
NMSUC-23	2	Yellow fibrous glass insulation	n No		100% fibrous Glass
MAS341602					
NMSUC-24	1	Beige fibrous ceiling tile with	No		10% fibrous Glass
MAS341603		white paint			40% Cellulose
					30% Perlite
					20% Other

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Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang Page 3 of 11

Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902

MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

	Project	t Name: NMSU Carlsbad Campus	Main Bldg.	First and Second	Floor
Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected? (Yes/No)	Asbestos Constituents (%)	Non-Asbestos Constituents (%)
NMSUC-25 MAS341604	1	White non-fibrous texture with beige/maroon paint	No		100% Other
NMSUC-25 MAS341604	2	White non-fibrous joint compound with beige paper	No	¥	70% Cellulose 30% Other
NMSUC-25 MAS341604	3	White fibrous gypsum with brown paper	No		70% Cellulose 30% Gypsum
NMSUC-26 MAS341605	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other
NMSUC-27 MAS341606	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other
NMSUC-28 MAS341607	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other
NMSUC-29 MAS341608	1	White non-fibrous texture with beige paint	No		100% Other
NMSUC-29 MAS341608	2	White fibrous gypsum with brown paper	No		60% Cellulose 40% Gypsum
NMSUC-30 MAS341609	1	White non-fibrous texture with beige paint	No		100% Other
NMSUC-30 MAS341609	2	White fibrous gypsum with brown paper	No	<u> </u>	60% Cellulose 40% Gypsum
NMSUC-31 MAS341610	1	White non-fibrous texture with white paint	No		100% Other
~ · · ·					

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Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang Page 4 of 11

Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902

MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected?	Asbestos Constituents	Non-Asbestos Constituents
NMSUC-31 MAS341610	2	White non-fibrous joint compound with beige paper	No	(%)	70% Cellulose 30% Other
NMSUC-32 MAS341611	1	Beige fibrous fire proofing	No		20% Cellulose 20% Mica 60% Other
NMSUC-33 MAS341612	1	Beige non-fibrous mastic	No		100% Mastic
NMSUC-33 MAS341612	2	Brown fibrous paper with foil backing	No		10% fibrous Glass 45% Cellulose 45% Foil
NMSUC-34 MAS341613	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other
NMSUC-35 MAS341614	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other
NMSUC-36 MAS341615	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other
NMSUC-37 MAS341616	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other

Samples have been analyzed by the EPA Interim Method 600/M4-82-020(40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116. The test results herein relate only to the sample submitted and analyzed. This report may only be reproduced in full with the approval of the Bulk Asbestos Laboratory of Micro Analytical Services (MAS). The above percentages are visual estimates of area percent. MAS is not responsible for any errors resulting from improper or incorrect sampling or shipping procedures. These samples will be retained for a period of 30 days. Accreditation by NVLAP in no way constitutes or implies product certification, approval, or endorsement by NIST. Some materials, especially floor tiles, contain asbestos fibers too thin to be detected by this method. NVLAP Lab Code: 2000618 TDSHS License: 30-0341

Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang Page 5 of 11

Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902 MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

Project Name: NMSU Carlsbad Campus Main Bldg. First and Second Floor								
Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected? (Yes/No)	Asbestos Constituents (%)	Non-Asbestos Constituents (%)			
NMSUC-38 MAS341617	1	Beige fibrous ceiling tile with white paint	n No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other			
NMSUC-39 MAS341618	1	Beige fibrous fire proofing	No		20% Cellulose 20% Mica 60% Other			
NMSUC-40 MAS341619	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other			
NMSUC-41 MAS341620	1	Tan fibrous ceiling tile with white paint	No		10% fibrous Glass 50% Cellulose 20% Perlite 20% Other			
NMSUC-42 MAS341621	1	White fibrous gypsum with brown paper	No		60% Cellulose 40% Gypsum			
NMSUC-43 MAS341622	1	Tan fibrous ceiling tile with white paint	No		10% fibrous Glass 50% Cellulose 20% Perlite 20% Other			
NMSUC-44 MAS341623	1	White non-fibrous texture with beige paint	No		100% Other			
NMSUC-44 MAS341623	2	White non-fibrous joint compound with beige paper	No		70% Cellulose 30% Other			
NMSUC-44 MAS341623	3	White fibrous gypsum with brown paper	No		70% Cellulose 30% Gypsum			

Samples have been analyzed by the EPA Interim Method 600/M4-82-020(40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116. The test results herein relate only to the sample submitted and analyzed. This report may only be reproduced in full with the approval of the Bulk Asbestos Laboratory of Micro Analytical Services (MAS). The above percentages are visual estimates of area percent. MAS is not responsible for any errors resulting from improper or incorrect sampling or shipping procedures. These samples will be retained for a period of 30 days. Accreditation by NVLAP in no way constitutes or implies product certification, approval, or endorsement by NIST. Some materials, especially floor tiles, contain asbestos fibers too thin to be detected by this method. NVLAP Lab Code: 2000618 TDSHS License: 30-0341

Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang Page 6 of 11


Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902 MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

Field ID/	Laver #	Sample Description	A +1+	A .T 4	
	Layer #	Sample Description	Asbestos	Asbestos	Non-Asbestos
Lab ID			Detected?	Constituents	Constituents
			(Yes/No)	(%)	(%)
NMSUC-45	1	Beige fibrous fire proofing	No		20% Cellulose
MAS341624					20% Mica
					60% Other
NMSUC-46	1	Beige fibrous ceiling tile with	i No		60% fibrous Glass
MAS341625		white paint			10% Cellulose
					10% Perlite
					20% Other
NMSUC-47	1	Beige fibrous fire proofing	No		20% Cellulose
MAS341626					20% Mica
					60% Other
NMSUC-48	1	White fibrous gypsum with	No		70% Cellulose
MAS341627		brown paper			30% Gypsum
NMSUC-49	1	Beige fibrous fire proofing	No		20% Cellulose
MAS341628					20% Mica
_					60% Other
NMSUC-50	1	Beige fibrous ceiling tile with	No		60% fibrous Glass
MAS341629		white paint			10% Cellulose
					10% Perlite
					20% Other
NMSUC-51	1	Beige non-fibrous mastic	No		100% Mastic
MAS341630					
NMSUC-51	2	Brown fibrous paper with	No		50% Cellulose
MAS341630		foil backing			50% Foil
NMSUC-52	1	Beige fibrous ceiling tile with	No		10% fibrous Glass
MAS341631		white paint			40% Cellulose
		-			30% Perlite
					20% Other

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Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang Page 7 of 11



Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902 MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

	Project Name: NMSU Carlsbad Campus Main Bldg. First and Second Floor					
Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected? (Yes/No)	Asbestos Constituents (%)	Non-Asbestos Constituents (%)	
NMSUC-53 MAS341632	1	White fibrous gypsum with brown paper	No		60% Cellulose 40% Gypsum	
NMSUC-54 MAS341633	1	Beige fibrous fire proofing	No		20% Cellulose 20% Mica 60% Other	
NMSUC-55 MAS341634	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other	
NMSUC-56 MAS341635	1	Beige fibrous ceiling tile with white paint	No		20% fibrous Glass 30% Cellulose 10% Perlite 20% Other	
NMSUC-57 MAS341636	1	Beige fibrous ceiling tile with white paint	No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other	
NMSUC-58 MAS341637	1	White non-fibrous texture with beige paint	No		100% Other	
NMSUC-58 MAS341637	2	White non-fibrous joint compound with beige paper	No		70% Cellulose 30% Other	
NMSUC-58 MAS341637	3	White fibrous gypsum with brown paper	No		70% Cellulose 30% Gypsum	
NMSUC-59 MAS341638	1	White non-fibrous texture with beige paint	No		100% Other	
NMSUC-59 MAS341638	2	White non-fibrous joint compound with beige paper	No		70% Cellulose 30% Other	

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Analyzed by: Tony Dang

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Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902 MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

	Project Name: NMSU Carlsbad Campus Main Bldg. First and Second Floor					
Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected? (Yes/No)	Asbestos Constituents (%)	Non-Asbestos Constituents (%)	
NMSUC-59 MAS341638	3	White fibrous gypsum with brown paper	No		70% Cellulose 30% Gypsum	
NMSUC-60 MAS341639	1	Beige fibrous ceiling tile with white paint	No		60% fibrous Glass 10% Cellulose 10% Perlite 20% Other	
NMSUC-61 MAS341640	1	White fibrous paper with foil backing	No		10% fibrous Glass 45% Cellulose 45% Foil	
NMSUC-61 MAS341640	2	Yellow fibrous glass insulatio	n No		100% fibrous Glass	
NMSUC-62 MAS341641	1	White fibrous gypsum with brown paper	No		70% Cellulose 30% Gypsum	
NMSUC-63 MAS341642	1	Beige non-fibrous mastic	No		100% Mastic	
NMSUC-63 MAS341642	2	Brown fibrous paper with foil backing	No		10% fibrous Glass 45% Cellulose 45% Foil	
NMSUC-63 MAS341642	3	Yellow fibrous glass insulation	n No		100% fibrous Glass	
NMSUC-64 MAS341643	1	White non-fibrous texture with light pink paint	No		100% Other	
NMSUC-64 MAS341643	2	White non-fibrous joint compound with beige paper	No		70% Cellulose 30% Other	
NMSUC-64 MAS341643	3	White fibrous gypsum with brown paper	No		70% Cellulose 30% Gypsum	
NMSUC-65 MAS341644	1	White non-fibrous texture with white paint	No		100% Other	

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Analyzed by: Tony Dang

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Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902 MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

	Project Name: NMSU Carlsbad Campus Main Bldg. First and Second Floor					
Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected? (Yes/No)	Asbestos Constituents (%)	Non-Asbestos Constituents (%)	
NMSUC-65 MAS341644	2	White non-fibrous joint compound with beige paper	No		70% Cellulose 30% Other	
NMSUC-65 MAS341644	3	White fibrous gypsum with brown paper	No		70% Cellulose 30% Gypsum	
NMSUC-66 MAS341645	1	White non-fibrous texture with beige paint	No		100% Other	
NMSUC-66 MAS341645	2	White fibrous gypsum with brown paper	No		60% Cellulose 40% Gypsum	
NMSUC-67 MAS341646	1	White non-fibrous texture with beige paint	No		100% Other	
NMSUC-67 MAS341646	2	White fibrous gypsum with brown paper	No		60% Cellulose 40% Gypsum	
NMSUC-68 MAS341647	1	Beige fibrous ceiling tile with white paint	ı No		10% fibrous Glass 40% Cellulose 30% Perlite 20% Other	
NMSUC-69 MAS341648	1	Beige fibrous fire proofing	No		20% Cellulose 20% Mica 60% Other	
NMSUC-70 MAS341649	1	White fibrous gypsum with brown paper	No		60% Cellulose 40% Gypsum	
NMSUC-71 MAS341650	1	Beige fibrous ceiling tile with white paint	No		20% fibrous Glass 40% Cellulose 20% Perlite 20% Other	
NMSUC-72 MAS341651	1	White non-fibrous plaster with white paint	No		70% Aggregate 30% Other	

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Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang Page 10 of 11



Polarized Light Microscopy Analysis

AnE Consulting, Inc. 912 Texas Ave. Ste. C El Paso, Texas 79902 MAS Project #: 11645-00 Date Received: 05/01/2015 Date Analyzed: 05/04/2015

	Project	t Name: NMSU Carlsbad Campus	s Main Bldg.	First and Second	Floor
Field ID/	Layer #	Sample Description	Asbestos	Asbestos	Non-Asbestos
Lab ID			Detected?	Constituents	Constituents
			(Yes/No)	(%)	(%)
NMSUC-73	1	Beige fibrous ceiling tile with	n No		20% fibrous Glass
MAS341652		white paint			30% Cellulose
					30% Perlite
					20% Other
NMSUC-74	1	Beige fibrous ceiling tile with	n No		20% fibrous Glass
MAS341653		white paint			30% Cellulose
					30% Perlite
					20% Other
NMSUC-75	1	Beige fibrous fire proofing	No		20% Cellulose
MAS341654					20% Mica
					60% Other
NMSUC-76	1	Beige fibrous ceiling tile with	No		30% fibrous Glass
MAS341655		white paint			30% Cellulose
					20% Perlite
					20% Other
NMSUC-77	1	Beige fibrous fire proofing	No		20% Cellulose
MAS341656					20% Mica
					60% Other

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Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang Page 11 of 11



Asbestos Bulk Sample Chain of Custody

Company: AnE Consulting, Inc.	Contact:	Project Name: 111 K(1)
Address: 912 Texas Ave. Ste.C	Bill to: Nick Rodriguez	Mars Bulding Fact and Engl Et ag
		Project #:
City: El Paso	Email: aner onsulting at mat	
State/Zip: Texas 79902		PO #:
Phone: (915)532-3788		
Fax: (915)532-3789	Date Collected: 14/29/15	MAS Project #: 11/045

Turn around time (circle): Emergency 1-day 2-day 3-day 4-day 5-day

Field ID	Lab ID	Sample Description	Sample Location	Comments
NUKUC-01	3415817	Certing Plaster White		
UHISUC-02		Certific Plaster white		
UNSUR-03		Certis Plaster White	· · · · · · · · · · · · · · · · · · ·	
NMAK-04		2×4' Certine tile and Fort		
UNSIC-05		2'x4' Cerlife tile Textured		
NMSUC-06		fin proting		
UNSUC07		2'XY Carlos tile.		
UMSUC-08		2'X4' Callos File	· · · · · · · · · · · · · · · · · · ·	
UNSUC-09		Fine proting		
UMSUC-10		Fire proofing.		
NUSUC-11		2'X4' Cerlual File		
UMSUC-12		Grave Drywall		
NMSUC-13		Black Down !!		
NUSUC-14		2'x2' Certian tile		
NMSUC-15		Beige Plaster		
NMSUC-16		BRUC Plaster		
NMSUC-17		Beise Plaster		
NMSUC-18	V	Sorry on Certise		
NMSUC-19	341598	2×2" Cerbox tile		
Relinquished by:	M	Date: 4-30-15	Time:	
Received by:	Ale	Date: 5/1/19	Time: /0100/	1

Received by:	_Date:////	Time: /0:00 Am
Relinquished by:	_Date:	_Time:
Received by:	_Date:	_Time:



Asbestos Bulk Sample Chain of Custody

Company: AnE Consulting, Inc.	Contact:	Project Name: ill Ku A hl s land
Address: 912 Texas Ave. Ste.C	Bill to: Nick Rodriguez	Man Blde Fire Ford Grand Flags
		Project #:
City: El Paso	Email: one Cooxythank? A get	
State/Zip: Texas 79902		PO #:
Phone: (915)532-3788		
Fax: (915)532-3789	Date Collected:	MAS Project #: //// 45

Turn around time (circle): Emergency (1-day) 2-day 3-day 4-day 5-day

Field ID	Lab ID	Sample Description	Sample Location	Comments
UNKUG-20	341599	Certions file Taxtiand		
UNKIR-21	1	2'x4' Carling file		
MMSUC-22		Duct Mastic		
MUSUC-23		Fiber stors Pipe losulation		
NMGUC-24		2'x2' Certina tile		
NUKUR-25		Drewall's Astall aper		
NMSUR-26		2'XY' Cubas file		
NMSUC-27		2×2' Carling tile		
MMSUR-28		Certiso File		
NMSUC-29		Untraished Drymull		
NMSIN-30		Desuedall		
NUSUC-31		Dywall		
NUSUC-32		Fire proting.		
NMSUC-33		Dut Mastre		
MASUC-34		2'x2' Pediag tile		
NIUSUC-35		2×4 Culing tile		
NMSUC-36		Ix2 Certing file		
NUSUC-37		2×2 Certion tile textured		
NNSIC - 38	34/017	2×2 Certing the		
Relinquished by:	M	Date: 4-30-15	Time:	
Received by:	Alto	Date: 5/1/15		Name and Annual Annu
Relinquished by:	<i>V</i> •	Date:	Time:	
Received by:	•	Date:	Time:	

R



Asbestos Bulk Sample Chain of Custody

Company: AnE Consulting, Inc.	Contact:	Project Name: ////
Address: 912 Texas Ave. Ste.C	Bill to: Nick Rodriguez	Mars Renderes host and Sand Floor
		Project #:
City: El Paso	Email: and consulting of at or	4
State/Zip: Texas 79902		PO #:
Phone: (915)532-3788		
Fax: (915)532-3789	Date Collected: 4/29/15	MAS Project #: 11/045

Turn around time (circle): Emergency 1-day 2-day 3-day 4-day 5-day

Field ID	Lab ID	Sample Description	Sample Location	Comments
NUSUC-39	341/018	Fice Partina		
WILSUR- 411		2'XY' Parlias tile		
NUSUC-41		2'X4' Certras hile	·····	
UMSUC- 42		Unhaushed Dunall	<i>2</i>	
NINSUC-43		1×4' Certra tile		
MUSIC-44		Daum Mechan		
MUSIC-45		file prontice		
NIMSUR. 46		2'x4' Cubas file		
NUSUC-47		Fire Progene		
NUASUR-48		Unharshed Dissall		
NUKUC-49		ha Prochas		
MKSc-50		2×2' Gesting file		
MMSUC-51		Duct Nostic		
NUISUC-57		2×4' Culture tile		
AINSUC-53		Uptinished Daymall		
MASIC-54		tre Protes		
MUSUK-55		2×2 Certia File		
Mysur-56		2'x2 being file		
MASIC-37	34/1036	2x2 Certing tile		
Relinquished by:	M	Date: 4-30-15	Time	
R	JUL			
Received by:	the first	Date: <u>5/1//5</u>	Time:/0.'00.4m	<u> </u>
Relinquished by:	/ ·	Date:	Time:	

Received by:______Time:______



Asbestos Bulk Sample Chain of Custody

Company: AnE Consulting, Inc.	Contact:	Project Name: Migu A. 1.1.1
Address: 912 Texas Ave. Ste.C	Bill to: Nick Rodriguez	Man Rite East 3 led Elars
		Project #:
City: El Paso	Email: no consulting and at at	
State/Zip: Texas 79902		PO #-
Phone: (915)532-3788		
Fax: (915)532-3789	Date Collected: 4/21/15	MAS Project #: 11/04

Turn around time (circle): Emergency (1-day) 2-day 3-day 4-day 5-day

Field ID	Lab ID	Sample Description	Sample Location	Commente
UNSUR-58	241/037	Certura Degrand		Comments
ULLKUC - 59		Certico Dormant		
WMSUC - 60		2'x t' Certan tila		
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Asbestos Bulk Sample Chain of Custody

Company: AnE Consulting, Inc.	Contact:	Project Name: # # (a) (1) / (
Address: 912 Texas Ave. Ste.C	Bill to: Nick Rodriguez	Man Rola 13+ 2 2nd Flore
		Project #:
City: El Paso	Email: ane consultine Pat ant	
State/Zip: Texas 79902		PO #-
Phone: (915)532-3788		
Fax: (915)532-3789	Date Collected: 4/29/15	MAS Project #: //645

Turn around time (circle): Emergency 2-day 2-day 3-day 4-day 5-day

Field ID	Lab ID	Sample Description	Sample Location	Comments
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TEXAS DEPARTMENT OF STATE HEALTH SERVICES

ANE CONSULTING INC

is certified to perform as a

Asbestos Consultant Agency

in the State of Texas within the purview of Texas Occupations Code, chapter 1954, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.

Find They MD

COMMISSIONER OF HEALTH DAVID LAKEY, M.D.

License Number: 100441

Control Number: 96762

Expiration Date: 2/1/2017

(Void After Expiration Date)

NON-TRANSFERABLE VOID IF ALTERED



TEXAS DEPARTMENT OF STATE HEALTH SERVICES

MICRO ANALYTICAL SERVICES INC

is certified to perform as a

Asbestos Laboratory PCM, PLM

in the State of Texas within the purview of Texas Occupations Code, chapter 1954, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.

mid Like MO

DAVID LAKEY, M.D. COMMISSIONER OF HEALTH

License Number: 300341

39

Control Number: 95930

Expiration Date: 1/25/2016

(Void After Expiration Date)

t

VOID IF ALTERED

NON-TRANSFERABLE

1.5



Texas Department of State Health Services

Asbestos Inspector

NICOLAS RODRIGUEZ License No. 600932 Control No. 97903 Expiration Date: 1/20/2016



SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Work covered by the Contract Documents.
 - 2. Type of the Contract.
 - 3. Work phases.
 - 4. Work under other contracts.
 - 5. Products ordered in advance.
 - 6. Owner-furnished products.
 - 7. Use of premises.
 - 8. Owner's occupancy requirements.
 - 9. Work restrictions.
 - 10. Specification formats and conventions.
- B. Related Sections include the following:
 - 1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: SOUTHEAST NEW MEXICO COLLEGE LIBRARY STUDY ROOM

- 1. Project Location: 1500 UNIVERSITY DR., CARLSBAD, NM 88220
- B. Owner: Southeast New Mexico College
 - 1. Owner's Representative: Dr. Kevin Beardmore, President
- C. Architect: Nine Degrees Architecture + Design
- D. Contractor: <to be determined> has been engaged as Contractor for this Project.

*THIS LIST IS NOT ALL INCLUSIVE – REFER TO THE DRAWINGS FOR FULL DETAILS OF WORK

E. *THIS LIST IS NOT ALL INCLUSIVE - REFER TO THE DRAWINGS FOR FULL DETAILS OF WORK

CONSTRUCTION WORK FOR (1) ONE TENANT IMPROVEMENT

NEW APPROX. 400 SF LIBRARY FAMILY STUDY ROOM

INTERIOR WORK INCLUDES -

-NEW LIGHT FIXTURES

-NEW PLUMBING FIXTURES

-NEW FLOORING

-NEW WALL TILE/PAINT

-NEW ALUMINUM STOREFRONT WITH DOOR

-NEW CEILING

-NEW METAL LETTERS

400 SF TENANT IMPROVEMENT TO INCLUDE

RESTROOMS, AND ALL SPACES AS INDICATED ON THE DRAWINGS.

THE REST OF THE SPACES ARE EXISTING TO REMAIN

ALL ASSOCIATED PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS FOR A FULLY FUNCTIONING FAMILY ROOM (400 SF)

1.4 TYPE OF CONTRACT

A. Project will be constructed under a single prime contract.

1.5 WORK PHASES

A. The Work can be conducted in **multiple** phases upon award of the successful bidder if site conditions require. Project Phasing shall be coordinated with Southeast New Mexico College based on current COVID-19 situation and protocols in place, and material lead times. The plan of action regarding the project work shall be coordinated between the successful bidder, The city of Las Cruces and the Architect at the Pre-construction meeting, that will be scheduled shortly after award.

1.6 PRODUCTS ORDERED IN ADVANCE

A. General: Owner can negotiate Purchase Orders with suppliers of material and equipment to be incorporated into the Work if needed and preferred in attempts to expedite the project work. Owner

will assign these Purchase Orders to Contractor. Costs for receiving, handling, storage if required, and installation of material and equipment are to be included in the Contract Sum.

1. Contractor's responsibilities are same as if Contractor had negotiated Purchase Orders, including responsibility to renegotiate purchase and to execute final Purchase-Order agreements.

1.7 USE OF PREMISES

- A. General: **Each** Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.
- B. Use of Site: Limit use of premises to **work in areas** indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Confine construction operations to areas described by contract documents.
 - 2. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.8 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed during normal business working hours of **7:00** a.m. to **5:00** p.m., Monday through Friday, except otherwise indicated.
 - 1. Weekend Hours: As required and approved by Southeast New Mexico College
 - 2. Early Morning Hours: As required and approved by Southeast New Mexico College

1.9 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 50division format and CSI/CSC's "MasterFormat" numbering system.
 - 1. Section Identification: The Specifications use Section numbers and titles to help crossreferencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
 - 2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

- 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
- 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

END OF SECTION 011000

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use [CSI Form 13.1A].
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section.

Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
- e. Samples, where applicable or requested.
- f. Certificates and qualification data, where applicable or requested.
- g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
- h. Research reports evidencing compliance with building code in effect for Project, from [ICC-ES].
- i. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
- j. Cost information, including a proposal of change, if any, in the Contract Sum.
- k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
- 1. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
- Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within [seven] days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within [15] days of receipt of request, or [seven] days of receipt of additional information or documentation, whichever is later.
 - a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than [15] days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

END OF SECTION 012500

SECTION 012600 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 01 26 20 - WEATHER DELAYS

PART 1 - GENERAL

1.1 EXTENSIONS OF CONTRACT TIME

A. If the basis exists for an extension of time in accordance with Article 8, paragraph 8.3 and Article 15, paragraph 15.1.5.2, of the General Conditions, an extension of time on the basis of weather may be granted only for the number of Weather Delay Days in excess of the number of days listed as the Standard Baseline for that month.

1.2 STANDARD BASELINE FOR AVERAGE CLIMATIC RANGE

- A. The Owner has reviewed weather data available from the National Oceanic and Atmospheric Administration and determined a Standard Baseline of average climatic range for the State of Texas.
- B. Standard Baseline is defined as the normal number of calendar days for each month during which construction activity exposed to weather conditions is expected to be prevented and suspended by cause of adverse weather. Suspension of construction activity for the number of days each month as listed in the Standard Baseline is included in the Work and is not eligible for extension of Contract Time.
- C. Standard Baseline is as follows:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1	1	3	3	2	1	3	3	2	1	1	2

1.3 ADVERSE WEATHER and WEATHER DELAY DAYS

A. Adverse Weather is defined as the occurrence of one or more of the following conditions within a twenty-four

(24) hour day that prevents construction activity exposed to weather conditions or access to the site: 1. Precipitation (rain, snow, or ice) in excess of one-tenth inch (0.10") liquid measure. 2. Temperatures that do not rise above that required for the day's construction activity, if such temperature requirement is specified or accepted as standard industry practice. 3. Sustained wind in excess of twenty-five (25) m.p.h.

- 1. Adverse Weather may include, if appropriate, "dry-out" or "mud" days: 1. resulting from precipitation days that occur beyond the standard baseline; 2. only if there is a hindrance to site access or sitework and Contractor has taken all reasonable accommodations to avoid such hindrance; and, 3. at a rate no greater than 1 make-up day for each day or consecutive days of precipitation beyond the standard baseline that total 1.0 inch or more, liquid measure, unless specifically recommended otherwise by the Architect/Engineer.
- B. A Weather Delay Day may be counted if adverse weather prevents work on the project for fifty percent (50%) or more of the contractor's scheduled work day and critical path construction activities were included in the day's schedule, including a weekend day or holiday if Contractor has scheduled construction activity that day.
 - 1. Contractor shall take into account that certain construction activities are more affected by

adverse weather and seasonal conditions than other activities, and that "dry-out" or "mud" days are not eligible to be counted as a Weather Delay Day until the standard baseline is exceeded. Hence, Contractor should allow for an appropriate number of additional days associated with the Standard Baseline days in which such applicable construction activities are expected to be prevented and suspended.

1.4 DOCUMENTATION AND SUBMITTALS

- A. Submit daily jobsite work logs showing which and to what extent critical path construction activities have been affected by weather on a monthly basis.
- B. Submit actual weather data to support claim for time extension obtained from nearest NOAA weather station or other independently verified source approved by Architect/Engineer at beginning of project.
- C. Use Standard Baseline data provided in this Section when documenting actual delays due to weather in excess of the average climatic range.
- D. Organize claim and documentation to facilitate evaluation on a basis of calendar month periods, and submit in accordance with the procedures for Claims established in Article 15 of the General Conditions.
- E. If an extension of the Contract Time is appropriate, such extension shall be made in accordance with the provisions of the General Conditions.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 012620

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - c. Contractor's Construction Schedule.
 - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than [thirty] days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:

- a. Project name and location.
- b. Name of Architect.
- c. Architect's project number.
- d. Contractor's name and address.
- e. Date of submittal.
- 2. Submit draft of [AIA Document G703 Continuation Sheets].
- 3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Change Orders (numbers) that affect value.
 - e. Dollar value.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
- 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate
- 5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
- 6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing.
- 7. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual workin-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
- 8. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

- B. Payment Application Forms: Use [AIA Document G702 and AIA Document G703 Continuation Sheets] as form for Applications for Payment.
- C. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. [Architect] will return incomplete applications without action.
 - 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 - 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- D. Transmittal: Submit [3] signed and notarized original copies of each Application for Payment to [Architect] by a method ensuring receipt [within 24 hours]. One copy shall include waivers of lien and similar attachments if required.
 - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- E. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
 - 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 - 2. When an application shows completion of an item, submit final or full waivers.
 - 3. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- F. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 - 1. List of subcontractors.
 - 2. Schedule of Values.
 - 3. Contractor's Construction Schedule (preliminary if not final).
 - 4. List of Contractor's staff assignments.
 - 5. List of Contractor's principal consultants.
 - 6. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 - 7. Initial progress report..
 - 8. Certificates of insurance and insurance policies.
 - 9. Performance and payment bonds.
- G. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 - 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 - 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

- H. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
 - 1. Evidence of completion of Project closeout requirements.
 - 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 - 3. Updated final statement, accounting for final changes to the Contract Sum.
 - 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 - 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 - 6. AIA Document G707, "Consent of Surety to Final Payment."
 - 7. Evidence that claims have been settled.
 - 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 - 9. Final, liquidated damages settlement statement.

END OF SECTION 012900

SECTION 01 29 73 - SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Provisions established within the General, Supplementary and Other Conditions of the Contract, Division 1 – General Requirements, and the Drawings are collectively applicable to this Section.

1.2 REQUIREMENTS INCLUDED

A. Procedures for preparation and submittal of Schedule of Values.

1.3 RELATED SECTIONS/DOCUMENTS

- A. General Conditions.
- B. Section 01 29 00 Payment Procedures.

1.4 FORMAT

- A. Print schedule on AIA Documents G703 Continuation Sheet for Application and Certificate for Payment.
- B. Follow Table of Contents of Project Manual for listing components parts. Identify each line item by number and title of major Specifications Section.

1.5 CONTENT

- A. Using MasterFormatTM 2004 Edition, in CSI format, ensure schedule of values coincides with the project manual where possible.
- B. In CSI format, list installed value of each major item of Work and each subcontracted item of Work as a separate line item to serve as a basis for computing values for Progress Payments.
- C. In CSI format, for each major subcontract, list products and operation of that subcontract as separate line items.
- D. List Allowances with the specified monetary amount for each allowance in separate divisions.
- E. Contractor to use separate lines for bonds, insurance, temporary facilities and controls, project oversight, and mobilization. Each item shall include pro rata portion of overhead and profit.
- F. The sum of the values listed shall equal total Contract Sum.

1.6 SUBMITTAL

A. Submit three (3) copies of Schedule of Values within ten (10) days of award of contract and prior to Pre- Construction Meeting.

SCHEDULE OF VALUES

- B. Transmit under Architect accepted form transmittal letter. Identify Project by title and number.
- C. Secure the A/E and Program Manager's (PM) approval of the Schedule of Values prior to submitting the first Pay Application.

1.7 SUBSTANTIATING DATA

- A. When the A/E or the PM requires substantiating information, submit data justifying line item amounts in question.
- B. Provide one (1) copy of data with cover letter for each copy of Pay Application. Show Pay Application number and date and line item by number and description.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 012973

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination Drawings.
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
 - 4. Requests for Interpretation (RFIs).
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.
- C. Related Sections include the following:
 - 1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
 - 2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.4 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
- B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections, hat depend on each other for proper installation, connection, and operation.

- 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
- 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
- 3. Make adequate provisions to accommodate items scheduled for later installation.
- 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.
 - 9. Project closeout activities.
- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.5 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
 - 1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

- a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
- b. Indicate required installation sequences.
- c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- 2. Sheet Size: At least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
- 3. Number of Copies: Submit [three] opaque copies of each submittal. Architect, will return [two copies].
 - a. Submit [five] copies where Coordination Drawings are required for operation and maintenance manuals. Architect will retain [two] copies; remainder will be returned. [Mark up and retain one returned copy as a Project Record Drawing.]
- 4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.
- B. Key Personnel Names: Within [15] days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
 - 1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
 - 1. Include special personnel required for coordination of operations with other contractors.

1.7 **PROJECT MEETINGS**

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

- 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within [three] days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than [5] days after execution of the notice-to-proceed. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 - 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for testing and inspecting.
 - h. Procedures for processing Applications for Payment.
 - i. Distribution of the Contract Documents.
 - j. Submittal procedures.
 - k. Preparation of Record Documents.
 - 1. Use of the premises.
 - m. Work restrictions.
 - n. Owner's occupancy requirements.
 - o. Responsibility for temporary facilities and controls.
 - p. Parking availability.
 - q. Office, work, and storage areas.
 - r. Equipment deliveries and priorities.
 - s. First aid.
 - t. Security.
 - u. Progress cleaning.
 - v. Working hours.
 - 3. Minutes: [**Record**] and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

- a. The Contract Documents.
- b. Options.
- c. Related RFIs.
- d. Related Change Orders.
- e. Purchases.
- f. Deliveries.
- g. Submittals.
- h. Review of mockups.
- i. Possible conflicts.
- j. Compatibility problems.
- k. Time schedules.
- l. Weather limitations.
- m. Manufacturer's written recommendations.
- n. Warranty requirements.
- o. Compatibility of materials.
- p. Acceptability of substrates.
- q. Temporary facilities and controls.
- r. Space and access limitations.
- s. Regulations of authorities having jurisdiction.
- t. Testing and inspecting requirements.
- u. Installation procedures.
- v. Coordination with other work.
- w. Required performance results.
- x. Protection of adjacent work.
- y. Protection of construction and personnel.
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
- 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
- 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at [weekly] intervals or other interval as directed by owner. Coordinate dates of meetings with preparation of payment requests.
 - 1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to
do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- 1) Review schedule for next period in the form of a Three-Week Look Ahead shall be brought to each progress meeting.
- b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) RFIs.
 - 16) Status of proposal requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
- 3. Minutes: **[Record]** the meeting minutes.
- 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- E. Coordination Meetings: Conduct Project coordination meetings at [**regular**] intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
 - 1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

- a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
- b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
- c. Review present and future needs of each contractor present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Change Orders.
- 3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.8 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
 - 1. RFIs shall originate with General Contractor. RFIs submitted by entities other than General Contractor will be returned with no response.
 - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
 - 1. Project name.
 - 2. Date.
 - 3. Name of Contractor.
 - 4. Name of Architect.
 - 5. RFI number, numbered sequentially.
 - 6. Specification Section number and title and related paragraphs, as appropriate.

- 7. Drawing number and detail references, as appropriate.
- 8. Field dimensions and conditions, as appropriate.
- 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
- 10. Contractor's signature.
- 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
- C. Hard-Copy RFIs: [CSI Form 13.2A].
 - 1. Identify each page of attachments with the RFI number and sequential page number.
- D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow [seven] working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
 - 1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.
 - 2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
 - 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within [10] days of receipt of the RFI response.
- E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within [seven] days if Contractor disagrees with response.
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log [weekly]. [Use CSI Log Form 13.2B.] [Include the following:]
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect.
 - 4. RFI number including RFIs that were dropped and not submitted.

- 5. RFI description.
- 6. Date the RFI was submitted.
- 7. Date Architect's response was received.
- 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
- 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

END OF SECTION 013100

SECTION 01 31 19 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Scheduling and administration of progress meetings.
 - 2. Pre-installation conferences.
- B. Related Requirements:
 - 1. Section 01 31 00 Project Management and Coordination.
 - 2. Section 01 31 19.13 Preconstruction Meetings: Owner's preconstruction conference and premobilization conference.

 - Section 01 32 16 Schedules and Reports.
 Section 01 33 23 Shop Drawings, Product Data and Samples.
 Section 01 45 00 Quality Control.
 Section 01 78 39 Project Record Documents.

12 PROGRESS MEETINGS

- A. The Architect will schedule and administer monthly construction progress meetings, throughout progress of work. The Architect will prepare agenda and distribute notice of each meeting to participants
- B. Contractor shall make physical arrangements.
- C. Location of Meetings: Contractor's field offices.
- D. Program Project Manager will preside at meetings.
- E. Project Architect/Engineer shall record and distribute meeting minutes to attendees and all appropriate parties.
- F. Attendance: Contractor, job superintendent, Program Manager and Architect. Owner and professional consultants will attend as appropriate. Subcontractors and suppliers shall attend as Architect sees necessary to agenda.
- G. Anticipated Agenda:
 1. Review of Contractor's updated Construction Schedule.
 2. Review of work in-progress.

 - 3. Planned progress during succeeding work period (i.e, one and two week look-ahead schedules; anticipated inspections/tests or outages, etc.).
 - 4. Coordination of projected progress.
 - 5. Review of field observations, problems and decisions. Including review of Contractor's RFI Log.
 - 6. Identification of problems which impede planned progress.
 - 7. Review of submittals schedule and status of submittals.
 - 8. Review of off-site fabrication and delivery schedules.
 - 9. Maintenance of progress schedule.

10. Corrective measures to regain projected

schedules. 11. Maintenance of quality and work

standards.

12. Review Architect's Supplemental Instructions, Change Proposal Requests and Change Order Logs. 13.Effect of proposed changes on progress schedule and coordination.

PROJECT MEETINGS

14. Safety Implementation Review.15. Action Items & Other business relating to work.

1.3 PRE-INSTALLATION CONFERENCES

- A. When required in individual specification section, convene a pre-installation conference at work site prior to commencing work of the section.
- B. Require attendance of entities directly affecting, or affected by, work of the section.
- C. Notify Program Manager and Architect four days in advance of meeting date.
- D. Prepare agenda, preside at conference, record minutes and distribute copies within two days after conference to participants, with two copies to Program Manager and Architect.
- E. Review conditions of installation, preparation and installation procedures and coordination with related work.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 013119

SECTION 01 31 19.13 - PRECONSTRUCTION MEETINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Contractor participation in preconstruction meetings.
- B. Related Requirements:
 - Section 01 11 00 Summary of Work: Administrative provisions.
 Section 01 31 00 Project Management and Coordination.
 Section 01 31 19 Project Meetings.

1.2 PRECONSTRUCTION MEETING

- A. Owner and Architect will schedule meeting within 15 days after notice of award.
- B. Attendance: Owner, Architect, General Contractor, and representatives of major subcontractors.

C. Agenda

- 1. Criminal Background Checks and Identification Badges
- 2. Submittal of executed bonds and insurance certificates.
- 3. Execution of Owner-Contractor Agreement.
- 4. Distribution of Contract Documents.
- 5. Submittal of list of subcontractors, list of products, schedule of values and progress schedule.
- 6. Designation of responsible personnel.
- 7. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal requests, change orders, allowances and Contract closeout procedures.
- 8. Scheduling.
- 9. Use of premises by Owner and

Contractor.

- 10. Owner's requirements and occupancy.
- 11. Temporary facilities.
- 12. Survey and building layout.
- 13. Security and housekeeping

procedures.

14. Procedures for testing.

15. Procedures for maintaining record

documents.

- 16. Requirements for startup of equipment.
- 17. Accessibility Issues.

18. Inspection and acceptance of equipment put into service during

construction period.

19. Notice to proceed.

20. Color samples.

21. Procedures for site

meetings.

- 22. Site access and security.
- 23. Procedures and processing of TEA "Certification of Project

Compliance" form.

24. Substantial and final project completion procedures.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 013119.13

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's Construction Schedule.
 - 2. Submittals Schedule.
 - 3. Material location reports.
 - 4. Special reports.

B. Related Sections include the following:

- 1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
- 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
- 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
- 4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Architect.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time [is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date].
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- H. Major Area: A story of construction, a separate building, or a similar significant construction element.
- I. Milestone: A key or critical point in time for reference or measurement.
- J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 SUBMITTALS

- A. Qualification Data: For scheduling consultant.
- B. Contractor's Construction Schedule: Submit [three] opaque copies of initial schedule, large enough to show entire schedule for entire construction period.
 - 1. Submit an electronic copy of schedule, using software indicated (**MS Project or .pdf of other software**), on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.
- C. CPM Reports: Concurrent with CPM schedule, submit [three] copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 - 1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
 - 3. Total Float Report: List of all activities sorted in ascending order of total float.
 - 4. Earnings Report: Compilation of Contractor's total earnings from [commencement of the Work] until most recent Application for Payment.

- D. Material Location Reports: Submit [two] 2 copies at [weekly] intervals.
- E. Special Reports: Submit [two] 2 copies at time of unusual event.

1.5 QUALITY ASSURANCE

A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.

1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for [the Notice to Proceed] to date of [Substantial] Completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
 - 1. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
 - 2. Startup and Testing Time: Include not less than <**ten**> days for startup and testing.
 - 3. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

- 1. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
- 2. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - 1. Startup and placement into final use and operation.
- 3. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Permanent space enclosure.
 - c. Completion of mechanical installation.
 - d. Completion of electrical installation.
 - e. Substantial Completion.
- D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.
- E. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.
 - 1. Specific software and version compatible with latest version of Windows PC Operating systems.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

 Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within [5] days of date established for [the Notice to Proceed]. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE) (not used)

2.4 REPORTS

- A. Material Location Reports: At [weekly] intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation[on CSI Form 13.2A]. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.5 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within [one] day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.
 - 1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
- B. Contractor's Construction Schedule Updating: At [monthly] intervals, update schedule to reflect actual construction progress and activities. Issue schedule [one week] before each regularly scheduled progress meeting.

- 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
- 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
- 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- C. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 01 32 16 - CONSTRUCTION PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. The Contractor shall provide all information and input required for development of the schedule for the Work according to the requirements of this Section. The purpose of the project Schedule shall be to:
 - 1. Assure adequate planning, scheduling and reporting during execution of the contract;
 - 2. Assure coordination of the work of the Contractor and the various subcontractors and suppliers;
 - 3. Assist the Contractor, Program Manager and the State and/or Federal funding sources in monitoring the progress of the work and evaluating the time and cost impact, if any, of proposed changes to the Contract and the project Schedule; and
 - 4. Assist the Contractor, Program Manager and the State and/or Federal funding sources in the preparation and evaluation of Contractor's monthly progress payments.
- B. The Work under this Contract will be planned, scheduled, executed and reported pursuant to the provisions of the General Conditions, and the Specified Completion Dates in the Supplementary Conditions.
- C. The Contractor shall involve all applicable Subcontractors in the Schedule development, updating, and revisions, as required.
- D. The Contractor understands and agrees that the Schedule is intended to accurately reflect at all times the status of the Work. The Contractor also understands and agrees that changes or revisions to the Schedule are key components of this requirement and will make every reasonable effort so that the Schedule accurately reflects current conditions.
- E. The Contractor shall maintain, as part of its organization, a staff of sufficient size knowledgeable in preparing input information for the Schedule, monitoring progress, updating and revising diagrams when necessary. The Contractor shall identify the individual(s) on its staff who will be responsible for scheduling efforts and shall provide to the Owner and Program Manager, for review and acceptance, their relevant past CPM scheduling experiences with Microsoft Project.
- F. The services provided by the Program Manager as the District's agent, the existence of schedules, networks, Gantt charts or any other charts or services prepared or performed by the Program Manager, shall in no way relieve the Contractor of the responsibility of complying with all of the requirements of the Contract Documents, including, but not limited to, the responsibility of completing the Work within the Contract Time and the responsibility of planning, scheduling, and coordinating the Work. The Contractor is required to comply with all control procedures specified herein and with any reasonable changes that may be necessary, in the opinion of the Program Manager, during the Contract duration.
- G. The Specific Milestone and/or Completion Dates listed represent the latest allowable completion dates. Earlier completion dates may be established as agreed by the Contractor and the District and incorporated into a Contract Change Order.

H. Should the Contractor show by way of its Schedule submission its plan to complete the Work earlier than any required Milestone or Specific Completion date, the Owner shall not be liable to CONSTRUCTION PROGRESS SCHEDULES
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the Contractor for any costs or other damages if the Contractor is unable to complete the Work before such Milestone or Completion date.

I. Failure to furnish any required submittal or information specified herein shall constitute a cause for withholding any part of progress payments pursuant to other Sections in the General Conditions.

1.2 BREACH

A. Failure of the Contractor to comply with the requirements of this Section shall constitute reason that the Contractor is failing to prosecute the Work with such diligence as will insure its completion within the Contract items and shall be considered a default under the General Conditions.

PART 2 - SPECIFIC REQUIREMENTS FOR PROJECTS WITH CONSTRUCTION VALUE LESS THAN \$1,000,000

Not used.

PART 3 - SPECIFIC REQUIREMENTS FOR PROJECTS WITH CONSTRUCTION VALUE GREATER THAN OR EQUAL TO \$1,000,000

3.1 GENERAL REQUIREMENTS

- A. The Work under this Contract will be planned, scheduled, executed and reported using the Critical Path Method (hereinafter called CPM).
- B. The Contractor shall be solely responsible for expediting the delivery of all material to be furnished by him so that construction progress is maintained according to the current Schedule for the Work.
- C. The Contractor shall develop the CPM Schedule using the Microsoft Project scheduling software. The Owner, in its sole discretion, has the right to accept or reject requests by the Contractor to use scheduling software other than Microsoft Project.
- D. If required by the Owner, the Contractor's CPM Schedule shall be cost loaded in accordance with the provisions set forth in this Section.

3.2 POST AWARD ACTIVITIES

- A. Schedule Requirements
 - 1. Within eighteen (18) calendar days of the Notice to Proceed, the Contractor shall submit to the Program Manager for review and acceptance, a Schedule for the procurement and construction work scope in CPM format, using Microsoft Project. A copy of this schedule shall be submitted to the Owner and PM. The CPM Schedule shall provide a complete and detailed sequence of operations of the Work within the time limits specified in the Contract.
- B. The CPM Schedule shall include:
 - 1. All activities necessary to account for the full scope of the Work.
 - 2. The order and interdependencies of the Contractor's activities and the interface or interrelation with the activities of others. The following criteria shall form the basis for assembly of the logic relationships:

- a. What activity must be completed before a subsequent activity can be started?
- b. What activities can be done concurrently? This includes activities with Start-To-Start and Finish-To- Finish relationships with or without leads and lags.
- 3. A single critical path that runs through the entire CPM schedule beginning with the first activity, e.g., Notice to Proceed, and ending with the last activity, e.g., Project Complete.
- 4. Conformance with and identification of the Specific Milestone or Completion Dates specified in the Contract Documents.
- 5. Off-site activities: The Contractor shall include in the CPM Schedule all procurement activities which lead to the delivery of materials to the site and logically tie the material delivery to the related construction activity. The Schedule of Off-Site Activities shall include the following:
 - a. Ordering, submittals, manufacturing or fabricating, and delivery of equipment and materials. Long lead items requiring more than one month between ordering and delivery to the site shall be clearly noted;
 - b. All significant Contractor activities during the fabrication and erection/installation in a Contractor's plant or on a job site, including materials/equipment purchasing, and delivery;
 - c. Contractor's drawings and submittals to be prepared and submitted to the Contractor's Design Consultant or Owner/PM.
 - d. Approval of Contractor submittals by the Contractor's Design Consultant, which shall be a maximum of fourteen (14) calendar days.
- 6. Delivery of Owner-furnished material and equipment.
- 7. Testing of equipment, systems and materials.
- 8. Required local and/or state inspections.
- 9. Project Close-out activities
 - a. The identity, duration and logic of activities comprising the CPM Schedule shall meet the following criteria:
 - Activity boundaries shall be easily measurable and descriptions shall be clear and concise. Do not preface activity descriptions with "Begin" or "Complete." The beginning and end of each activity shall be readily verifiable, and progress should be quantifiable. Do not reference percentage completion within the activity description.
 - 2) Activity codes necessary to organize the CPM Schedule shall be in CSI MasterFormat.
 - 3) The Owner requires the cost component for each activity be provided. The sum of the activity cost components shall equal the contract price. No costs, however, shall be assigned to manufacture or delivery activities. This list of costs shall be referred to as the Schedule of Values for use in progress payments.
 - 4) The Project Calendar shall account for all holidays, shutdown periods for weather sensitive work, etc.
 - 5) Seasonal weather conditions, utility coordination, no-work periods, expected job learning curves, and other foreseeable delays to activities shall be considered and included within the developed duration for each activity affected.
 - 6) Start-To-Start and Finish-To-Finish activity relationships shall not be used, except for, where Start-to-Start relationships are used between activities, Finish-to-Finish relationships must also be used between those same activities. The preferred relationship type is Finish-To-Start with zero lag. Do not use Start-To-Finish relationship types. The use of negative lags is also prohibited. The use of Finish-to-Finish relationships, only, is prohibited. There should be no activities where the finish of one activity is not tied to another activity.
 - 7) Specifically, the following activity relationship shall apply:
 - Negative lags will not be permitted.
 - Do not use a Finish to Start relationship with a lag.
 - An activity must be added to represent the lag time.
 - A project shall have one beginning and one end.
 - All activities shall have a predecessor and successor except the project's start

and finish milestones.

- No "Open Ends" will be permitted.
- If a Start-to-Start relationship must be used it shall be closed with a Finishto-Finish or Finish-to-Start relationship. (No open ends).
- The completion date of the CPM schedule shall be the contract completion date.
- All intermediate milestones (Interim Completion Dates) required in the Contract shall be shown in proper logical sequence and input as either the "Start-no-Earlier-Than" or "Fin- ish-no-Later-Than" date.
- Mandatory Finish and Mandatory Starts shall not be used.
- When updating, all "Out of Sequence" activities shall be corrected to reflect the current construction operations.
- Original durations shall not be changed from the approved Baseline Schedule.
- Imposed completion dates for events other than the Specified Milestones or Completion Dates will not be permitted.
- 10. The level of detail of the CPM Schedule shall be such that no activity duration shall be over ten (10) calendar days, except for non-construction activities such as shop drawing and sample submittals, fabrication and delivery of materials and equipment, delivery of equipment, concrete curing, and General Conditions activities, or with the approval of the Program Manager.
- 11. The CPM Schedule shall not show an early completion date for the project later than the project's required completion date.
- 12. The CPM Schedule being submitted shall show the following for each activity:
 - Interfaces with the work of outside contractors, e.g., utilities, power, and with any a. separate contractor.
 - Activity description. b.
 - Planned duration (in work days). c.
 - Early start (by calendar date). d.
 - Late start (by calendar date). e.
 - Early finish (by calendar date). f.
 - Late finish date (by calendar date). Total float available in work days. g.
 - h.
 - Actual start date (by calendar date). i.
 - Actual finish date (by calendar date). j.
 - The Critical Path for the project, with said path of activities being clearly and easily k. recognizable. The relationship between all non-critical activities and activities on the Critical Path shall be clearly shown on the CPM Schedule Diagram.
 - The dollar value of each activity (Schedule of Values). 1.
 - Activity codes necessary to organize the schedule shall be in CSI MasterFormat. m.
 - The percentage complete of each activity in progress or completed whether n. manually input or computer calculated.
- 13. The Owner does not guarantee that the Contractor can start work activities on the "early start" or "late start" dates or complete work activities on the "early finish" or "late finish" date shown in the initial Schedule submission, or in an updated or revised Schedule; nor does the Owner or Program Manager guarantee that Contractor can always proceed in the sequence established by said Schedule. If Contractor's Schedule shows that the Owner or a separate contractor is to complete an activity by a specific date, or within a certain duration, the Owner or any separate contractor under contract with the Owner shall not be bound to said date or duration unless the Owner expressly and specifically agrees in writing to same; the Owner's or the Program Manager's review and acceptance of the Schedule does not constitute an agreement to specific dates, durations, or sequences for activities of the Owner or any separate contractor.
- 14. Required Submittals
- 15. The submittal of the contract scheduling documents for the baseline and subsequent updates shall include:

Two (2) "11 x 17" bar chart graphic outputs containing the information outlined in a. CONSTRUCTION PROGRESS SCHEDULES 013216 - 4 3.02.A.4 above.

- b. The four (4) Tabular Schedule Reports to be submitted are to include, as a minimum, activity numbers, activity descriptions, early and late start and finish dates, percent complete and total float. The reports shall be sorted by:
 - 1) Activity Number;
 - 2) Early Start, Early Finish;
 - 3) Total Float (Critical Path); and
 - 4) A detailed precedence analysis report sorted by Activity Number, showing the predecessors and successors for each activity.
- c. Using the Microsoft Project program submitted to the Owner and the Program Manager a MPP file for all schedule required submission.
- C. Approval Process
 - 1. The Owner will review the Contractor's Schedule, including logic diagrams and computergenerated analysis for compliance with the provisions of this Section as well as the requirements of the Contract as a whole. The Owner shall have fourteen (14) calendar days to review and accept or reject in writing the Contractor's Schedule submission.
 - 2. If the schedule is rejected, the Contractor shall revise and resubmit the Schedule within seven (7) calendar days. The Owner will have seven (7) calendar days to review and accept or reject in writing the Contractor's revised Schedule.
 - 3. Within seven (7) calendar days following final acceptance of the Schedule, the Contractor shall provide copies of the CPM Schedule to the Program Manager and the Owner in accordance with the submission requirements as set forth in the Section above entitled "Required Submittals."
 - 4. Upon final acceptance, the Schedule will become the official Project Schedule and will be used to monitor progress of the Work, subject to such revisions made to the Schedule as provided for herein or in the Contract Documents, and to support requests for payment.
 - 5. If the Contractor thereafter wishes to make changes in its method of operating and scheduling, the Contractor shall follow the procedures set out in Paragraph 3.06, "Schedule Revisions," of this Section.
 - 6. Acceptance by the Owner/Program Manager of the Contractor's CPM Schedule shall not relieve the Contractor of the responsibility for accomplishing the Work within every Contract-required Milestone and Completion date. The Owner and Program Manager disclaim any obligation or liability due to acceptance of the CPM Schedule.
 - 7. If the Contractor fails to provide the schedules within the time prescribed, or revisions to the Schedule within the requested time, the Owner may withhold approval of payment until the Contractor submits the required information.

3.3 COMPUTER COST REPORTS

A. If required by the Owner, every month the Contractor will generate Computer Cost Reports from the CPM Schedule based on the progress of the work. These computer reports will reflect the progress of the project with respect to cost. The Contractor will generate these reports, in a format to be determined by the Owner and/or Program Manager, for the information and use of the Owner and Program Manager in reviewing and monitoring progress.

SCHEDULE UPDATES 3.4

- A. Schedule updates shall be prepared each month with progress reported through the24th day of the month and submitted with the payment applications for review by the Owner and/or Program Manager on the 25th of each month. Upon review and acceptance by the Owner and Program Manager, the final schedule update shall be submitted with the final payment application on the first weekday of the next month.
- B. The progress report submitted by the Contractor will indicate, as a minimum, those activities, or portions of activities, which were completed during the reporting period, the actual start and finish dates for those activities, remaining duration and/or estimated percent complete for activities currently in progress.
- C. If not a cost loaded schedule, separate update meetings will be held to report schedule progress and to review the Contractor's Application for Progress Payment. In each case, the previous month's CPM reports will be used to record progress. The Contractor understands and agrees that updating the Schedule is independent from updating the cost for progress payment purposes.
- D. The Contractor understands and agrees that its Schedule is intended to accurately reflect at all times the status of the Project (procurement and construction). The Contractor also understands and agrees that updating the Schedule is a key component of this requirement and will make every reasonable effort to provide current information.
- E. Starting 30 calendar days after the start of construction, and throughout the progress of the Work, the Contractor shall prepare and maintain a two week look-ahead schedule reflecting the schedule of work activities (from the CPM schedule) actually accomplished for the previous week and the work scheduled for the forthcoming two weeks. This look- ahead schedule shall be prepared on a weekly basis and issued to the Owner and Program Manager.
- F. When updating the CPM schedule, the Contractor must retain the approved baseline logic. Any option that overrides the approved baseline logic is not permitted. Since other scheduling systems may have different features for handling out-of-sequence activities, the Program Manager will evaluate the options and notify the Contractor in writing which option is acceptable.

3.5 PROGRESS PAYMENTS

- A. Application for Payments shall be based on the approved Schedule of Values. The submission and approval of schedule updates calculating the value of work done for any given pay period for each activity based on the percentage complete for that activity less the amount previously paid for past percentages complete and percent of retainage shall be an element of the evaluation of Progress Payments pursuant to the provisions of the General Conditions.
- B. An initial Application for Payment for expenditures not directly related to Work accomplished at the project will be allowed before the acceptance of the Contractor's Schedule. This payment will be limited to such items as Permits, Bonds, Mobilization, and Insurance. Requests for payment for work items not included above may be denied without an approved Schedule.
- C. The Program Manager and the Owner will not be obligated to review or to process any Application for Progress Payment until the Contractor has submitted the Schedule and the percentages of completion are agreed to by the Program Manager, Design Consultant and the CONSTRUCTION PROGRESS SCHEDULES 013216 - 6

Contractor.

3.6 SCHEDULE REVISIONS

- A. Should the Contractor, after acceptance of the initial CPM Schedule, want to change its plan of construction, the Contractor shall submit the requested revisions to the Program Manager including a written description of the reason for rescheduling the work, and methods of maintaining adherence to milestones and specific dates. The Owner will have seven (7) calendar days to review and either accept or reject the reason for the revised schedule in writing to the Contractor. If the Contractor's requested schedule revision is accepted by the Owner, the changes will be incorporated by the Contractor into the CPM Schedule in the next schedule update and will become the new Project Schedule.
- B. The Contractor shall revise the Schedule to include the effect of changes, acts of GOD or other conditions or events that have affected the CPM Schedule. The Owner will have seven (7) calendar days to review and either accept the change or reject the change in writing to the Contractor. If the requested changes are accepted by the Owner, they will be incorporated by the Contractor into the CPM Schedule in the next schedule update.
- C. When the Owner orders changes by Change Order that have the potential to impact the Contract Milestones or Completion Dates, in accordance with Article 8.3 of the General Conditions, a schedule fragnet shall be prepared by the Contractor and provided to the Program Manager as part of the Change Order. If the Contractor has prepared a schedule fragnet that results in a time extension request, the Contractor must identify to the Owner as part of the Change Order the cost to buy back the time to allow the Owner the option of granting a time extension or buying back the time. If the Owner accepts the schedule fragnet, it will be incorporated into the CPM Schedule by the Contractor during the next schedule update.
- D. Should any of the conditions exist, such that certain activities shown on the Contractor's CPM Schedule fall behind schedule to the extent that any of the specific Milestone or Completion Dates are in jeopardy, the Contractor may be required when directed, to prepare and submit to the Program Manager, a Recovery Schedule and written narrative explaining how the Contractor intends to reschedule the Work to regain compliance with the accepted CPM Schedule. The preparation of a recovery schedule shall not be grounds for a Change Order or a Time Extension unless the Contractor can conclusively establish that the Owner is responsible for the schedule slippage. In no event shall Contractor refuse or fail to revise the Schedule based on claimed Owner delays or lack of information. In such cases, Contractor shall apply its best efforts and apply reasonable assumptions when information is alleged to be lacking.
- E. The Contractor shall do the following, after determination of the requirement for a Recovery Schedule:
 - 1. Within five (5) calendar days of being directed to provide a Recovery Schedule, the shall submit the Recovery Schedule, and written narrative of how the Contractor intends to recover the time, for acceptance to the Program Manager. The Recovery Schedule shall be prepared to similar 1 e v e 1 of detail as the accepted CPM Schedule and shall address how the Contractor intends to recover the time. The Owner will have five (5) calendar days to review and either accept or reject the Recovery Schedule.
 - 2. Any revisions necessary because of this review shall be resubmitted by the Contractor for acceptance within three (3) calendar days. The accepted Recovery Schedule shall then be the Schedule that the Contractor shall use in planning, organizing, directing, coordinating, performing and executing the Work (including all activities of subcontractors, equipment vendors and suppliers) to regain compliance with the approved baseline CPM Schedule.
 - 3. Typical methods of revising a schedule to recover time include, but are not limited to:

- a. Reducing the durations of activities not yet started;
- b. Changing schedule logic, e.g., changing Finish-to-Start relationships to Start-to-Start relationships, using negative lags, etc.
- c. Changing the method of schedule calculation from Retained Logic to Progress Override.

For these and similar situations, any revisions necessary to recover the schedule shall require written justification and the method of reduction, e.g., added manpower, similar activity actually completed in less time than planned, etc.

- F. Neither the updating or revision of Contractor's Project Schedule nor the submission, updating, change or revision of any report or schedule for the Owner's review or non- objection of any such report or schedule shall have the effect of amending or modifying, in any way, the Contract Time, any Contract Completion Date, or Contract Milestone Dates or of modifying or limiting in any way Contractor's obligations under this Contract.
- G. If at any time during the construction, it appears to the Owner or the Program Manager that the Contractor's Schedule no longer represents the actual prosecution and progress of the work, the Owner or the Program Manager will request in writing a revision to the Schedule. Any "out of sequence progress" problems will be considered evidence that the Schedule needs revising. The Contractor then has five (5) calendar days to respond to that written request. In the event, the Contractor does not agree with the conclusion of the Owner or its Program Manager regarding the schedule status of the project, it shall be resolved in accordance with the claims provisions of the contract.

3.7 COORDINATION

- A. The Contractor shall coordinate the work with that of the other contractors and shall cooperate fully with the Program Manager in maintaining orderly progress toward completion of the Work as scheduled.
- B. Failure of Owner-furnished equipment and materials to arrive as scheduled, or failure of other construction contracts to meet their schedule, shall not be justification for an extension of time, except where such failure causes, in the opinion of the Program Manager, an unreasonable delay in the Contractor's work, in which case Article 8.3 of the General Conditions regarding extensions of time shall apply.
- C. The Contractor shall keep himself/herself, and subcontractors, advised always while the Work is progressing regarding delivery status of Owner-furnished equipment and material and of the progress of construction work being performed under separate contracts.

3.8 SCHEDULE DEFINITIONS

- A. Activity An element of work performed during the course of a project. An activity normally has an expected duration, an expected cost, and expected resource requirements. Activities are often subdivided into task.
- B. Actual Start Date- The point in time that work actually started on an activity.
- C. Actual Finish Date- The point in time that work actually ended on an activity. (Note: in some applications areas, the activity is considered "finished" when work is "substantially complete.")

D. Baseline Schedule - The original plan against which your progress is measured. The baseline CONSTRUCTION PROGRESS SCHEDULES 013216 - 8

represents the original plan at the onset of the project of what you expect to happen. The baseline is saved once the schedule is presented to the stakeholders and other interested parties, and has been agreed to by all parties.

- E. Critical Path In a project network diagram, the series of activities, which determines the earliest completion of the project. The critical path will generally change from time to time as activities are completed ahead of or behind schedule. Although normally calculated for the entire project, the critical path can also be determined for a milestone or subproject. The critical path is usually defined as those activities with float less than or equal to a specified value, often zero.
- F. Critical Path In a project network diagram, the series of activities, which determines the earliest completion of the project. The critical path will generally change from time to time as activities are completed ahead of or behind schedule. Although normally calculated for the entire project, the critical path can also be determined for a milestone or subproject. The critical path is usually defined as those activities with float less than or equal to a specified value, often zero.
- G. Critical Path Method (CPM) A network analysis technique used to predict duration by analyzing which sequence of activities (which path) has the least amount of scheduling flexibility (the least amount of float). Early dates are calculated by means of a forward pass using a specified start date. Late dates are calculated by means of a backward pass starting from a specified completion date (usually the forward pass's calculated project early finish date).
- H. Deliverable Any measurable, tangible, verifiable outcome, result, or item that must be produced to complete a project or part of a project. Often used more narrowly in reference to an external deliverable, this is a deliverable that is subject to approval by the project sponsor or customer.
- Duration The number of working days (not including holidays or other non-working periods) to complete an activity or other project element. Sometimes incorrectly equated with elapsed time.
- J. Early Dates Earliest an activity can start or finish based upon logic and durations. Calculated by the computer during the forward pass.
- K. Fragnet A subdivision of a project network diagram usually representing some portion of Project.
- L. Free Float The amount an activity can slip without delaying the next activity. This could be important for resource management.
- M. Lane Occupancy When a Contractor occupies a lane(s) in proceeding with their work. The Contractor shall pay a Lane Occupancy Charge (per direction) for the period of time a lane is unavailable to the traveling public beyond the allowable lane closure time limits.
- N. Late Dates "Drop dead dates". The latest and activity can start or finish without delaying the day of completion. Calculated by the computer during the backward pass.
- 0. Milestone A significant event in the project, usually the completion of a major deliverable or stage.
- P. Predecessor -Activities that are required for the start of a given activity is known as predecessor. Predecessors are added using the Detailed Predecessor Form. Every activity must have a predecessor except project start.

- Q. Preliminary Schedule Initial schedule prior to the baseline schedule reflecting how the contractor plans to proceed with constructing a project.
- R. Recovery Plan Contractor's plan to bring the project back on schedule. This includes a revised CPM schedule and additional manpower and equipment.
- S. Relationships Between Activities
- T. Finish to Start The successor activity can begin only when the current activity Completes.
- U. Finish to Finish The finish of the successor activity depends on the finish of the current activity.
- V. Start to Start The start of the successor activity depends on the start of the current Activity.
- W. Start to Finish The successor activity cannot finish until the current activity starts.
- X. Remaining Duration The time needed to complete an activity.
- Y. Successor -Activities that follow a given activity are known as successors. Successors are added using the Detailed Successor Form. Every activity must have a successor except project complete.
- Z. Total Float The amount an activity may be delayed from its early start without delaying the day of completion. Float is a mathematical calculation and can change as the project progresses and changes are made to the project plan. Also called slack and path float.
- AA. Updated Schedule A schedule that truly reflects the current means and method how the project is progressing.
- BB. Work Breakdown Structure (WBS) A deliverable-oriented grouping of project elements, which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of a project component.
- CC. Working Schedule A schedule utilized for duration of a project for creation of the baseline schedule and updates.
- DD. Work Package A deliverable at the lowest level of the work breakdown structure. A work package contains activities.

END OF SECTION 013216

SECTION 01 32 33 PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 **RELATED DOCUMENTS**

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 **SUMMARY**

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 1. Preconstruction photographs.
 2. Periodic construction photographs.
 3. Final completion construction photographs.
 4. Preconstruction video recordings.

 - 5. Periodic construction video recordings.
- **B.** Related Sections:
 - Division 01 Section "Unit Prices" for procedures for unit prices for extra photographs.
 Division 01 Section "Submittal Procedures" for submitting photographic documentation.

 - 3. Division 01 Section "Closeout Procedures" for submitting photographic documentation as project record documents at Project closeout.
 - 4. Division 01 Section "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.
 - 5. Division 02 Section "Structure Demolition" for photographic documentation before building demolition operations commence.
 - 6. Division 02 Section "Selective Structure Demolition" for photographic documentation before selective demolition operations commence.
 - 7. Division 31 Section "Site Clearing" for photographic documentation before site clearing operations commence.

1.3 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph or video recording. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files in the quantities and at the intervals described in paragraph 3.1 of this section.
 - 1. Digital Camera: Minimum sensor resolution of 5 mega pixels.
 - 2. Format: Unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
 - Identification: Provide the following information with each image description in file metadata 3. tag:
 - Name of Project. a.
 - Name and contact information for photographer. b.
 - Name of Architect. c.
 - Name of Contractor. d.
 - Date photograph was taken. e.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

- Unique sequential identifier keyed to accompanying key plan. g.
- C. Construction Photographs: Submit prints of each photographic view in the quantities and at the intervals described in paragraph 3.1 of this Section.
 - 1. Format: 8-by-10-inch (203-by-254-mm) mounted either on photographic paper or linen or card stock to allow a 1-inch- (25-mm-) wide margin and enclosed back to back in clear plastic sleeves that are punched for standard three-ring binder.
 - 2. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:
 - Name of Project. a.
 - Name and contact information for photographer. b.
 - Name of Architect. c.
 - d. Name of Contractor.
 - e. Date photograph was taken if not date stamped by camera.
 - Description of vantage point, indicating location, direction (by compass point), and f. elevation or story of construction.
 - Unique sequential identifier keyed to accompanying key plan. g.
- D. Video Recordings: Submit video recordings in accordance with paragraph 3.2 of this Section. 1. Submit video recordings in digital video disc format.
 - Identification: With each submittal, provide the following information:

 Name of Project.

 - b. Name and address of photographer.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Date video recording was recorded.
 - Description of vantage point, indicating location, direction (by compass point), and f. elevation or story of construction.
 - Weather conditions at time of recording. g.
- E. Aerial Photography
 - 1. On new construction submit monthly aerial photographs of the project. The photos should be taken from 4 different angles and 4 sets of color 8"x10" prints should be submitted.

1.4 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has the basic skills necessary to record digital photographs and video recordings.

1.5 COORDINATION

A. Auxiliary Services: Provide auxiliary services necessary, including temporary lighting required to produce clear, well-lit photographs.

1.6 **USAGE RIGHTS**

A. Contractor will transfer copyright usage rights to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

PHOTOGRAPHIC DOCUMENTATION

- A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 5 mega pixels.
- B. Digital Video Recordings: Provide high-resolution, digital video disc.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 - 1. Date and Time: Include date and time in file name for each image.
 - 2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect.
- C. Preconstruction Photographs: Before starting demolition or construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, or as directed by Architect.
 - 1. Take a minimum of 20 photographs to show existing conditions adjacent to property before starting the Work.
 - 2. Take a minimum of 20 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
- D. Periodic Construction Photographs: Take a minimum of 20 photographs monthly and submit with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Final Completion Construction Photographs: Take a minimum of 20 color photographs after date of Substantial Completion for submission as project record documents. Architect will inform photographer of desired vantage points.
 - 1. Do not include date stamp on Final Completion Construction Photographs.

3.2 CONSTRUCTION VIDEO RECORDINGS

- A. Preconstruction Video Recording: Before starting demolition or construction, record video of Project site and surrounding properties from different vantage points, as directed by Architect.
 - 1. Show existing conditions adjacent to Project site before starting the Work.
 - 2. Show existing buildings either on or adjoining Project site to accurately record physical conditions at the start of demolition or construction.
 - 3. Show protection efforts by Contractor.
- B. Periodic Construction Video Recordings: Record video monthly and submit with each Application for Payment. Select vantage points to show status of construction and progress since last video recordings were recorded. Minimum recording time shall be 15 minutes.

END OF SECTION 01 32 33

PHOTOGRAPHIC DOCUMENTATION

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
 - 3. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
 - 4. Division 01 Section "Quality Requirements" for submitting test, inspection reports and for mockup requirements.
 - 5. Division 01 Section "Closeout Procedures" for submitting warranties.
 - 6. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 7. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 8. Divisions 02 through 49 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will **not** be provided by Architect for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

- 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
- 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. **Architect reserves** the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on **Architect's** receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow [10] days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow [10] days for review of each resubmittal.
 - 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow [15] days for initial review of each submittal.
- D. Identification: Place a permanent label or title block on each submittal for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 - 2. Provide a space approximately **6 by 8 inches** on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 - 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - 1. Other necessary identification.
- E. Deviations: **Highlight**, **encircle**, or otherwise specifically identify deviations from the Contract Documents on submittals.

- F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - 1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
 - 2. Additional copies submitted for maintenance manuals will **not** be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will **return submittals, without review,** received from sources other than Contractor.
 - 1. Transmittal Form: Use [AIA Document G810].
 - 2. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Drawing number and detail references, as appropriate.
 - j. Transmittal number[, numbered consecutively].
 - k. Submittal and transmittal distribution record.
 - l. Remarks.
 - m. Signature of transmitter.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked "No Exception Taken" or "Make Corrections Noted".
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating " No Exception Taken" or "Make Corrections Noted" taken by Architect.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operation and maintenance manuals.
 - k. Compliance with specified referenced standards.
 - 1. Testing by recognized testing agency.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
 - 4. Submit Product Data before or concurrent with Samples.
 - 5. Number of Copies: Submit [three] copies of Product Data, unless otherwise indicated. Architect, will return [two] copies. Mark up and retain one returned copy as a Project Record Document.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Design calculations.

- j. Compliance with specified standards.
- k. Notation of coordination requirements.
- 1. Notation of dimensions established by field measurement.
- m. Relationship to adjoining construction clearly indicated.
- n. Seal and signature of professional engineer if specified.
- o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
- 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
- 3. Number of Copies: Submit [five] copies where copies are required for operation and maintenance manuals. Architect will retain [two] copies; remainder will be returned.[Mark up and retain one returned copy as a Project Record Drawing.]
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 - 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 - 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 - 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit [one] full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
- E. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation" for Construction Manager's action.
- F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

- G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
- H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
- I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.[Use CSI Form 1.5A.] Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number of Copies: Submit [three] copies of subcontractor list, unless otherwise indicated. Architect will return [two] copies.
 - a. Mark up and retain one returned copy as a Project Record Document.
- J. Material Safety Data Sheets (MSDSs).

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 - 1. Number of Copies: Submit [two] copies of each submittal, unless otherwise indicated. Architect will not return copies.
 - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - 3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- L. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."
- M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads.

Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

- R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
 - 1. Preparation of substrates.
 - 2. Required substrate tolerances.
 - 3. Sequence of installation or erection.
 - 4. Required installation tolerances.
 - 5. Required adjustments.
 - 6. Recommendations for cleaning and protection.
- S. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- T. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect[, except as required in "Action Submittals" Article].
 - 1. Architect will not review submittals that include MSDSs and will return the entire submittal for resubmittal.

2.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit [three] copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300
SECTION 01 33 23 – SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.1 **SUMMARY**

- A. Section Includes: Digital submission of shop drawings.
- **B.** Related Requirements:
 - 1. General Conditions of the Contract for Construction: Definitions and basic responsibilities of entities
 - 2. Section 01 31 00 Project Management and Coordination: Coordination of submittals.
 - 3. Section 01 32 16 Schedules and Reports: Schedules for submittals.
 - 4. Section 01 45 00 Quality Control: Mockups and samples for testing.
 - Section 01 50 00 Temporary Facilities and Controls: Project management software.
 Section 01 62 00 Product Options.

 - 7. Section 01 78 39 Project Record Documents.

1.2 **GENERAL**

- A. Refer to General Conditions, Paragraph 3.12 (Shop Drawings, Product Data and Samples).
- B. Digital Submittals: Submit to the Architect, or applicable consultant, shop drawings, product data, and samples required by specification sections. Do not submit illegible fax copies nor carbon copies of shop drawings and product data.
- C. Within 30 days of the contract date Contractor shall prepare and submit with the Schedule of Values a comprehensive list of shop drawings, product data and samples. This list shall include products which are proposed for substitution. Also include the estimated date of each submittal and anticipated date of submittal return. Allow the Architect reasonable time to review submittals.
 - 1. The list shall be compiled and submitted using the "Submittal" feature in the Contractor's project management program.
- D. Prepare list on basis of each specification section.
- E. For products specified under reference standards, include with listing of each product:
 - 1. Name and address of manufacturer.
 - 2. Trade name.
 - 3. Model or catalog designation.
 - 4. Manufacturer's data, including performance and test data, reference standards.

1.3 SHOP DRAWINGS

- A. Prepared by a qualified detailer. Prepare project-specific information, drawn accurately to scale. Do not base shop drawings on reproductions of the contract documents or standard printed data. Include supplier's / detailer's / manufacturer's title block.
- B. Identify details by reference to sheet and detail numbers shown on Contract Documents.
- C. Present in a clear and thorough manner original drawings which illustrate the portion of the

work showing fabrication, layout, setting, or erection details, prepared by a qualified detailer. Title each drawing with Project and Contract name and number; identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.

1.4 PRODUCT DATA

- A. Manufacturer's standard schematic drawings and diagrams:
 - 1. Modify drawings to delete information which is not applicable to the work.
 - 2. Supplement standard information to provide additional information specifically applicable to the work.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data:
 - 1. Clearly mark each copy to identify pertinent materials, products or models.
 - 2. Show dimensions and clearances required.
 - 3. Show performance characteristics and capacities.
 - 4. Show wiring or piping diagrams and controls.
- C. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to specification section and Article number. Show reference standards, performance characteristics and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.
- D. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.

1.5 SAMPLES

- A. Office samples shall be of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of product or material, with integrally related parts and attachment devices.
 - 2. Full range of color samples.
- B. Field Samples and Mock-ups:
 - 1. Erect at project site at location acceptable to Architect.
 - 2. Construct each sample or mock-up complete, including work of all trades required in finish work.
 - 3. Install each sample complete and finished. Acceptable finishes in place may be retained in completed work.
- C. Submit full range of manufacturer's standard finishes except when more restrictive requirements are specified, indicating colors, textures and patterns, for Architect selection.
- D. Submit samples to illustrate functional characteristics of products, including parts and attachments.
- E. Approved samples which may be used in the work are indicated in the specification section.
- F. Label each sample with identification required for transmittal letter.

1.6 CONTRACTOR REVIEW

- A. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, quantities and details, manufacturer's catalog numbers and conformance of submittal with requirements of Contract Documents.
- B. Coordinate submittals with requirements of work and of Contract Documents.
- C. Sign or initial in a rubber-stamped review block format, each sheet of shop drawings and product data and each sample label to certify compliance with requirements of Contract Documents. Notify Architect in writing at time of submittal, of any deviations from requirements of Contract Documents.
- D. Do not fabricate products or begin work which requires submittals until return of submittal with Architect acceptance.
- E. Contractor's responsibility for errors and omissions in submittals is not relieved by Architect's review of submittals.
- F. Contractor's responsibility for deviations in submittals from requirements of contract documents is not relieved by Architect's review of submittals, unless Architect gives specific written acceptance of deviations. Architect will review submittals for general conformance to design intent only.

1.7 SUBMISSION REQUIREMENTS

- A. Submit shop drawing and product data as soon as practicable after award of contract but not later than 14 calendar days before dates reviewed submittals will be needed.
- B. Digital Submittals: Submit to the Architect, or applicable consultant, shop drawings, product data, and samples required by specification sections. Do not submit illegible fax copies nor carbon copies of shop drawings and product data.
 - 1. The submittals shall be logged in by the Contractor and tracked using the "Submittal" feature in the Architect's project management program (Projectmates).
 - 2 All shop drawings (no matter the size) shall be submitted by the Contractor in a .pdf format via Projectmates.
 - a Submittals 8-1/2" x 11" and/or 11" x 17" and greater than 50 pages: Provide one (1) hard copy for the Architect's records. If submittal is reviewed by a consultant, provide one (1) additional hard copy for the consultant's records. Digital submittal will be corrected for Contractor.
 - b. Large Format Drawings (larger than 11 x 17): Provide one (1) hard copy for the Architect's records. If submittal is reviewed by a consultant, provide one (1) additional hard copy for the consultant's records. Digital submittal will be corrected for Contractor.
 - 3. Submittals to be reviewed by consultants shall be submitted directly to the applicable consultant with a copy of only the digital transmittal simultaneously copied to the Architect. Submittals will be reviewed by the consultant and then delivered/transmitted to the Architect for his review prior to transmitting them to the contractor. Submittals to be reviewed by the testing lab shall be handled in the same manner.
 - 4. Color Selections & Samples: Provide one sample or cut sheet for the Architect's records.
- C. Submit all office samples as soon as practicable but not later than 60 days after award of contract in order to facilitate color selections and coordination of the various materials. Final

color selections and release of shop drawings contingent upon color selection will not be made until all office samples have been submitted, coordinated and approved.

- D. Reference SHOP DRAWINGS Paragraph, PRODUCT DATA Paragraph, and SAMPLES Paragraph within this specification section for submittal quantity requirements.
- E. Contractor is responsible for the costs associated with the digital delivery of all submittals, and hard copy where required, to the Architect and the Architect's consultants and retrieval of all submittals from the Architect, when necessary.
- F. Accompany submittals with transmittal letter containing:
 - 1. Date.
 - 2 Project title and number.
 - 3. Contractor's name and address.
 - 4. Identification of specification section and submittal numbers.
 - 5. The number of each shop drawing, product data and sample submitted.
 - 6. Notification of deviations from contract documents.
 - 7. Other pertinent data.
- G. Submittals shall include:
 - 1. Date and revision dates.
 - 2 Project title and number.
 - 3. Names of Architect, Contractor, subcontractor, supplier and manufacturer.
 - 4. Identification of product or material and specification section number.
 - 5. Relation to adjacent structure, materials or other critical features.
 - 6 Field dimensions, clearly identified as such.

 - Applicable reference standards.
 A blank space 3" x 4" for Architect's stamp.
 Identification of deviations from contract documents.
 - 10 Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements, compliance with contract documents and coordination with requirements of the work. Note: Absence of the Contractor's stamp shall constitute grounds for rejection of the submittal until such time as the submittal has been processed in accordance with this requirement.
 - 11. Other pertinent data required by specifications.

1.8 **RE-SUBMISSION REQUIREMENTS**

- A. Re-submission: For shop drawings and product data not approved by Architect, make corrections and changes in submittals required by Architect and re-submit until approved.
 - 1. The digital re-submission shall be logged in using the "Resubmit" feature in the contractor's project management program.
- B. Shop Drawings:
 - 1. Revise initial drawings and re-submit as specified for initial submittal.
 - 2. Indicate on drawings any changes which have been made, other than those requested by Architect.
- C. Product Data and Samples: Submit new data and samples as specified for initial submittal.

1.9 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

- A. Distribute reviewed copies of shop drawings and product data which carry Architect's stamp as follows: Contractor's file, project site file, record documents file, other prime contractors.
- B. Keep and maintain a full set of submittals throughout the construction phase to be submitted to the Architect with other Close-out documents for delivery to the Owner for his permanent record. Set of submittals shall be delivered to the Architect in cardboard file boxes with string and button type closures. Organize submittals by CSI divisions, utilizing neatly labeled pressboard dividers to separate the sections. Neatly label short end of box with project name, contents and duration of construction.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 013323

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
 - 1. Division 01 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
 - 2. Divisions 02 through 49 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

- D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.
- E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.
- K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of [five] previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Description of test and inspection.
 - 3. Identification of applicable standards.
 - 4. Identification of test and inspection methods.
 - 5. Number of tests and inspections required.
 - 6. Time schedule or time span for tests and inspections.
 - 7. Entity responsible for performing tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.
- C. Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and re-inspection.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

- C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.

- f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.
- 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 - 2. Notify Architect [seven] days in advance of dates and times when mockups will be constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow [seven] days for initial review and each re-review of each mockup.
 - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 6. Demolish and remove mockups when directed, unless otherwise indicated.
- K. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 49.

1.7 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor[, and the Contract Sum will be adjusted by Change Order].
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 - 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

- 2. Notify testing agencies at least [24] hours in advance of time when Work that requires testing or inspecting will be performed.
- 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
- 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
- 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar qualitycontrol services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7. Security and protection for samples and for testing and inspecting equipment at Project site.

- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within [30] days of date established for **the Notice to Proceed**.
 - 1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.8 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified [testing agency] to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
 - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 - 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 - 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 - 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 - 6. Retesting and reinspecting corrected work.

PART 2 - EXECUTION

2.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

2.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 01 41 00 REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 CODES

- A. Where references are made on drawings or specifications to codes, they shall be considered an integral part of the contract documents as minimum standards. Nothing contained in the contract documents shall be so construed as to be in conflict with any law, bylaw or regulation of the municipal, state, federal or other authorities having jurisdiction.
- B. Perform work in compliance with all County ordinances and requirements. 1. ------

1.2 GOVERNING LAWS

A. Additional information with legal implications regarding applicable governing laws and jurisdictions can be found in the conditions of the contract.

1.3 PERMITTING

A. Contractor shall, without additional expense to Owner, obtain necessary licenses and permits, and be responsible for complying with any federal, state, county and municipal laws, codes and regulations applicable to the performance of the work, including, but not limited to, any laws or regulations requiring the use of licensed contractors to perform parts of the work.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 014100

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
- D. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the organizations responsible for the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-6257
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-6257
	Available from Defense Standardization Program www.dps.dla.mil	
	Available from General Services Administration www.gsa.gov	(202) 619-8925
	Available from National Institute of Building Sciences www.nibs.org	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MIL	(See MILSPEC)	
MIL-STD	(See MILSPEC)	

MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-6257
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(703) 358-2960
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABAA	Air Barrier Association of America www.airbarrier.org	(866) 956-5888
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	ACI International (American Concrete Institute) www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The)	(205) 257-2530

www.aeic.org

AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association (Now part of CPA)	
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)	
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(505) 522-1437
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000

ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9585
AWCI	AWCI International (Association of the Wall and Ceiling Industry International) www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (Now WCSC)	
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(334) 874-9800
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963

BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
CCC	Carpet Cushion Council www.carpetcushion.org	(203) 637-1312
CDA	Copper Development Association www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association www.canelect.ca	(613) 230-9263
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
СРА	Composite Panel Association www.pbmdf.com	(301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRI	Carpet & Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(866) 797-4272 (416) 747-4000
CSI	Cast Stone Institute www.caststone.org	(770) 972-3011
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700

CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJCDC	Engineers Joint Contract Documents Committee www.ejdc.org	(703) 295-5000
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association www.esda.org	(315) 339-6937
FIBA	Federation Internationale de Basketball Amateur (The International Basketball Federation) www.fiba.com	41 22 545 00 00
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation) www.fivb.ch	41 21 345 35 35
FMG	FM Global (Formerly: FM - Factory Mutual System) www.fmglobal.com	(401) 275-3000
FMRC	Factory Mutual Research (Now FMG)	
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. www.floridaroof.com	(407) 671-3772
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GRI	(Now GSI)	
GS	Green Seal	(202) 872-6400

www.greenseal.org

GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydraulic Institute www.pumps.org	(888) 786-7744 (973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAS	International Approval Services (Now CSA International)	
IBF	International Badminton Federation www.intbadfed.org	(6-03) 9283-7155
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America www.iesna.org	(212) 248-5000
IEST	Institute of Environmental Sciences and Technology www.iest.org	(847) 255-1561
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11

	Available from ANSI www.ansi.org	(202) 293-8020
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (702) 567-8150
ITS	Intertek www.intertek.com	(800) 345-3851 (713) 407-3500
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864 (804) 314-8955
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association, Inc. www.maplefloor.org	(847) 480-9138
MFMA	Metal Framing Manufacturers Association www.metalframingmfg.org	(312) 644-6610
MH	Material Handling (Now MHIA)	
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(312) 332-0405
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6623 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926

NAGWS	National Association for Girls and Women in Sport www.aahperd.org/nagws/	(800) 213-7193, ext. 453
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(262) 248-9094
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-3550
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (303) 697-8441
NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association www.glass.org	(866) 342-5642 (703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393

NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association) www.nofma.org	(901) 526-5016
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736 (540) 751-0930
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)	
NWWDA	National Wood Window and Door Association (Now WDMA)	
OPL	Omega Point Laboratories, Inc. (Acquired by ITS - Intertek) www.opl.com	(800) 966-5253 (210) 635-8100
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDCA	Painting & Decorating Contractors of America www.pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PGI	PVC Geomembrane Institute http://pgi-tp.ce.uiuc.edu	(217) 333-3929
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America) www.landcarenetwork.org	(800) 395-2522 (703) 736-9666
PTI	Post-Tensioning Institute www.post-tensioning.org	(602) 870-7540
RCSC	Research Council on Structural Connections www.boltcouncil.org	(800) 644-2400 (312) 670-2400
RFCI	Resilient Floor Covering Institute www.rfci.com	(301) 340-8580
RIS	Redwood Inspection Service www.calredwood.org	(888) 225-7339 (415) 382-0662

RTI	(Formerly: NTRMA - National Tile Roofing Manufacturers Association) (Now TRI)	
SAE	SAE International www.sae.org	(877) 606-7323 (724) 776-4841
SDI	Steel Deck Institute www.sdi.org	(847) 458-4647
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(516) 294-5424
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234
SIA	Security Industry Association www.siaonline.org	(703) 683-2075
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)	
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMPTE	Society of Motion Picture and Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331

STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing, & Restoration Institute www.swrionline.org	(816) 472-7974
TCA	Tile Council of America, Inc. www.tileusa.com	(864) 646-8453
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrasssod.org	(847) 649-5555
TRI	Tile Roofing Institute (Formerly: RTI - Roof Tile Institute) www.tileroofing.org	(312) 670-4177
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800
USGBC	U.S. Green Building Council www.usgbc.org	(202) 828-7422
USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association (Now WCSC)	
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)	(800) 506-4636 (212) 297-2109

www.windowcoverings.org

WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WIC	Woodwork Institute of California (Now WI)	
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930
C. Cod they sites Doc	le Agencies: Where abbreviations and acronyms are used in Specificat y shall mean the recognized name of the entities in the following list. Na s are subject to change and are believed to be accurate and up-to-da cuments.	ions or other Contract Documents, ames, telephone numbers, and Web ate as of the date of the Contract
BOCA	BOCA International, Inc. (See ICC)	
IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICBO	International Conference of Building Officials (See ICC)	
ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)	
ICC	International Code Council www.iccsafe.org	(888) 422-7233 (703) 931-4533
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543
SBCCI	Southern Building Code Congress International, Inc. (See ICC)	

- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.
- CE Army Corps of Engineers

www.usace.army.mil

CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense http://.dodssp.daps.dla.mil	(215) 697-6257
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322
FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(800) 488-3111
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Building Service (See GSA)	
PHS	Office of Public Health and Science www.osophs.dhhs.gov/ophs	(202) 690-7694
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000

TRB	Transportation Research Board www.nas.edu/trb	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation www.dca.ca.gov/bhfti	(800) 952-5210 (916) 574-2041
CPUC	California Public Utilities Commission www.cpuc.ca.gov	(415) 703-2782
TFS	Texas Forest Service Forest Resource Development http://txforestservice.tamu.edu	(936) 639-8180

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 01 45 00 - QUALITY CONTROL

PART 1 - GENERAL

1.1 **SUMMARY**

- A. Section Includes:
 - 1. Quality control of products and workmanship.
 - Manufacturer's instructions.
 - 3. Manufacturer's certificates and field services.
 - 4. Mockups.

B. Related Requirements:

- 1. Section 01 33 23 Shop Drawings, Product Data, and Samples: Field samples. Submittal of manufacturer's instructions.
- Section 01 42 00 References.
- Section 01 45 23 Testing and Inspection Services.
 Section 01 62 00 Product Options.
- 5. Individual Specifications Sections: Mockups required.

1.2 DESCRIPTION

A. Maintain quality control over supervision, subcontractors, suppliers, manufacturers, products, services, workmanship, and site conditions, to produce work in accordance with contract documents.

WORKMANSHIP 1.3

- A. Comply with industry standards of the region except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- B. Provide suitably qualified personnel to produce work of specified quality.
- C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
- D. Provide finishes to match approved samples.

1.4 MANUFACTURER'S INSTRUCTIONS

- A. Require compliance with instructions in full detail, including each step in sequence.
- B. Should instruction conflict with contract documents, request clarification from Architect/Engineer before proceeding.

1.5 MANUFACTURER'S CERTIFICATES

- A. When required in individual Specifications section, submit manufacturer's certificate, in duplicate, certifying that products meet or exceed specified requirements, executed by responsible officer.
- MANUFACTURER'S FIELD SERVICES 1.6

QUALITY CONTROL

- A. When required in individual Specifications section, have manufacturer or his authorized representative provide qualified representative to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment test, adjust, and balance of equipment as applicable, and to make written report of observations and recommendations to Architect.
- B. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- C. Submit report in duplicate within 10 days of observation to Architect/Engineer for review.

1.7 MOCKUPS

- A. Tests will be performed under provisions of SECTION 01 45 23 TESTING AND INSPECTION SERVICES.
- B. Assemble and erect complete, with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Acceptable mockups in place may be retained in completed work.

1.8 FIELD SAMPLES

- A. Install field samples at the site as required by individual specification sections for review.
- B. Acceptable samples represent a quality level for the work.
- C. Where field sample is specified in individual sections to be removed, clear area after field sample has been accepted by Architect/Engineer.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 014500

QUALITY CONTROL

SECTION 01 45 23 - TESTING AND INSPECTION SERVICES (BY OWNER)

PART 1 - GENERAL

1.1 SUMMARY

- A. Requirements Included: Owner provided materials testing laboratory services.
- B. Related Requirements:
 - 1. Document 00 31 32 Geotechnical Data.
 - 2. Terms and Conditions: Inspections, testing, and approvals required by public authorities.
 - 3. Section 01 45 00 Contract Quality Control: Manufacturer's certificates.
 - 4. Section 01 78 39 Project Record Documents.
 - 5. Individual Specifications Sections: Inspections and tests required, and standards for testing.

1.2 SELECTION AND PAYMENT

- A. Owner will employ services of an independent materials testing laboratory to perform specified inspection and testing and will pay for these services directly to the testing laboratory.
- B. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform work in accordance with requirements of contract documents. Contractor will pay all testing required by local authorities having jurisdiction.

1.3 QUALITY ASSURANCE

- A. Laboratory shall comply with requirements of ASTM E 329 and ASTM D 3740 and provide certifications to this effect.
- B. Laboratory shall maintain a full-time registered Engineer on staff to review specific tests required by this specification.
- C. Laboratory shall be authorized to operate in State in which project is located.
- D. Testing equipment shall be calibrated to ensure accurate results and values in order to ensure that test results are true and valid, and at intervals with devices of an accuracy traceable to either NBS Standards or accepted values of natural physical constants.

1.4 LABORATORY RESPONSIBILITIES

- A. Provide qualified personnel at site after due notice from the contractor; cooperate with Architect, Contractor, and appropriate public authorities having jurisdiction in performance of services.
- B. Perform specified inspection, sampling, and testing of products in accordance with latest, up-todate standards.
- C. Ascertain compliance of materials and mixes with requirements of contract documents.
- D. Promptly notify Architect, appropriate consultants, Contractor, Owner, and authority having jurisdiction of observed irregularities or non-conformance of work or products.

E. Perform additional inspections and tests required by Architect, Owner, Contractor, or authority having jurisdiction.

1.5 LABORATORY REPORTS

A. After each inspection and test, promptly submit two copies of laboratory report to Architect, one to applicable consultant, one to Owner, one to Contractor. Include: Date issued, project title and number, name of inspector, date and time of sampling or inspection, weather conditions, identification of product and specifications section, location in the project, type of inspection or test, date of test, results of tests, and specific indication of conformance, or lack of such, with contract documents. When requested by Architect/Engineer, provide interpretation of test results.

1.6 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter, or enlarge on requirements of contract documents.
- B. Laboratory may not approve or accept any portion of the work.
- C. Laboratory may not assume any duties of Contractor.
- D. Laboratory has no authority to stop work.

1.7 CONTRACTOR RESPONSIBILITIES

- A. Deliver to laboratory at designated location adequate samples of materials proposed to be used which require testing, together with proposed mix designs.
- B. Cooperate with laboratory personnel, and ensure ready access to work and to manufacturer's facilities, if requested by testing lab.
- C. Provide incidental labor and facilities for access to work to be tested, to obtain and handle samples at the site, or at source of products to be tested, in order to facilitate tests and inspections, and for storage and curing of test samples.
- D. Notify laboratory of material sources and furnish lab-determined necessary quantities of representative samples of materials proposed for use which are required to be tested.
- E. Notify Architect and laboratory 24 hours prior to expected time for operations requiring inspection and testing services. Cancel notifications in a timely manner if items or systems are not ready for inspection as intended. Reimburse Owner for trip charges when cancellation notifications are not made in a timely fashion.
- F. Advise laboratory in a timely fashion to complete required inspection and testing prior to subsequent work being performed.
- G. Reimburse Owner for all subsequent re-testing of products or systems found to be defective or otherwise not in accordance with specification requirements, and for any overtime pay required as a result of any inspection requirements that may fall outside of normal job-site weekday work schedule. Remove rejected products or work and replace with products or work of specified

quality.

H. Notification of Source Change: The Contractor shall be responsible for notifying the Owner, Architect, Engineer, and testing laboratory when the source of any material is changed after the original tests or inspections have been made.

PART 2 - PRODUCTS - Not used.

PART 3 - EXECUTION

3.1 EARTHWORK (SITE GENERAL)

- A. Make necessary soil tests (Atterberg Limit Series ASTM D 4318 and ASTM D 698 Standard Proctor) to determine moisture content and density of existing subgrade. Perform necessary soil tests (Atterberg Limit Series and ASTM D 698 Standard Proctor for each type of imported fill) to determine the moisture content and to inspect and test the placement of additional fill lifts to verify that all fill materials used are in accordance with the specifications for that use. Perform one field density test (ASTM D 2922 and ASTM D 3017) per 5,000 sq. ft. of site area in the area affected on each lift prior to placement of additional fill material.
- B. Imported Topsoil Tests: Testing for topsoil quality compliance shall be performed by the Testing Laboratory.

3.2 PAVING OR SPECIAL SURFACE SUBGRADE PREPARATION

- A. Perform one subgrade in-place density test per 7,500 sq. ft. of subgrade, after subgrade preparation, in accordance with ASTM D 2922 and ASTM D 3017. Perform tests within 48 hours of pavement construction.
- B. Pulverization tests on lime subgrade, TEX101E, Part III, at same frequency as density tests.

3.3 BUILDING SUBGRADE PREPARATION

A. Make necessary soil tests (Atterberg Limit Series and ASTM D 698 Standard Proctor for each type of fill) to determine the moisture content and density of existing subgrade and inspect and test the placement of additional fill lifts to verify that all fill materials used are in accordance with the specifications for that use. Perform one field density test (ASTM D 2922 and ASTM D 3017) for each 5,000 sq.ft. of area within the building footprint on each lift prior to placement of additional fill material.

3.4 FORMWORK, REINFORCING STEEL AND INSERTS

- A. Make general inspection of formwork.
- B. Prior to each concrete pour, inspect fabrication and bending of bars, bar sizes, spacing, placement and tying in accordance with ACI 315.
- C. Prior to each concrete pour, inspect positioning of steel inserts and assemblies, sizes, and spacing, and inspect fusion-welded anchors and sheer connectors.

3.5 CAST-IN-PLACE CONCRETE

A. Design Mixes:

- 1. At the beginning of the work, Contractor shall submit proposed concrete mixes for review by the Architect, structural engineering consultant, and testing laboratory, including the sieve analysis of fine and course aggregate ASTM C 136, dry rodded weight of coarse aggregate ASTM C 29, and the specific gravity (bulk saturated surface dry), of fine and coarse aggregates ASTM C 127 and C 128.
- 2. The testing laboratory will submit their findings to the structural consultant, who will subsequently forward this information, with their review of the submittals, to the Architect.
- 3. Contractor shall not mix concrete for placing in the work until confirmation laboratory reports are supplied to reflect that each proposed mix will develop the strength required. Successful past history in accordance with ACI 318 will be satisfactory.
- B. Test Cylinders: Make at least one test of each day's pouring of concrete or each 100 cubic yards, whichever is the least, on each different portion or section of the work. Mold and cure specimens in accordance with ASTM C 31, and test in accordance with ASTM C 39. Test cylinders shall be made and tested by the laboratory. Footings, walls, and floor systems constitute different sections. Each test shall consist of four specimens, one of which shall be broken at seven days, two at 28 days and one held in reserve. Determine temperature and air content for each set of test cylinders in accordance with ASTM C 231.
- C. Field Quality Control:
 - 1. Determine slump for each concrete strength test and whenever consistency of concrete varies, in accordance with ASTM C 143.
 - 2. Monitor and record addition of water to concrete and length of time concrete is allowed to remain in truck.
 - 3. Verify delivery tickets indicating class of concrete, amount of water added during initial batching, and time initial batching occurred.
 - 4. Monitor work being performed in accordance with ACI (American Concrete Institute) recommendations as a standard of quality.
 - 5. Reference SECTION 03 30 00 CAST-IN-PLACE CONCRETE for additional requirements.
- D. Source Quality Control: An independent testing laboratory representative shall periodically inspect and control concrete mixing and loading of transit mix trucks at batch plant at intervals appropriate to monitor quality of material issued on job.

3.6 MORTAR, GROUT, AND MASONRY REINFORCEMENT

- A. Coordinate with Owner's testing laboratory to provide periodic inspection of the following task:
 - 1. As masonry construction begins, the following shall be verified to ensure compliance:
 - a. Proportions of site prepared mortar.
 - b. Construction of mortar joints.
 - c. Location of reinforcement and connectors.
 - 2. The inspection program shall verify:
 - a. Size and location of structural elements.
 - b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames, or other construction.
 - c. Specified size, grade, and type of reinforcement.
 - d. Protection of masonry during cold weather (temperature below 40°F.) or hot weather (temperature above 90°F.).
 - 3. Prior to grouting, the following shall be verified to ensure compliance:
 - a. Grout space is clean.
 - b. Placement of reinforcement and connectors.
- Proportions of site-prepared grout. c.
- d. Construction of mortar joints.
- B. Coordinate with Owner's testing laboratory to provide continuous inspection of the following task:
 - 1. Grout placement shall be verified to ensure compliance with code and construction document provisions.

STRUCTURAL STEEL 3.7

- A. Fabrication of, erection of, and connections between, structural steel members, including welding and tension in high strength bolts, will be accomplished under and subject to the inspection of an independent testing agency. The general contractor, structural steel fabricator, and erector shall afford full cooperation to the laboratory.
- B. Perform the following testing and inspection: (Prior to placement of steel deck)
 - 1. Check location of condition of anchor bolts.
 - 2. Check plumbness and tolerance of steel frame.
 - 3. Qualification of welders and welding techniques (at Contractor's expense).
 - 4. Visually inspect common bolts.
 - 5. Inspection of high-strength bolting:
 - a.
 - b.
 - Visually inspect connections. Check tightness of at least 33% of connections. Check at least two bolts of each girder to column connection.
 - 6. Visually inspect field and shop welds.
 - Ultrasonic or X-ray testing of full penetration welds. 7.
 - Re-inspect corrective measures required at expense of Contractor.
 - Verify that no members are damaged.
 - 10. Verify that materials and installation are according to contract documents and industry standards.
- C. Gas Cutting: Do not use gas cutting torches for correcting fabrication errors in the structural framing. Cutting will not be permitted on any member, unless specifically approved by the structural engineer. Finish gas- cut sections equal to a sheared appearance when gas finish cutting is permitted. Do not flame cut holes or enlarge holes by burning.
- D. Correction: The fabricator or erector shall correct deficiencies in structural steel work which inspection and test reports have indicated to be not in compliance with the specified requirements. Perform all additional tests required to reconfirm non-compliance of the original work and to show compliance of corrected work. Retesting of non-conforming work shall be paid by the Contractor.
- E. All welders employed during erection of structural steel must be certified by The American Welding Society for type of base materials and positions encountered. Certification testing to be performed at Contractor's expense and copies of Certifications shall be submitted for review upon request and maintained at the project site by the Contractor.

3.8 STEEL JOISTS

- A. All steel joists and connections to structural steel members shall be inspected.
- B. Quality Assurance: All welding performed during the manufacture and erection of steel joists shall comply with the requirements of AWS D1.1.
- C. Inspect condition of joists after erection; check method of attachment to structures and details of

bridging and accessories to verify compliance with required standards.

3.9 METAL DECKING

- A. Qualification of Welders: Qualify the welding process and all welders (at Contractor expense), and periodically monitor the work in accordance with the requirements of AWS D1.3.
- B. Testing Laboratory shall inspect steel decking to ensure the material and installation is in accordance with the specifications and shop drawings.

3.10 METAL DECK AND FIELD WELDED SHEAR STUDS:

- A. The erection of metal deck and field welded shear studs shall be subject to inspection by the testing agency.
- B. Shear Studs:
 - Test minimum of two shear studs welded at start of each production period in order to determine generator, control unit and stud welder setting. Studs shall be capable of being bent 45° from vertical without weld failure. If, after welding, visual inspection reveals that sound weld or a full 360° fillet has not been attained for a particular stud, such stud shall be struck with hammer and bent 15° off perpendicular to nearest end of beam. Studs failing under this test shall be replaced.
 - 2. When the temperature is below 32°F., two studs from each group of 100 studs (or one stud if less than 100 studs are present) should be tested after cooling. Studs shall not be welded below 0°F. or when surfaces are wet with rain or snow. If stud fails in weld, two new studs shall pass test before resumption of welding.

3.11 CEMENTITIOUS FIREPROOFING

- A. Application inspection to ensure the material and installation is in accordance with the specifications.
- B. Sample and verify the thickness and density of spray applied fireproofing in accordance with ASTM E 605 for each days application.

3.1 SMOKE TEST OF DRAINAGE AND VENT PIPING

A. Test to check for joint leakage in the sanitary sewer system and vent system.

3.2 OTHER WORK REQUIRING TESTS

- A. Refer to individual sections covered under Divisions 22, 23, and 26 for other work requiring tests by independent testing laboratory.
- B. Other Tests:1. Moisture content in face brick.

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
 - 1. Division 01 Section "Summary" for limitations on utility interruptions and other work restrictions.
 - 2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
 - 3. Division 01 Section "Execution" for progress cleaning requirements.
 - 4. Divisions 02 through 49 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections.

1.3 DEFINITIONS

A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to,[**Owner's construction forces,**] Architect,[testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric power service use charges for electricity used by all entities for construction operations.

1.5 SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.6 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.7 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portable Chain-Link Fencing: Minimum 2-inch, 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide galvanized steel bases for supporting posts.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of construction personnel. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of [10] <> individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table, chairs, and 4-footsquare tack board.
 - 3. Drinking water and private toilet.
 - 4. Coffee machine and supplies.
 - 5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.

- 6. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, selfcontained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 - 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of **8** at each return air grille in system and remove at end of construction.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

- 1. Toilets: Use of Owner's existing toilet facilities will not be permitted.
- D. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Connect temporary service to Owner's existing power source, as directed by Owner.
- G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
 - 2. Install lighting for Project identification sign.
- H. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install **one** telephone line(s) for each field office.
 - 1. Post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Architect's office.
 - e. Engineers' offices.
 - f. Owner's office.
 - g. Principal subcontractors' field and home offices.
 - 2. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.
- I. Electronic Communication Service: Provide temporary electronic communication service, including electronic mail, in common-use facilities.
 - 1. Provide **WI-FI** in primary field office.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

- 1. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
- 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: **Provide temporary** parking areas for construction personnel. Parking areas as directed and approved by the owner.
- D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- E. Project Identification and Temporary Signs: Provide Project identification and other signs. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
 - 1. Provide temporary, directional signs for construction personnel and visitors.
 - 2. Maintain and touchup signs so they are legible at all times.
 - 3. Project sign shall include name of project, contractor and architect. Submit sign design for approval.
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.
- G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Division 01 Section "Summary."

- B. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
 - 1. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- C. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- D. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.
- E. Site Enclosure Fence: **Before construction operations begin**, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. **Provide Owner with one set of keys.**
- F. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- G. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.

- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
 - 1. Division 01 Section "References" for applicable industry standards for products specified.
 - 2. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
 - 3. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility , except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service

performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.4 SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use CSI Form 13.1A.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - 1. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 - Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within [7] days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within [15] days of receipt of request, or [7] days of receipt of additional information or documentation, whichever is later.
 - a. Form of Acceptance: Change Order.

- b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.
- B. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within [15] days of receipt of request, or [7] days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
 - b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

- 1. Store products to allow for inspection and measurement of quantity or counting of units.
- 2. Store materials in a manner that will not endanger Project structure.
- 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
- 4. Store cementitious products and materials on elevated platforms.
- 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
- 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
- 7. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
 - 3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

- 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- 4. Where products are accompanied by the term "as selected," Architect will make selection.
- 5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
- 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
- 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
 - 1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
 - 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
 - 3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 - 4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
 - 5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
 - 6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
 - 7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
 - 8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
 - 9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

- 10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution if received within [10] days before [the Notice of Award]. Requests received after that time may be considered or rejected at discretion of Architect.
- B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - 2. Requested substitution does not require extensive revisions to the Contract Documents.
 - 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - 4. Substitution request is fully documented and properly submitted.
 - 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 - 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - 7. Requested substitution is compatible with other portions of the Work.
 - 8. Requested substitution has been coordinated with other portions of the Work.
 - 9. Requested substitution provides specified warranty.
 - 10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

- 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
- 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
- 3. Evidence that proposed product provides specified warranty.
- 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
- 5. Samples, if requested.

SECTION 01 65 00 PRODUCT DELIVERY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Requirements Included:
 - 1. Packaging, Transportation.
 - 2. Delivery and Receiving.
 - 3. Product Handling.

B. Related Requirements:

- Section 01 32 16 Construction Progress Schedules.
 Section 01 33 23 Shop Drawings, Product Data and Samples: Manufacturers' Instructions.
 Section 01 66 00 Product Storage and Handling Requirements.
- 4. Individual Sections: Specific requirements for packaging, shipping and handling.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.1 PACKAGING, TRANSPORTATION

- A. Require supplier to package products in boxes or crates for protection during shipment, handling and storage. Protect sensitive products against exposure to elements and moisture.
- B. Protect sensitive equipment and finishes against impact, abrasion and other damage.

3.2 DELIVERY AND RECEIVING

- A. Arrange deliveries of products in accordance with construction progress schedules. Allow time for inspection prior to installation.
- B. Coordinate deliveries to avoid conflict with work and conditions at site; limitations on storage space; availability of personnel and handling equipment; and Owner's use of premises.
- C. Deliver products in undamaged, dry condition, in original unopened containers or packaging with identifying labels intact and legible.
- D. Clearly mark partial deliveries of component parts of equipment to identify equipment and contents to permit easy accumulation of parts and to facilitate assembly.
- E. Immediately on delivery, inspect shipment to assure
 1. Product complies with requirements of contract documents and reviewed submittals.
 - 2. Quantities are correct.
 - 3. Accessories, and installation hardware are correct.
 - 4. Containers and packages are intact and labels legible.
 - 5. Products are protected and undamaged.

PRODUCT DELIVERY REQUIREMENTS

3.3 PRODUCT HANDLING

- A. Provide equipment and personnel to handle products by methods to prevent soiling and damage.
- B. Provide additional protection during handling to prevent marring and otherwise damaging products, packaging and surrounding surfaces.
- C. Handle product by methods to avoid bending or over-stressing. Lift large and heavy components only at designated lift points.

SECTION 01 66 00 - PRODUCT STORAGE AND HANDLING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Requirements Included:
 - 1. Storage, General.
 - 2. Enclosed Storage.
 - 3. Exterior Storage.
 - 4. Maintenance of Storage.
- B. Related Requirements:
 - 1. Section 01 11 00 Summary of Work.
 - 2. Section 01 50 00 Construction Facilities and Temporary Controls: Storage facilities. Protection of installed work.
 - 3. Section 01 65 00 Product Delivery Requirements.
 - 4. Section 01 78 39 Project Record Documents.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 STORAGE, GENERAL

- A. Store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact. Protect until installed.
- B. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.

3.2 ENCLOSED STORAGE

- A. Store products, subject to damage by the elements, in substantial weathertight enclosures.
- B. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
- C. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.
- D. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

3.3 EXTERIOR STORAGE

- A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.
- B. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- C. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.

PRODUCT STORAGE AND HANDLING

- D. Provide surface drainage to prevent erosion and ponding of water.
- E. Prevent mixing of refuse or chemically injurious materials or liquids.

3.4 MAINTENANCE OF STORAGE

- A. Periodically inspect stored products on a scheduled basis.
- B. Verify that storage facilities comply with manufacturer's product storage requirements.
- C. Verify that manufacturer required environmental conditions are maintained continually.
- D. Verify that surfaces of products exposed to the elements are not adversely affected; that any weathering of finishes is acceptable under requirements of contract documents.

3.5 MAINTENANCE OF EQUIPMENT STORAGE

- A. For mechanical and electrical equipment in long-term storage, provide manufacturer's service instructions to accompany each item, with notice of enclosed instructions shown on exterior of package.
- B. Service equipment on a regularly scheduled basis, maintaining a log of services; submit as a record document.

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Coordination of Owner-installed products.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.
- B. Related Sections include the following:
 - 1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
 - 2. Division 01 Section "Submittal Procedures" for submitting surveys.
 - 3. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

- A. Qualification Data: For [land surveyor] [professional engineer].
- B. Certificates: Submit certificate signed by [land surveyor] [professional engineer] certifying that location and elevation of improvements comply with requirements.
- C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

PART 2 - EXECUTION

2.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

2.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Submit requests on CSI Form 13.2A, "Request for Interpretation."

2.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

2.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of [two] permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

- 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
- 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

2.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of **8** feet in spaces without a suspended ceiling.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

2.6 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction forces.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
 - 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 - 2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

2.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

2.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect fieldassembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

2.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

2.10 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

SECTION 01 73 29 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 **SUMMARY**

- A. Section Includes: Requirements and limitations for cutting and patching of work.
- **B.** Related Requirements:
 - Section 01 11 00 Summary of Work: Work by Owner or by separate contractors.
 Section 01 62 00 Product Options.

 - 3. Individual Specifications Sections:
 - Cutting and patching incidental to work of the section. a.
 - b. Advance notification to other Sections of openings required in work of those sections.
 - Limitations on cutting structural members. c.

SUBMITTALS 1.2

- A. General: Submit in accordance with SECTION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Submit written request in advance of cutting or alteration which affects
 - 1. Structural integrity of any element of the project.
 - 2. Integrity of weather-exposed or moisture-resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.
 - Visual qualities of sight-exposed elements.
 Work of Owner or separate contractor.

C. Include in request

- 1. Identification of project.
- 2. Location and description of affected work.
- 3. Necessity for cutting or alteration.
- 4. Description of proposed work and products to be used.
- 5. Alternatives to cutting and patching.
- 6. Effect on work of Owner or separate contractor.
- 7. Written permission of affected separate contractor.
- 8. Date and time work will be executed.

PAYMENT FOR COSTS 1.3

A. Costs resulting from ill-timed or defective work, or work not conforming to contract documents, including costs for additional services of Architect or other consultants, shall be borne by the Contractor.

PART 2 - PRODUCTS

2.1MATERIALS

A. Products: Those required for original installation.

PART 3 - EXECUTION

3.1 GENERAL

CUTTING AND PATCHING

- A. Execute cutting, fitting and patching including excavation and fill, to complete work, and to1. Fit the several parts together, to integrate with other work.2. Uncover work to install ill-timed work.

 - 3. Remove and replace defective and non-conforming work.
 - 4. Remove samples of installed work for testing.
 - 5. Provide openings in elements of work for penetrations of mechanical and electrical work.

3.2 **INSPECTION**

- A. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- B. After uncovering, inspect conditions affecting performance of work.
- C. Beginning of cutting or patching means acceptance of existing conditions.

3.3 PREPARATION

- A. Provide temporary supports to assure structural integrity of surroundings; devices and methods to protect other portions of project from damage.
- B. Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.
- C. Maintain excavations free of water.

3.4 PERFORMANCE

- A. Execute work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.
- B. Employ original installer to perform cutting and patching for weather-exposed and moistureresistant elements, and sight-exposed surfaces.
- C. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- D. Restore work with new products in accordance with requirements of contract documents.
- E. Fit work tight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- F. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with firerated packing material, full thickness of the construction element.
- G. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

END OF SECTION 017329

CUTTING AND PATCHING

SECTION 01 74 13 - CLEANING

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Throughout the construction period, maintain the building and site in a standard of cleanliness as described in this section.
- B. Related Requirements: In addition to standards described in this section, comply with requirements for cleaning as described in other pertinent sections of these specifications.

1.2 QUALITY ASSURANCE

A. Conduct a daily inspection, and more often if necessary, to verify that requirements for cleanliness are being met.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS AND EQUIPMENT

A. Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.2 COMPATIBILITY

A. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

- A. General:
 - 1. Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials.
 - 2. Do not allow accumulation of scrap, debris waste material, and other items not required for construction of the work.
 - 3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the project sites.
 - 4. Provide adequate storage for all items awaiting removal from the project sites, observing requirements for fire protection and protection of the ecology.
- B. Sites:
 - 1. Daily, and more often if necessary, inspect the sites and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.
 - 2. Weekly, and more often if necessary, inspect all arrangements of materials stored on site. Restack, tidy, or otherwise service arrangements to meet the requirements of this section.
 - 3. Maintain the site in a neat and orderly condition at all times.

- C. Structures:
 - 1. Weekly, and more often if necessary, inspect the structures and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.
 - 2. Weekly, and more often if necessary, sweep interior spaces clean.
 - a. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and a handheld broom.
 - 3. As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using equipment and materials required to achieve the necessary cleanliness.
 - 4. Following the installation of finish floor materials, clean the finish floor daily (and more often if necessary) at all times while work is being performed in the space in which finish materials are installed.
- D. "Clean", for the purpose of this subparagraph shall be interpreted as meaning free from foreign material which, in the opinion of the Architect, may be injurious to the finish floor material.

3.2 FINAL CLEANING

- A. "Clean", for the purpose of this Article, and except as may be specifically provided otherwise, shall be interpreted as meaning the level of cleanliness generally provide by skilled cleaners using commercial quality building maintenance equipment and materials.
- B. Prior to completion of the work, remove from the project sites all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in this section.
- C. Sites:
 - 1. Unless otherwise specifically directed by Architect, broom clean paved areas on the sites and public paved areas adjacent to the sites.
 - 2. Completely remove resultant debris.

D. Structures:

- 1. Exterior:
 - Visually inspect exterior surfaces and remove all traces of soil, waste materials, smudges, a. and other foreign matter.
 - Remove all traces of splashed materials from adjacent surfaces. b.
 - If necessary to achieve a uniform degree of cleanliness, hose down the exterior of the c. structures.
 - In event of stubborn stains not removable with water, Architect may require light d. sandblasting or other cleaning at no additional cost to the Owner.
- 2. Interior:
 - Visually inspect interior surfaces and remove all traces of soil, waste materials, smudges, a. and other foreign matter.
 - Remove all traces of splashed material from adjacent surfaces. b.
- c. Remove paint droppings, spots, stains, and dirt from finished surfaces.3. Glass: Clean inside and outside.
- 4. Polished Surfaces: To surfaces requiring routine application of buffed polish, apply the polish recommended by the manufacturer of the material being polished. This does not apply to resilient flooring surfaces. Reference SECTION 09 65 00 - RESILIENT FLOORING for cleaning of resilient flooring.
- E. Special floor/base final cleaning requirements:

- 1. Contractor shall coordinate with the Owner's housekeeping department for preparing the surfaces for final cleaning by the Contractor and protective coatings installed by the Owner.
- 2 Protection after final treatment until date of Substantial Completion shall be the responsibility of the Contractor.
- 3. All repairs or re-application required as a result of damage caused by the Work shall be the responsibility of the Contractor as directed by the Owner.
- F. Schedule final cleaning, as approved by the Architect, to enable the Owner to accept a completely clean work.

3.3 CLEANING DURING OWNER'S OCCUPANCY

A. Should the Owner occupy the work, or any portion thereof, prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning shall be as determined by the Architect in accordance with the General Conditions of the Contract for Construction.

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Warranties.
 - 3. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
 - 2. Division 01 Section "Execution" for progress cleaning of Project site.
 - 3. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 4. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 5. Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.

- 6. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
- 7. Complete startup testing of systems.
- 8. Submit test/adjust/balance records.
- 9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
- 10. Advise Owner of changeover in heat and other utilities.
- 11. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- 12. Complete final cleaning requirements, including touchup painting.
- 13. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
 - 2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - 4. Submit pest-control final inspection report and warranty.
 - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videotapes if required.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit [three] copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first [and] proceeding to interior areas second.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.

1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within [15] days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
- 1. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
- m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
- n. Replace parts subject to unusual operating conditions.
- o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
- p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
- q. Clean ducts, blowers, and coils if units were operated without filters during construction.
- r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
- s. Leave Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Maintenance manuals for the care and maintenance of [products, materials, and finishes] [systems and equipment].
- B. Related Sections include the following:
 - 1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 2. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
 - 3. Division 01 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
 - 4. Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 SUBMITTALS

- A. Final Submittal: Submit [one copy] of each manual in final form at least [15] days before final inspection. Architect will return copy with comments within [15] days after final inspection.
 - 1. Correct or modify each manual to comply with Architect's comments. Submit [one copy] of each corrected manual within [15] days of receipt of Architect's comments.

1.5 COORDINATION

A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of systems.
 - 3. List of equipment.
 - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name, address, and telephone number of Contractor.

- 6. Name and address of Architect.
- 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
 - 1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 - 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
 - 4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
 - 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
 - 1. Type of emergency.
 - 2. Emergency instructions.

- 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 - 1. Fire.
 - 2. Flood.
 - 3. Gas leak.
 - 4. Water leak.
 - 5. Power failure.
 - 6. Water outage.
 - 7. System, subsystem, or equipment failure.
 - 8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
 - 1. Instructions on stopping.
 - 2. Shutdown instructions for each type of emergency.
 - 3. Operating instructions for conditions outside normal operating limits.
 - 4. Required sequences for electric or electronic systems.
 - 5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions.
 - 2. Performance and design criteria if Contractor is delegated design responsibility.
 - 3. Operating standards.
 - 4. Operating procedures.
 - 5. Operating logs.
 - 6. Wiring diagrams.
 - 7. Control diagrams.
 - 8. Piped system diagrams.
 - 9. Precautions against improper use.
 - 10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.

- 7. Performance curves.
- 8. Engineering data and tests.
- 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
 - 1. Startup procedures.
 - 2. Equipment or system break-in procedures.
 - 3. Routine and normal operating instructions.
 - 4. Regulation and control procedures.
 - 5. Instructions on stopping.
 - 6. Normal shutdown instructions.
 - 7. Seasonal and weekend operating instructions.
 - 8. Required sequences for electric or electronic systems.
 - 9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.

- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard printed maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training videotape, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

- 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
- 2. Comply with requirements of newly prepared Record Drawings in Division 01 Section "Project Record Documents."
- G. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

SECTION 01 78 30 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preparation and submittal of warranties and bonds.
 - 2. Schedule of submittals.
- **B.** Related Requirements:
 - 1. Section 00 11 13.01- Terms and Conditions
 - 2. General Conditions of the Contract for Construction: Performance Bond and Labor and Material Payment Bonds, Warranty, and Correction of Work.

 - Section 01 77 00 Closeout Procedures.
 Section 01 78 39 Project Record Documents.
 - 5. Individual Specifications Sections: Warranties and bonds required for specific products or work.

FORM OF SUBMITTALS 1.2

- A. Bind in three individual heavy-duty 8-1/2" x 11" black, three-ring binders, with hardback, cleanable, plastic covers.
- B. Label cover of each binder with typed or printed title WARRANTIES AND BONDS, with title of project; name, address and telephone number of Contractor; and name of responsible principal.
- C. Table of Contents: Neatly typed, in the sequence of the table of contents of the project manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
- D. Separate each warranty or bond with index tab sheets keyed to the table of contents listing. Provide full information, using separate typed sheets as necessary. List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

1.3 PREPARATION OF SUBMITTALS

- A. Obtain warranties and bonds, executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the date of substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

1.4 TIME OF SUBMITTALS

A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.

- B. Make other submittals within 10 days after date of substantial completion, prior to final application for payment.
- C. For items of work when acceptance is delayed beyond date of substantial completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Sections include the following:
 - 1. Division 01 Section "Closeout Procedures" for general closeout procedures.
 - 2. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 3. Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Final Submittal: Submit [one] set(s) of marked-up Record Prints and [one] set(s) of Record CAD Drawing files [Autocad Version 2018],
 - 1) Electronic Media: [CD-R OR FLASH DRIVE].
- B. Record Specifications: Submit [one copy] of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit [one copy] of each Product Data submittal.
 - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
 - 1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or [Construction] [Work] Change Directive.
 - k. Changes made following Architect's written orders.
 - 1. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 - 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 - 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.

- 1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
- 2. Refer instances of uncertainty to Architect for resolution.
- 3. Architect will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
- 4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.
- C. Record CAD Drawings: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected CAD Drawings of the Contract Drawings, as follows:
 - 1. Format: Same CAD program, version, and operating system as the original Contract Drawings [Autocad Version 2010].
 - 2. Format: [DWG], Version <Autocad Version 2018>, operating in [Microsoft Windows] operating system.
 - 3. Incorporate changes and additional information previously marked on Record Prints. Delete, redraw, and add details and notations where applicable.
 - 4. Refer instances of uncertainty to Architect for resolution.
 - 5. Architect will furnish Contractor one set of CAD Drawings of the Contract Drawings for use in recording information.
 - a. Architect makes no representations as to the accuracy or completeness of CAD Drawings as they relate to the Contract Drawings.
 - b. CAD Software Program: The Contract Drawings are available in <Autocad Version 2018 >.
- D. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
 - 1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
 - 2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- E. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.
 - 3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.

- 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 - 5. Note related Change Orders[, **Record Product Data**,] and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders[, **Record Specifications**,] and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

SECTION 01 78 40 - SPARE PARTS, OVERAGES AND MAINTENANCE MATERIALS

PART 1 - GENERAL

1.1 SUMMARY

- A Requirements Includes:
 - 1. Products required.
 - 2. Storage and delivery of products.
- B. Related Requirements:
- 1. Section 01 66 00 Product Storage and Handling Requirements.
- 2. Section 01 77 00 Closeout Procedures.
- 3. Individual Specifications Sections: Specific spare parts and materials required.

1.2 **PRODUCTS REQUIRED**

- A. Provide quantities of products, spare parts, maintenance tools, and maintenance materials specified in individual sections to be provided to Owner, in addition to that required for completion of work.
- B. Products: Identical to those installed in the work. Include quantities in original purchase from manufacturer to avoid variations in manufacture.

1.3 STORAGE, MAINTENANCE

- A. Store products with products to be installed in the work, under provisions of SECTION 01 66 00 PRODUCT STORAGE AND HANDLING REQUIREMENTS.
- B. When adequate, secure storage facilities are available at site, capable of maintaining conditions required for storage and not required for contract work or storage, or for Owner's needs, spare products may be stored in available space.
- C. Maintain spare products in original containers with labels intact and legible, until delivery to Owner.

1.4 DELIVERY

- A. Coordinate with Owner: Deliver and unload spare products to Owner at Owner's Maintenance Facility and obtain receipt prior to final payment.
- B. For portions of project accepted and occupied by Owner prior to substantial completion, deliver a proportional part of spare products to Owner; obtain receipt.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

SECTION 01 79 00 - D EMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.
 - 3. Demonstration and training video recordings.
- B. Related Sections:
 - 1. Divisions 02 through 49 Sections for specific requirements for demonstration and training for products in those Sections.

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules utilizing manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For instructor.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.

1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of videographer.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Date of video recording.
 - 2. At completion of training, submit complete training manual(s) for Owner's use.

1.5 QUALITY ASSURANCE

A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section "Quality Requirements," experienced in operation and maintenance procedures and training.

1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project record documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
 - 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.

- Shutdown instructions for each type of emergency. C.
- Operating instructions for conditions outside of normal operating limits. Sequences for electric or electronic systems. d.
- e.
- Special operating instructions and procedures.
- 4. Operations: Include the following, as applicable:
 - Startup procedures. a.
 - Equipment or system break-in procedures. b.
 - Routine and normal operating instructions. C.
 - Regulation and control procedures. d.
 - Control sequences. e.
 - Safety procedures. f.
 - Instructions on stopping. g.
 - Normal shutdown instructions. h.
 - Operating procedures for emergencies. i.
 - Operating procedures for system, subsystem, or equipment failure. j.
 - Seasonal and weekend operating instructions. k.
 - Required sequences for electric or electronic systems. Ι.
 - m. Special operating instructions and procedures. Adjustments: Include the following:
- 5.
 - Alignments. а
 - Checking adjustments. b.
 - Noise and vibration adjustments. C.
 - d. Economy and efficiency adjustments.
- Troubleshooting: Include the following: 6.
 - a. Diagnostic instructions.
 - Test and inspection procedures. b.
- 7. Maintenance: Include the following:
 - Inspection procedures. a.
 - Types of cleaning agents to be used and methods of cleaning. b.
 - List of cleaning agents and methods of cleaning detrimental to product. C.
 - Procedures for routine cleaning d.
 - e. Procedures for preventive maintenance.
 - Procedures for routine maintenance. f.
 - Instruction on use of special tools.
- 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - Repair instructions. b.
 - Disassembly; component removal, repair, and replacement; and reassembly instructions. C.
 - Instructions for identifying parts and components. d.
 - Review of spare parts needed for operation and maintenance. e.

PART 3 - EXECUTION

3.1 PREPARATION

- A Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Division 01 Section "Operations and Maintenance Data."
- B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Owner will furnish an instructor to describe Owner's operational philosophy.

- 2. Owner will furnish Contractor with names and positions of participants.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 1. Schedule training with Owner through Program Manager with at least10 days' advance notice.
- C. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.3 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
- B. Video Recording Format: Provide high-quality color video recordings with menu navigation in format acceptable to Architect.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to show area of demonstration and training. Display continuous running time.