DSA **140**

APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT

This application is for submittal of documents, after the initial approval of the project (post-approval documents), that require Division of the State Architect (DSA) review and approval.This form shall be completed by the Design Professional in General Responsible Charge of the project, in accordance with California Code of Regulations, Title 24, Part 1, Sections 4-317, 4-323 and 4-338 and in compliance with DSA IR A-6: Construction Change Document Submittal and Approval Process.

DSA documents referenced within this form are available on the DSA Forms or DSA Publications webpages.

1. SUBMITTAL TYPE: (Is this a resubmittal? Yes ☐ No ☑)

Deferred Submittal ☐	Addendum Number:	Revision Number:	CCD Number: 002	Category A ☑ or B ☐

2. PROJECT INFORMATION:

School District/Owner: San Rafael City Schools	DSA File Number: 21 H1
Project Name/School: Terra Linda HS Shade Structure & Entry Canopy	DSA Application Number 01 120767

3. APPLICANT INFORMATION:

Date Submitted: 12/12/23	Attached Pages? No ☐ Yes ☑ Number of pages? 9		
Firm Name: Quattrocchi Kwok Architects	Contact Name: Chris Cundall / Ami Mehta		
Work Email: ccundall@qka.com / amim@qka.com	Work Phone: (707) 576-0829		
Firm Address: 636 Fifth St	City: Santa Rosa	State: CA	Zip Code: 95404

4. REASON FOR SUBMITTAL: (Check applicable boxes)

☐ For revision or addendum prior to construction.

☑ For a project currently under construction.

☐ For a project that has a form *DSA 301-N: Notification of Requirement for Certification*, *DSA 301-P: Posted Notification of Requirement for Certification* or a 90-Day Letter issued.

☐ To obtain DSA approval of an existing uncertified building or buildings.

☐ For Category B CCD this is: ☐ a voluntary submittal, ☐ a DSA required submittal (attach DSA notice requiring submission).

5. DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE:

Name of the Design Professional In General Responsible Charge: Aaron Jobson

Professional License Number: C30620 Discipline: Architecture

Design Professional in General Responsible Charge Statement: The attached post-approval documents have been examined by me for design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications. They are acceptable for incorporation into the construction of the project.

Signature: _____

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

6. CONFIRMATION, DESCRIPTION AND LISTING OF DOCUMENTS:

For addenda, revisions, or CCDs: CHECK THIS BOX ☑ to confirm that *all* post-approval documents have been stamped and signed by the Responsible Design Professional listed on form *DSA 1: Application for Approval of Plans and Specifications* for this project. (For *Deferred Submittals*, refer to *IR A-18: Use of Construction Documents Prepared by Other Professionals,* and *IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents*, when applicable, for signature and seal requirements.)

Provide a brief description of construction scope for this post-approval document (attach additional sheets if needed):

Dust collector replacement.

(RFP 001.1)

List of DSA-approved drawings affected by this post-approval document:

S-0.1, E-1.2. New sheets M-1.0, M-1.1, M-1.2. New spec 23 3513.

DSA USE ONLY

SSS WT Date 12/15/23 ☐ Approved ☐ Disapproved ☐ Not Required

Comments: _____

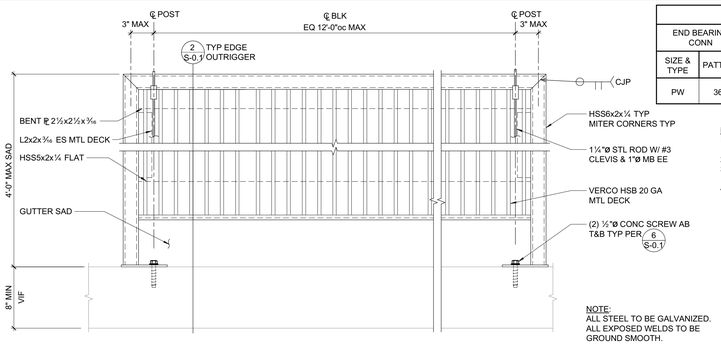
FLS AW Date 12/18/23 ☐ Approved ☐ Disapproved ☐ Not Required

Comments: _____

ACS _____ Date _____ ☐ Approved ☐ Disapproved ☐ Not Required

Comments: _____

Returned	DSA STAMP
Date:	APPROVED DIV. OF THE STATE ARCHITECT APP: 01-120767 INC: REVIEWED FOR SS ☑ FLS ☑ ACS ☐ DATE: 12/18/2023
By:	

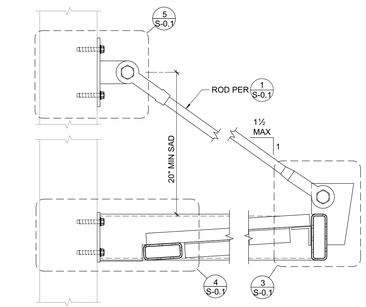


DECK CONNECTIONS					
END BEARING CONN		SIDE BEARING CONN		SIDELAP CONN	
SIZE & TYPE	PATTERN	SIZE & TYPE	PATTERN	SIZE & TYPE	PATTERN
PW	36/4	PW	12"	BP	12"

NOTES:
1. ATTACH DECK TO ALL STEEL SUPPORT FRAMING AS OCCURS.
2. BP = BUTTON PUNCH.
3. PW = ¾"ø PUDDLE WELD WITH ½"ø MIN OF FUSION (EFFECTIVE WELD).
4. ABOVE REFERENCED DECK IS BASED ON ALLOWABLE DESIGN LOADS PER IAPMO ER-2018 VERCO MANUFACTURING - EQUIVALENT DECK MUST HAVE EQUIVALENT ALLOWABLE VERTICAL LOADS.

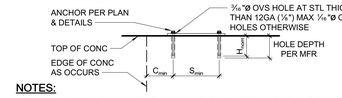
NOTE:
ALL STEEL TO BE GALVANIZED.
ALL EXPOSED WELDS TO BE GROUND SMOOTH.

1 RAIN CANOPY - PLAN VIEW
1 1/2" = 1'-0"



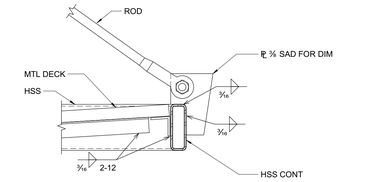
2 EDGE OUTRIGGER
1 1/2" = 1'-0"

SCREW ANCHOR IN 2500 PSI MIN CONCRETE							
ANCHOR TYPE	ANCHOR AND PILOT HOLE DIA	MINIMUM EMBEDMENT H_{nom}	MINIMUM EDGE DIST C_{min}	MINIMUM SPCG S_{min}	MINIMUM CONCRETE THICKNESS H_{min}	MINIMUM INSTALL TORQUE (FT-LB)	MAXIMUM INSTALL TORQUE (FT-LB)
SIMPSON TITEN HD (ICC-ESR 2713)	½"	1⅜"	1½"	1½"	3¼"	10	24
	⅝"	2½"	1⅞"	3"	4"	10	50
	½"	3¼"	1¾"	3"	5"	10	65
	⅝"	4"	1¾"	3"	6"	10	100
	¾"	5½"	1¾"	3"	8¾"	20	150
HILTI KH-EZ (ICC-ESR 3027)	½"	1⅜"	1½"	1½"	3¼"	10	18
	⅝"	2½"	1½"	3"	4"	10	40
	½"	3"	1⅞"	3"	4¾"	10	45
	⅝"	3¼"	1¾"	4"	5"	10	85
	¾"	4"	1¾"	4"	6"	20	95

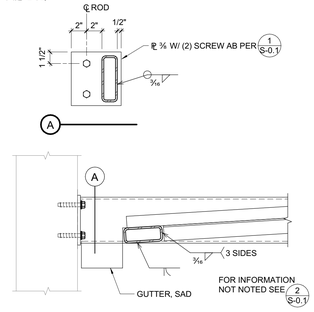


NOTES:
1. INSTALL SCREW ANCHORS PER MANUFACTURER'S INFORMATION AND ICC REPORT INSTRUCTIONS. SPECIAL INSPECTION IS REQUIRED PER SECTION 1705A OF THE CBC AND THE REQUIREMENTS OF THE ICC REPORTS. INSTALLED ANCHORS SHALL BRING CONNECTED PLIES INTO FIRM CONTACT, MEETING THE INSTALL TORQUE BUT NOT EXCEEDING THE MAXIMUM INSTALL TORQUE.
2. CONTRACTOR TO VERIFY MINIMUM EDGE DISTANCES, SPACING AND THICKNESS ARE IN ACCORDANCE W/ SCHEDULE PRIOR TO INSTALLING ANCHOR.
3. HOLES TO BE DRILLED W/ ROTARY DRILL ONLY. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN 1" CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR. FILL ABANDONED HOLES W/ HIGH STRENGTH GROUT.
4. THE SPECIAL INSPECTOR SHALL PERFORM PERIODIC/CONTINUOUS INSPECTION IN ACCORDANCE WITH TABLE 1705A.3. THE SPECIAL INSPECTOR SHALL INSPECT ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE(S), ANCHOR SPACING(S), CONCRETE THICKNESS, AND TIGHTENING TORQUE.
5. TEST ANCHORS IN ACCORDANCE W/ CBC SECTION 1910A.5.

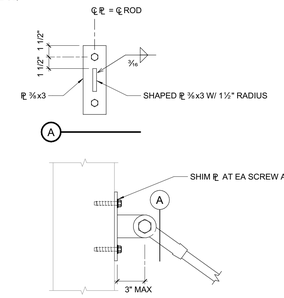
6 SCREW ANCHOR IN CONCRETE
3/4" = 1'-0"



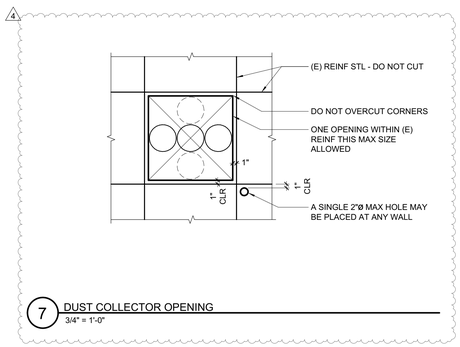
3 RAIN CANOPY HEAD
1 1/2" = 1'-0"



4 RAIN CANOPY LOWER CANOPY ATTACHMENT
1 1/2" = 1'-0"



5 DIAGONAL BRACE CONNECTION
1 1/2" = 1'-0"



7 DUST COLLECTOR OPENING
3/4" = 1'-0"

A DESIGN CRITERIA

DESIGN CRITERIA: 2022 CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2 (CBC)
ROOF LIVE LOAD: 20 PSF (REDUCIBLE)
RISK CATEGORY: III
WIND DATA: ULTIMATE WIND SPEED (3 SEC GUST) IN MPH: 110
WIND EXPOSURE: C
INTERNAL WIND PRESSURE COEFFICIENT (GCPI) = ±0.18
COMPONENTS AND CLADDING DESIGN PRESSURES FOR SYSTEMS DESIGNED BY OTHERS SHALL COMPLY WITH THE "ASCE 7-16" DESIGN STANDARD, PART 1 CHAPTER 30 FOR WALLS AND ROOF, PART 6 CHAPTER 30 FOR ROOF OVERHANGS
EARTHQUAKE DATA: SEISMIC IMPORTANCE FACTOR, I_e: 1.25
MAPPED SPECTRAL RESPONSE ACCELERATIONS: S_s = 1.50; S_1 = 0.60
SITE CLASS: D BY DEFAULT
SPECTRAL RESPONSE COEFFICIENTS: S_{DS} = 1.20; S_{D1} = 0.68
SEISMIC DESIGN CATEGORY: D
SCOPE: NEW RAIN CANOPY ON EXISTING CONCRETE BUILDING. NEW PC SHADE STRUCTURE BY OTHERS.

B GENERAL NOTES

1. REFER TO THE PROJECT SPECIFICATIONS FOR MATERIALS AND METHODS.
2. BUILDING DIMENSIONS SHOWN ARE FOR GENERAL REFERENCE ONLY. SEE ARCHITECTURAL DRAWINGS (SAD) FOR ALL ACTUAL BUILDING DIMENSIONS. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER SO CLARIFICATION CAN BE MADE PRIOR TO COMMENCING WORK.
3. STRUCTURAL DRAWINGS SHALL NOT BE SCALED. ALL DIMENSIONS AND FIT SHALL BE DETERMINED AND VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING WORK.
4. DETAILS NOT FULLY OR SPECIFICALLY SHOWN SHALL BE OF SAME NATURE AS OTHER SIMILAR CONDITIONS.
5. SHORING AND BRACING DESIGN, MATERIALS AND INSTALLATION SHALL BE PROVIDED BY THE GENERAL CONTRACTOR, AND SHALL BE ADEQUATE FOR ALL LOADS. LEAVE IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY AND UNTIL FINAL STRUCTURAL CONSTRUCTION IS COMPLETED. THE CONTRACTOR SHALL ENGAGE A LICENSED CIVIL OR STRUCTURAL ENGINEER TO PROVIDE SHORING.
6. SPECIAL INSPECTIONS ARE REQUIRED PER THE TESTING AND INSPECTION FORM, SEE SPECIFICATIONS.
7. THE ORIGINAL BUILDING DSA APPLICATION NUMBER IS 18095. THE CONTRACTOR SHALL VERIFY ALL EXISTING JOB CONDITIONS, REVIEW THE PLANS AND VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ALL DISCREPANCIES AND EXCEPTIONS BEFORE PROCEEDING WITH ANY WORK.
8. ALL WORK NOT INDICATED AS EXISTING (E) SHALL BE ASSUMED TO BE NEW (N).

C STEEL NOTES

1. TOP OF STEEL ELEVATIONS ARE TO BE DETERMINED BY THE CONTRACTOR BASED ON ARCHITECTURAL DRAWINGS AND STRUCTURAL DRAWINGS.

D MATERIAL DATA

(INFORMATION SHOWN IS FOR STRUCTURAL DESIGN REFERENCE ONLY. SEE THE PROJECT SPECIFICATIONS FOR ALL MATERIAL SPECIFICATIONS.)

STRUCTURAL STEEL (UNO):
ANGLES, CHANNELS, AND PLATES - ASTM A36 (Fy = 36,000 PSI)
RECTANGULAR HSS - ASTM A500 GRADE C (Fy = 50,000 PSI)

FASTENERS:
MACHINE BOLTS SHALL BE ASTM A307 GRADE A
ANCHOR RODS SHALL BE ASTM F1554 GR 36 UNO
ARC-WELDING ELECTRODES SHALL BE E70

SHEET INDEX

ABBREVIATIONS

AB	ANCHOR BOLT	FTG	FOOTING	PNL	PANEL
ABV	ABOVE	GA	GAGE or GAUGE	PSF	POUNDS PER SQUARE FOOT
AC	AIR CONDITIONING	GALV	GALVANIZED	PSI	POUNDS PER SQUARE INCH
ADJ	ADJACENT	GB	GRADE BEAM	PSL	PARALLEL STRAND LUMBER
ADDL	ADDITIONAL	GL	GLULAM	PTDF	PRESSURE TREATED
ALT	ALTERNATE	GLB	GLUE LAMINATED BEAM		DOUGLAS FIR
ALUM	ALUMINUM	GR	GRADE	PT	POINT
ARCH	ARCHITECT	HD	HOLD DOWN	R	RADIUS
AYC	ALASKAN YELLOW CEDAR	HDG	HOT-DIP GALVANIZED	RBS	REDUCED BEAM SECTION
@	AT	HDR	HEADER	RFTR	RAFTER
BF	BRACED FRAME	HGR	HANGER	REF	REFERENCE
BLDG	BUILDING	HK	HOOK	REINF	REINFORCING
BLK/BLKG	BLOCK/BLOCKING	HORIZ	HORIZONTAL	REQD	REQUIRED
BLW	BELOW	HSB	HIGH STRENGTH BOLT	RET	RETAINING
BM	BEAM	HSG	HIGH STRENGTH GROUT	REV	REVISION
BN	BOUNDARY NAIL	HSH	HORIZONTAL SLOTTED	RF	ROOF
BOT	BOTTOM		HOLE	RWD	REDWOOD
BRG	BEARING	HSS	HOLLOW STRUCTURAL	S	AMERICAN STANDARD BEAM
BTWN	BETWEEN		SECTION	SAD	SEE ARCHITECTURAL
BU	BUILT-UP	HT	HEIGHT		DRAWINGS
BYND	BEYOND	ID	INSIDE DIAMETER	SB	SOLID BLOCK
C	AMERICAN STANDARD CHANNEL	IJ	I SHAPED WOOD BUILT UP TRUSS	SC	SLIP CRITICAL
CA	CALIFORNIA	INT	INTERIOR	SCD	SEE CIVIL DRAWINGS
CANT	CANTILEVER	JST	JOIST	SCHED	SCHEDULE
CB	CARRIAGE BOLT	JT	JOINT	SED	SEE ELECTRICAL DRAWINGS
CFS	COLD FORMED STEEL	KP	KING POST	SEOR	STRUCTURAL ENGINEER OF RECORD
CIP	CAST IN PLACE	L	STEEL ANGLE	SFRS	SEISMIC FORCE RESISTING SYSTEM
CJP	CERTIFIED GLUED LUMBER	Lb or #	POUND(s)	SHTG	SHEATHING
CJ	CONTROL JOINT	LGMF	LIGHT GAGE METAL FRAMING	SIM	SIMILAR
℄	CENTERLINE	LGMFC	LIGHT GAGE METAL FRAMING CONTRACTOR	SKYLT	SKYLIGHT
CJP	COMPLETE JOINT PENETRATION	LL	LIVE LOAD	SLD	SEE LANDSCAPE DRAWINGS
CLG	CEILING	LLH	LONG LEG HORIZONTAL	SMS	SHEET METAL SCREW
CLR	CLEAR	LLV	LONG LEG VERTICAL	SMD	SEE MECHANICAL DRAWINGS
COL	COLUMN	LOC	LOCATION	SOG	SLAB ON GROUND
CONC	CONCRETE	LS	LAG SCREW	SPCG	SPACING
CONN	CONNECTION	LSL	LAMINATED STRAND LUMBER	SPD	SEE PLUMBING DRAWINGS
CONT	CONTINUOUS	LVL	LAMINATED VENEER LUMBER	SPEC	SPECIFICATION
COORD	COORDINATE/ COORDINATION	LWC	LIGHTWEIGHT CONCRETE	SQ	SQUARE
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	SS	SELECT STRUCTURAL or STAINLESS STEEL
CNTR	CENTER	MB	MACHINE BOLT	STGR	STAGGERED
CW	CUT WASHER	MBM	METAL BUILDING MANUFACTURER	STD	STANDARD
DBA	DEFORMED BAR ANCHOR			STIFF	STIFFENER
DBL	DOUBLE	MC	MISCELLANEOUS CHANNEL	STL	STEEL
DCW	DEMAND CRITICAL WELD	MECH	MECHANICAL	STRUCT	STRUCTURAL
DF	DOUGLAS FIR	MEZZ	MEZZANINE	SW	SHEAR WALL
DIA or ø	DIAMETER	MF	MOMENT FRAME	SYM	SYMMETRICAL
DIAG	DIAGONAL	MFR	MANUFACTURER	T&B	TOP AND BOTTOM
DIM	DIMENSION	MIN	MINIMUM	T&G	TONGUE AND GROOVE
DN	DOWN	MISC	MISCELLANEOUS	THK	THICK
DJ	DOWEL JOINT	MW	MALLEABLE IRON WASHER	THRD	THREADED
DL	DEAD LOAD	MTL	METAL	THRU	THROUGH
DN	DOWN	MU	MECH UNIT	TL	TOTAL LOAD
DO	DITTO	(N)	NEW	TN	TOE NAIL
DWG	DRAWING	N/A	NOT APPLICABLE	TOC	TOP OF CONCRETE
DWL	DOWEL	NO or #	NUMBER	TOF	TOP OF FRAMING
EA	EACH	NS	NEAR SIDE	TOM	TOP OF MASONRY
EF	EACH END	NSG	NON-SHRINK GROUT	TOP	TOP OF PLYWOOD
EW	EACH FACE	NTS	NOT TO SCALE	TOS	TOP OF STEEL
ELEC	ELECTRICAL	NWC	NORMAL WEIGHT CONCRETE	TOT	TOTAL
ELEV	ELEVATOR/ELEVATION	O	OVER	TP	TOP UP
EMBED	EMBEDMENT	oc	ON CENTER	TYP	TYPICAL
EQ	EQUAL	OD	OUTSIDE DIAMETER	UNO	UNLESS NOTED OTHERWISE
EQUIP	EQUIPMENT	OH	OPPOSITE HAND	VERT	VERTICAL
ES	EACH SIDE	OPNG	OPENING	VIF	VERIFY IN FIELD
EW	EACH WAY	OPP	OPPOSITE	VSH	VERTICAL SLOTTED HOLE
(E)	EXISTING	OVS	OVERSIZED	W	WIDE FLANGE STEEL BEAM
EXP	EXPANSION	OW	OTHERWISE	W/	WITH
EXT	EXTERIOR	OWT	OPEN WEB TRUSS	WO	WITHOUT
FDN	FOUNDATION	PL	PLATE or PROPERTY LINE	WP	WORK POINT
FIN	FINISH	PA	POST ABOVE	WHS	WELDED HEADED STUD
FG	FINISH GRADE	PAF	POWER ACTUATED FASTENERS	WLD	WELDED
FLR	FLOOR			WP	WORK POINT/WATERPROOF
FN	FACE NAIL	PEN	PANEL EDGE NAIL	WS	WOOD SCREW
FOC	FACE OF CONCRETE	PERP	PERPENDICULAR	WT	WEIGHT
FOM	FACE OF MASONRY	PES	PANEL EDGE SCREWS	WTS	WELDED THREADED STUD
FOS	FACE OF STUD	PJP	PARTIAL JOINT PENETRATION	WWR	WELDED WIRE REINFORCEMENT
FRMG	FRAMING	PLF	POUNDS PER LINEAR FOOT		
FS	FAR SIDE				

QUATTROCCHI KWOK ARCHITECTS
Main Office:
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Oakland, CA 94607
(707) 576-0829

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z zfa.com
santa rosa ca 95404 707.526.0992
zfa job no. 23003

TERRA LINDA HIGH SCHOOL

SHADE STRUCTURE & ENTRY CANOPY

320 Nova Albion Way
San Rafael, CA 94903

SAN RAFAEL CITY SCHOOLS

4.	12/4/23	RFP: #001.1

DSA APP NO: 01-120767
ARCH PROJECT NO: 2068.00
ENGINEER: NBB
PROJECT MANAGER: CSW
PTN: 65466-45 FILE NO: 21-H1
CD
APRIL 2023

SHEET TITLE
GENERAL NOTES, RAIN CANOPY DETAILS, AND TYPICAL DETAILS

SHEET NUMBER
RFP 001.1
S-0.1

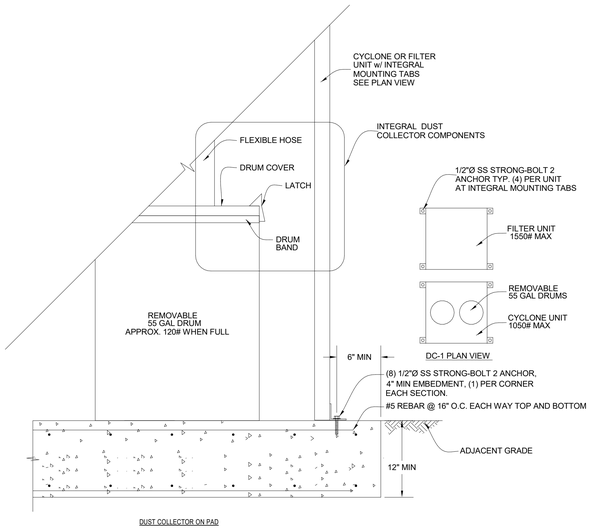
APPLICABLE GOVERNING CODES:

2022 CALIFORNIA BUILDING CODE
2022 CALIFORNIA ELECTRICAL CODE
2022 CALIFORNIA MECHANICAL CODE
2022 CALIFORNIA PLUMBING CODE
2022 CALIFORNIA ENERGY CODE
2022 CALIFORNIA FIRE CODE
2022 CALIFORNIA GREEN BUILDING STANDARDS

DUST COLLECTOR SCHEDULE

MARK	MFR	MODEL NO	AIRFLOW	ESP	ELECTRICAL DATA		WEIGHT	SERVICE	REMARKS
					MOTOR HP	V-Ø-Hz			
DC-1	AGET	70SN70-D2-SP	3400 CFM	12.70 in-wg	15	208-3-60	2400 lb	WOOD SHOP	1-7

REMARKS:
1. INSTALL PER A/M-1.0
2. TEFC MOTOR WITH AMCA TYPE B SPARK RESISTANT CONSTRUCTION
3. PROVIDE WITH FT-64-SP AFTER FILTER w/ 3/4HP TEFC SHAKER MOTOR @ 230V-3-60Ph POWER (USABLE AT 208V), OFFSET INLET CONNECTION PER FLOOR PLAN
4. PROVIDE WITH VGF-12 EXPLOSION BACK DRAFT DAMPER w/ EBD-CP CONTROL PANEL, EBD-DLS DUST LEVEL SENSOR AND MICROSWITCH, SEE B/M-1.0
5. PROVIDE WITH 230V-3-60Ph ELECTRICAL CONTROL PANEL, NEMA 12 ENCLOSURE, FUSABLE MAIN DISCONNECT, NEMA RATED STARTERS, 120V CONTROL CIRCUIT
6. PROVIDE WITH (1) NEMA TPYE 3R 60AMP NON-FUSIBLE DISCONNECT, (1) NEMA TYPE 3R 30 AMP NON-FUSIBLE DISCONNECT
6. PROVIDE WITH (2) 55 GALLON STORAGE DRUMS
7. PROVIDE WITH 16" HD ATTENUATOR BETWEEN FAN DISCHARGE AND AFTERFILTER



A DUST COLLECTOR MOUNTING DETAIL

SCALE: NTS

DUCT SUPPORT NOTES:

A. ALL STRAPS, RODS, TRAPEZE ANGLES AND TRAPEZE CHANNELS SHALL BE SIZED AND INSTALLED AS DETAILED ON THE DRAWINGS OR IN ACCORDANCE WITH OPM-0043-13

B. ALL BOLTS, NUTS, SCREWS AND OTHER FASTENING DEVICES SHALL BE SIZED AND INSTALLED AS DETAILED ON THE DRAWINGS OR IN ACCORDANCE WITH OPM-0043-13.

C. WIRE, USED IN LIEU OF STRAPS AND RODS, IS NOT ALLOWED .

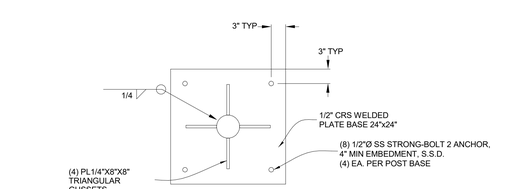
D. WHERE APPLICABLE, INSTALL INSULATION AFTER INSTALLING DUCT HANGERS.

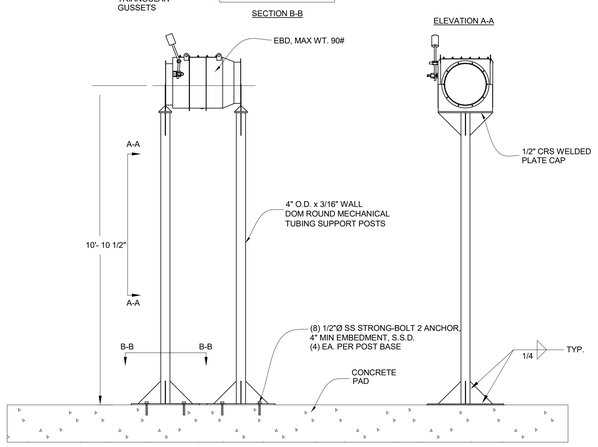
E. LATERAL BRACING REQUIRED ON DUCTS WITH CROSS-SECTIONAL AREA LARGER THAN 6 SQFT

F. SUPPORTS SHALL BE PLACED AT 8'-0" ON CENTER (MAX) AND AT ALL CHANGES IN DIRECTION.

G. DUCTWORK SUPPORTED WITHIN 12" OF ATTACHMENT POINT ON STRUCTURE NEED NOT BE LATERALLY BRACED

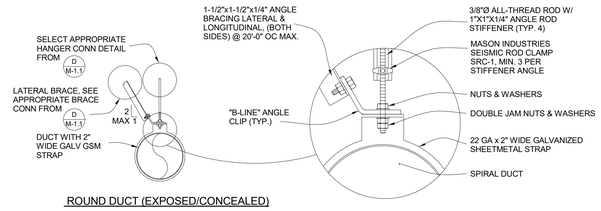
BRACING NOT REQUIRED FOR DUCTS < 12" FROM STRUCTURE TO SUPPORT WHERE 3/8" OR 1/2" HANGER RODS ARE USED AND MAXIMUM WEIGHT DOES NOT EXCEED 50# PER HANGER PER CBC SECTION 1617A.1.25





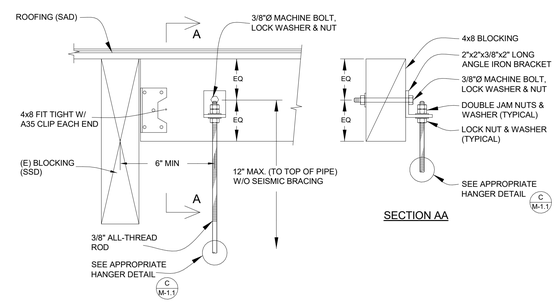
B EBD SUPPORT DETAIL

SCALE: NONE



C TYPICAL EXPOSED DUCT HANGER DETAIL

SCALE: NONE



D DUCT HANGER CONNECTION DETAIL

SCALE: NONE

Applicable Code: 2022 CBC 04/11/2023 Revised: 04/11/2023

MEP Componet Anchorage Note

All mechanical, plumbing, and electrical components shall be anchored and installed per the details on the DSA-approved construction documents. The following components shall be anchored or braced to meet the force and displacement requirements prescribed in the 2022 CBC Sections 1617A.1.18 through 1617A.1.26 and ASCE 7-16 Chapters 13, 26, and 30:

1. All permanent equipment and components.
2. Temporary, movable or mobile equipment that is permanently attached (e.g. hard wired) to the building utility services such as electricity, gas or water. "Permanently attached" shall include all electrical connections except plugs for 110/220 volt receptacles having a flexible cable.
3. Temporary, movable or mobile which is heavier than 400 pounds or has a center of mass located 4 feet or more above the adjacent floor or roof level that directly support the component is required to be restrained in a manner approved by DSA.

The following mechanical and electrical components shall be positively attached to the structure but need not demonstrate design compliance with the references noted above. These components shall have flexible connections provided between the component and associated ductwork, piping, and conduit. Flexible connections must allow movement in both trasverse and longitudinal directions:

A. Components weighing less than 400 pounds and having a center of mass located 4 feet or less above the adjacent floor or roof level that directly support the component.

B. Components weighing less than 20 pounds, or in the case of distributed systems, less than 5 pounds per foot, which are suspended from a roof or floor or hung from a wall.

The anchorage of all mechanical, electrical and plumbing components shall be subject to the approval of the design professional in general responsible charge of structural engineer delegated responsibility and acceptance by DSA. The project inspector will verify that all components and equipment have been anchored in accordance with the above requirements.

Piping, Ductwork, and Electrical Distribution System Bracing Note

Piping, ductwork, and electrical distribution systems shall be braced to comply with the forces and displacements prescribed in ASCE 7-16 Section 13.3 as defined in ASCE 7-16 Sections 13.6.5, 13.6.6, 13.6.7, 13.6.8; and 2022 CBC, Sections 1617A.1.24, 1617A.1.25 and 1617A.1.26.

The method of showing bracing and attachments to the structure for the identified distribution system are as noted below. When bracing and attachments are based on a preapproved installation guide (e.g., HCAi OPM for 2013 CBC or later), copies of the bracing system installation guide or manual shall be available on the jobsite prior to the start of and during the haging and bracing of the distribution systems. The Structural Engineer of Record shall verify the adequacy of the structure to support the hanger and brace loads.

Mechanical Piping (MP), Mechanical Ducts (MD), Plumbing Piping (PP), Electrical Distribution Systems (E):

MP☒ MD☒ PP☐ E☐ Option 1: Detailed on the approved drawings with project specific notes and details

MP☐ MD☐ PP☐ E☐ Option 2: Shall comply with the applicable HCAi Pre-Approval (OPM #) #_____

ACCEPTANCE TESTING

WHEN CERTIFICATION IS REQUIRED BY TITLE 24, PART 1, SECTION 10-103.2, THE ACCEPTANCE TESTING SPECIFIED BY SECTION 120.5(a) SHALL BE PERFORMED BY A CERTIFIED MECHANICAL ACCEPTANCE TEST TECHNICIAN (CMATT). IF THE CMATT IS OPERATING AS AN EMPLOYEE, THE CMATT SHALL BE EMPLOYED BY A CERTIFIED MECHANICAL ACCEPTANCE TEST EMPLOYER. THE CMATT SHALL DISCLOSE ON THE CERTIFICATE OF ACCEPTANCE A VALID CMATT CERTIFICATION IDENTIFICATION NUMBER ISSUED BY AN APPROVED ACCEPTANCE TEST TECHNICIAN CERTIFICATION PROVIDER. THE CMATT SHALL COMPLETE ALL CERTIFICATE OF ACCEPTANCE DOCUMENTATION IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS IN SECTION 10-103(a)4.

(ASHRAE 15:8.10.1) CMC 1109.4.1 Protection from Mechanical Damage. Passages shall not be obstructed by refrigerant piping. Refrigerant piping shall not be located in an elevator, dumbwaiter, or other shaft containing a moving object, or in a shaft that has openings to living quarters, or to means of egress. Refrigerant piping shall not be installed in an enclosed public stairway, stair landing, or means of egress. (ASHRAE 15:8.10.2)

HVAC LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
X / X		EQUIPMENT TYPE / EQUIPMENT NUMBER
X / X-X		DETAIL / DRAWING NUMBER / SHEET NUMBER
	SA OR OA	SECTION THRU SUPPLY AIR OR OUTSIDE AIR DUCT
	RA OR EA	SECTION THRU RETURN AIR OR EXHAUST AIR DUCT
DN		ROUND DUCT DOWN
DN	DN OR UP	SLOPE DUCT DOWN OR UP IN DIRECTION OF FLOW
	AL	ACOUSTICAL LINING
	FC	FLEXIBLE DUCT CONNECTION
	VD	VOLUME DAMPER
	FD	FIRE DAMPER
	TV	TURNING VANES
		FLEXIBLE DUCT
		45° ROUND DUCT TAKE-OFF
		45° RECTANGULAR DUCT TAKE-OFF
		90° TURN - ROUND DUCT
		90° RADIUS TURN - ROUND OR RECTANGULAR DUCT
		SQUARE TO ROUND DUCT TRANSITION
		DUCT TRANSITION
		RECTANGULAR DUCT 90° SPLIT
T		THERMOSTAT @ 48" AFF MAX TO CENTER LINE
	AP	ACCESS PANEL
	POC	POINT OF CONNECTION
	POD	POINT OF DEMOLITION
	BHP	BRAKE HORSEPOWER
	HP	HORSEPOWER
	SAD	SEE ARCHITECTURAL DRAWINGS
	SSD	SEE STRUCTURAL DRAWINGS
	SCD	SEE CIVIL DRAWINGS
	AFC	ABOVE FINISH CEILING

BLDG 'MECHANICAL' SHEET LIST

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REVISIONS

4	11.17.23	RFP-001.1

DSA APP NO. 01-120767

ARCH PROJECT NO: 2068.00
DRAWN BY: Author
DRAWING SCALE:
PTN: 65466-45 FILE NO: 21-H1
CD
APRIL 18, 2023

SHEET TITLE

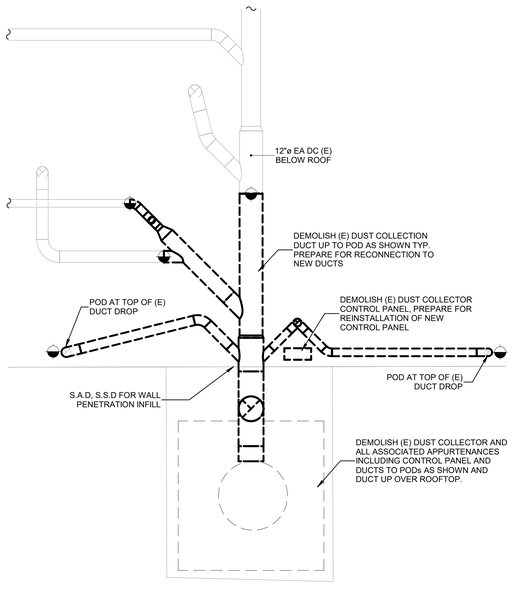
MECHANICAL SCHEDULES & LEGENDS

RFP 001.1

SHEET NUMBER

M-1.0

1 MECHANICAL DEMO SITE PLAN - DUST COLLECTOR REPLACEMENT
1/8" = 1'-0"



2 DUST COLLECTOR DEMO ENLARGEMENT
3/8" = 1'-0"

GENERAL DEMO NOTES

A. FOR MECHANICAL GENERAL NOTES, LEGENDS, AND SYMBOLS, AND SCHEDULES REFER TO SHEET M-1.0

B. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL MECHANICAL WORK WITH OTHER TRADES.

C. THIS CONTRACTOR SHALL RETAIN ANY SPECIFIC EQUIPMENT AS DIRECTED BY OWNER AND DELIVER TO OWNER SPECIFIED LOCATION.

D. ALL EQUIPMENT PIPING, VALVING, CONTROLS, ETC. REDERED USELESS BY THIS WORK SHALL BE DEMOLISHED AND REMOVED FROM THIS SITE.

E. LOCATION OF EXISTING EQUIPMENT AND APPURTENANCES HAS BEEN BASED ON THE BEST AVAILABLE INFORMATION OBTAINABLE AT THE SITE AND THROUGH RECORD DRAWINGS.

F. VERIFY EXACT LOCATIONS, SIZES AND EXTENT OF EXISTING SYSTEMS PRIOR TO CONSTRUCTION.

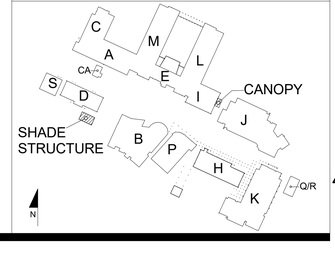
G. ALL UNUSED PIPING ABOVE GRADE SHALL BE REMOVED, ALL UNUSED PIPING BELOW GRADE SHALL BE CAPPED AND ABANDONDED IN PLACE. CAP UNUSED BRANCHES AS CLOSE AS POSSIBLE TO LIVE MAINS.

H. PATCH ALL WALLS AND CEILINGS, ROOF AND OTHER SURFACES TO MATCH EXISTING OR NEW CONDITIONS. SEE ARCHITECTURAL PLANS.

DEMO SHEET NOTES

1 -

KEY PLAN



APPROVED
DIV. OF THE STATE ARCHITECT
APP: 01-120767 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/18/2023

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SHEET TITLE
DEMO MECHANICAL PLAN - DUST COLLECTOR
RFP 001.1

SHEET NUMBER
M-1.1

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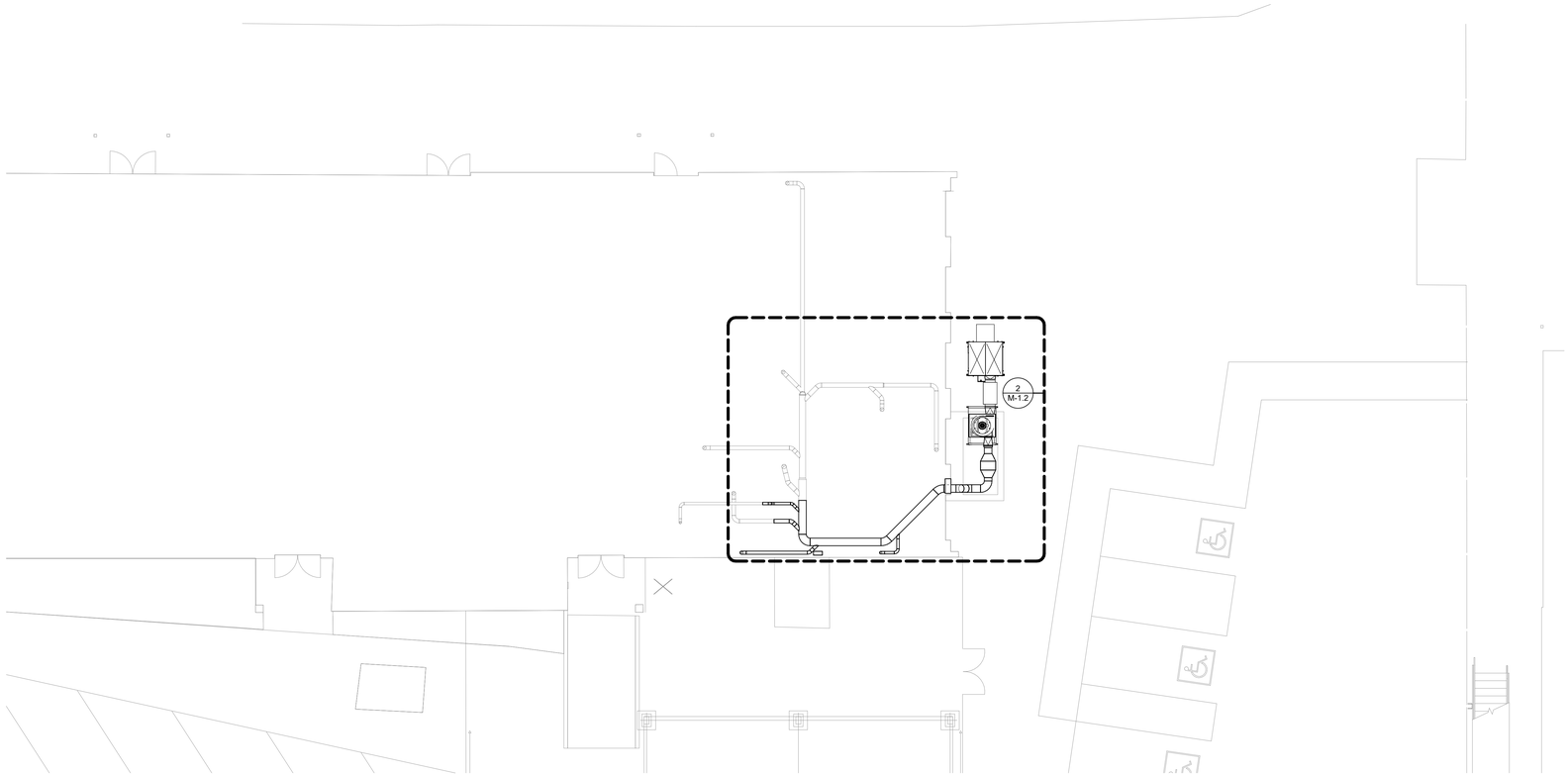
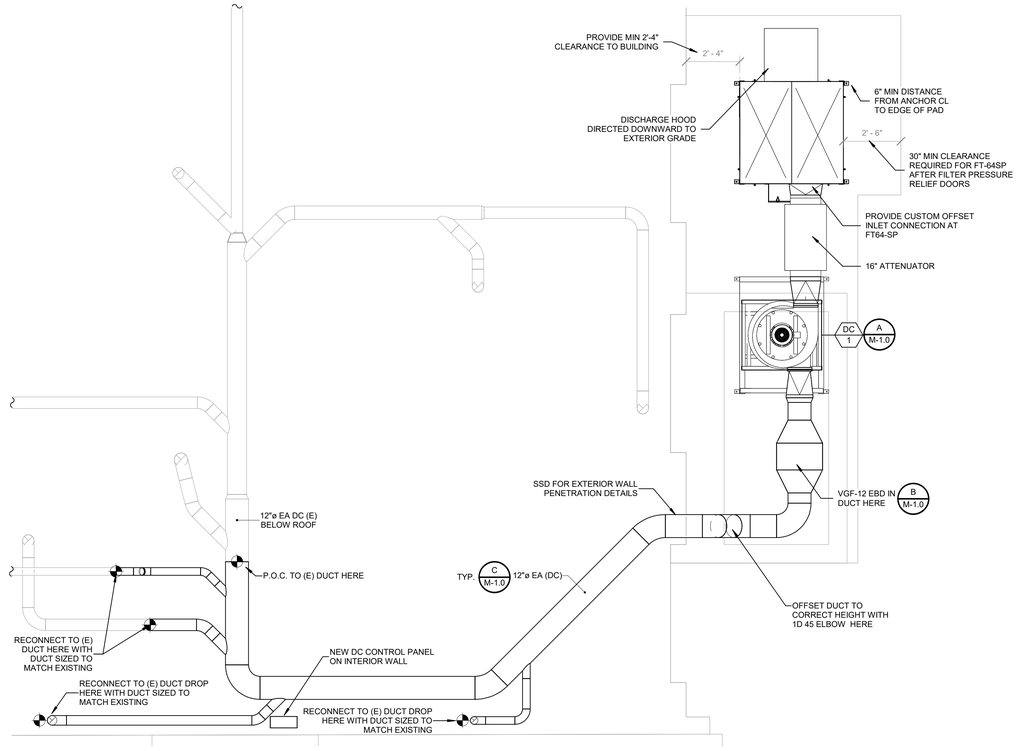


1 MECHANICAL NEW SITE PLAN - DUST COLLECTOR REPLACEMENT
1/8" = 1'-0"



2 DUST COLLECTOR NEW ENLARGEMENT
3/8" = 1'-0"

GENERAL NOTES

A. FOR MECHANICAL GENERAL NOTES, LEGENDS, AND SYMBOLS, REFER TO SHEET M-1.1 FOR SCHEDULES SEE M-1.2

B. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE MECHANICAL WORK WITH OTHER TRADES. MAKE ANY OFFSETS AS REQUIRED TO AVOID CONFLICT WITH PIPING, LIGHT FIXTURES, SKYLIGHTS, ETC.

C. CONTRACTOR SHALL COORDINATE ALL GRILLE LOCATIONS AND CEILING TYPES PRIOR TO ORDERING GRILLES, SEE ARCHITECTURAL CEILING PLANS AND ELECTRICAL LIGHTING PLANS.

D. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWING OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT, MECHANICAL ENGINEER, DSA AND THE FIELD INSPECTOR OF THE GOVERNING AUTHORITY.

E. SUPPORT AND BRACING OF ALL PIPING & DUCTWORK SHALL BE IN ACCORDANCE WITH OPTION 2 ON SHEET M-1.1 FOR SCHEDULES SEE M-1.2

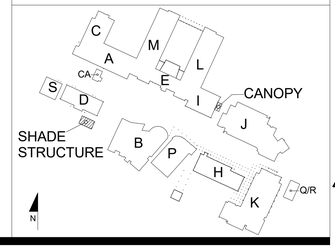
F. INSTALL T-STAT, & CO2 SENSOR 48 INCHES AFF MAX TO TOP OF BOX

G. ALL DUCT DIMENTIONS ARE INDICATING INSIDE DIMENTIONS OF THE FREE AREA OF DUCT, UNLESS OTHERWISE NOTED.

SHEET NOTES

1 -

KEY PLAN



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CD
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SHEET TITLE
ENLARGED MECHANICAL PLAN - SHADE STRUCTURE
RFP 001.1

SHEET NUMBER
4
M-1.2

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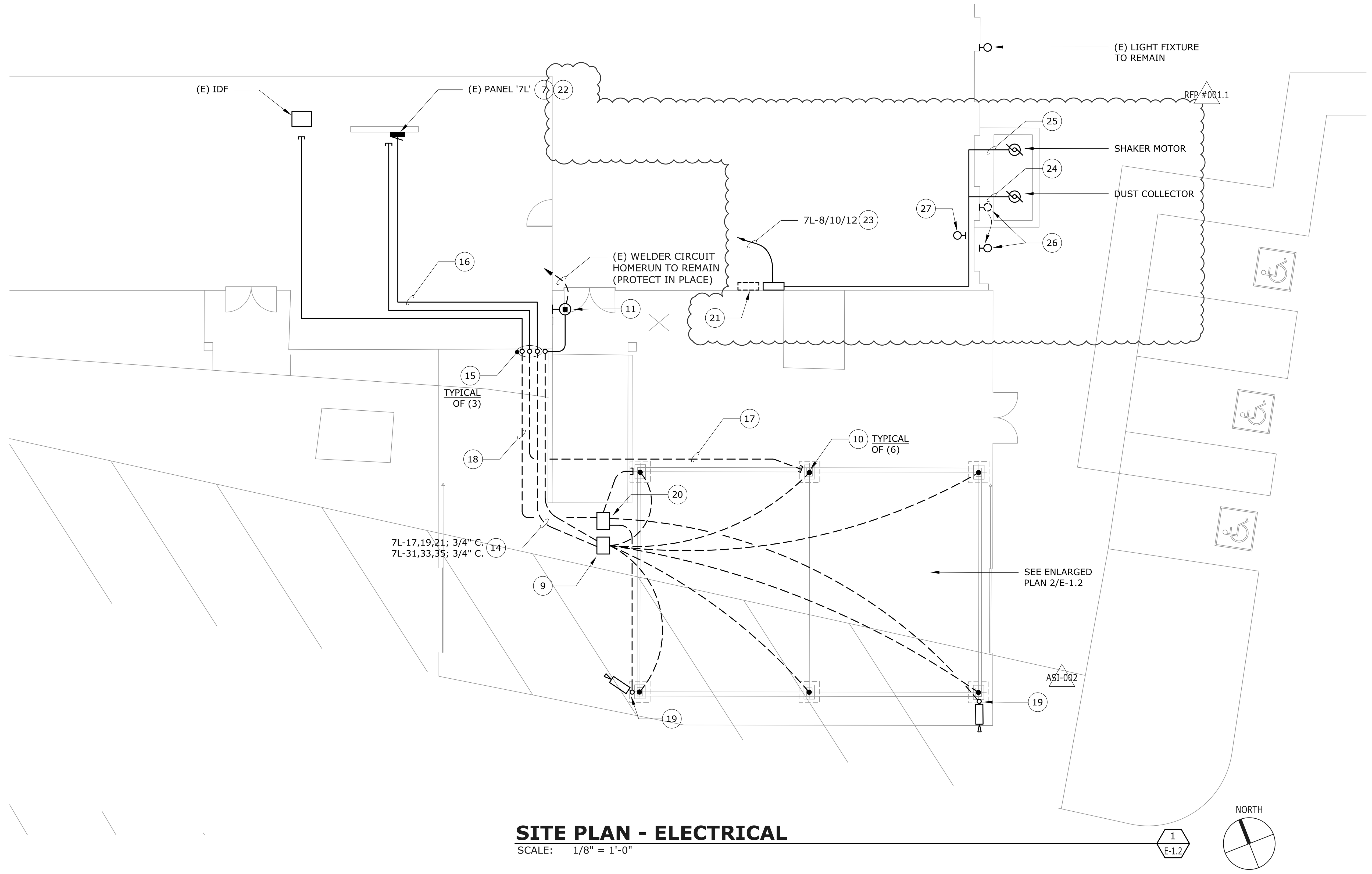
LUMINAIRE SCHEDULE

TYPE	MOUNTING	DESCRIPTION	MANUFACTURER CATALOG #	LIGHT SOURCE	POWER SUPPLY	VOLTS	INPUT WATTS
BA1	SURFACE ON ROOF RIDGE BEAM	SURFACE MOUNTED 7" W x 5.6" D x 8'-4" L LINEAR LED VAPORTIGHT LUMINAIRE; U.L. WET LOCATION LISTED FIBERGLASS HOUSING, ENCLOSED & GASKETED, W/ WATERTIGHT CONDUIT ENTRY HUBS AT BOTH ENDS, LINEAR RIBBED FROSTED 100% DR HIGH STRENGTH ACRYLIC LENS, POURED-IN-PLACE, NON POROUS LENS GASKET, OPTIONAL STAINLESS STEEL TAMPER- RESITANT LATCHES, FACTORY-PROVIDED STAINLESS STEEL MOUNTING BRACKETS & CHAIN-HANG KITS.	COLUMBIA LIGHTING LXEM-8-35XL-RFA-ED-U-DWH-SS MTG. BRACKET KITS	3500K 80CRI LED 10000 LM/4'	INTEGRAL ELECTRONIC NON-DIMMING DRIVER	UNV	183W
BA2	SURFACE ON ROOF RIDGE BEAM	SAME AS BA1, EXCEPT, (1) WATER TIGHT CONDUIT ENTRY HUB AT END OF UNIT.	COLUMBIA LIGHTING LXEM-8-35XL-RFA-ED-U-SWH-SS MTG. BRACKET KITS	3500K 80CRI LED 10000 LM/4'	INTEGRAL ELECTRONIC NON-DIMMING DRIVER	UNV	183W
END OF SCHEDULE							



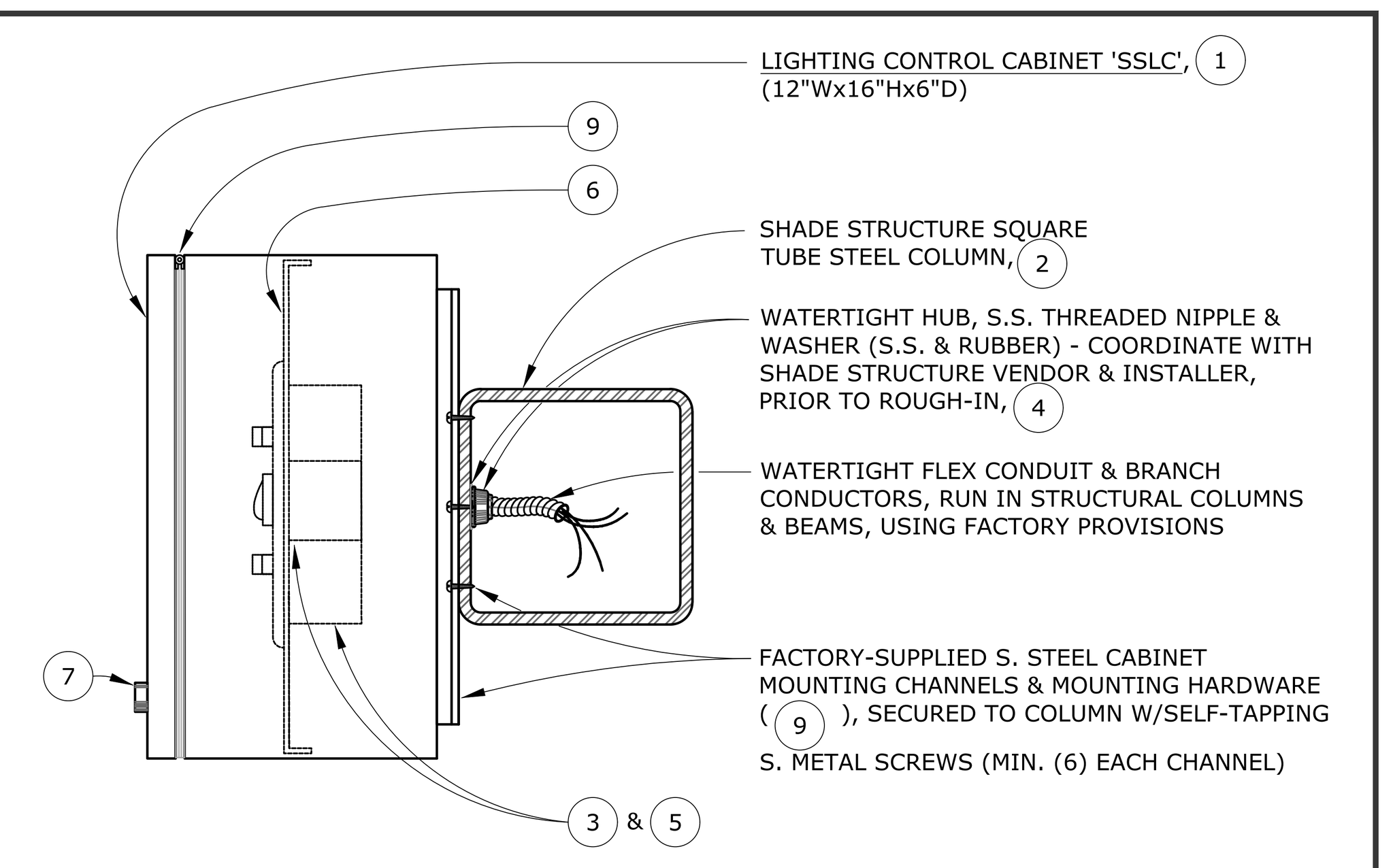
SITE PLAN - ELECTRICAL

SCALE: 1/8" = 1'-0"

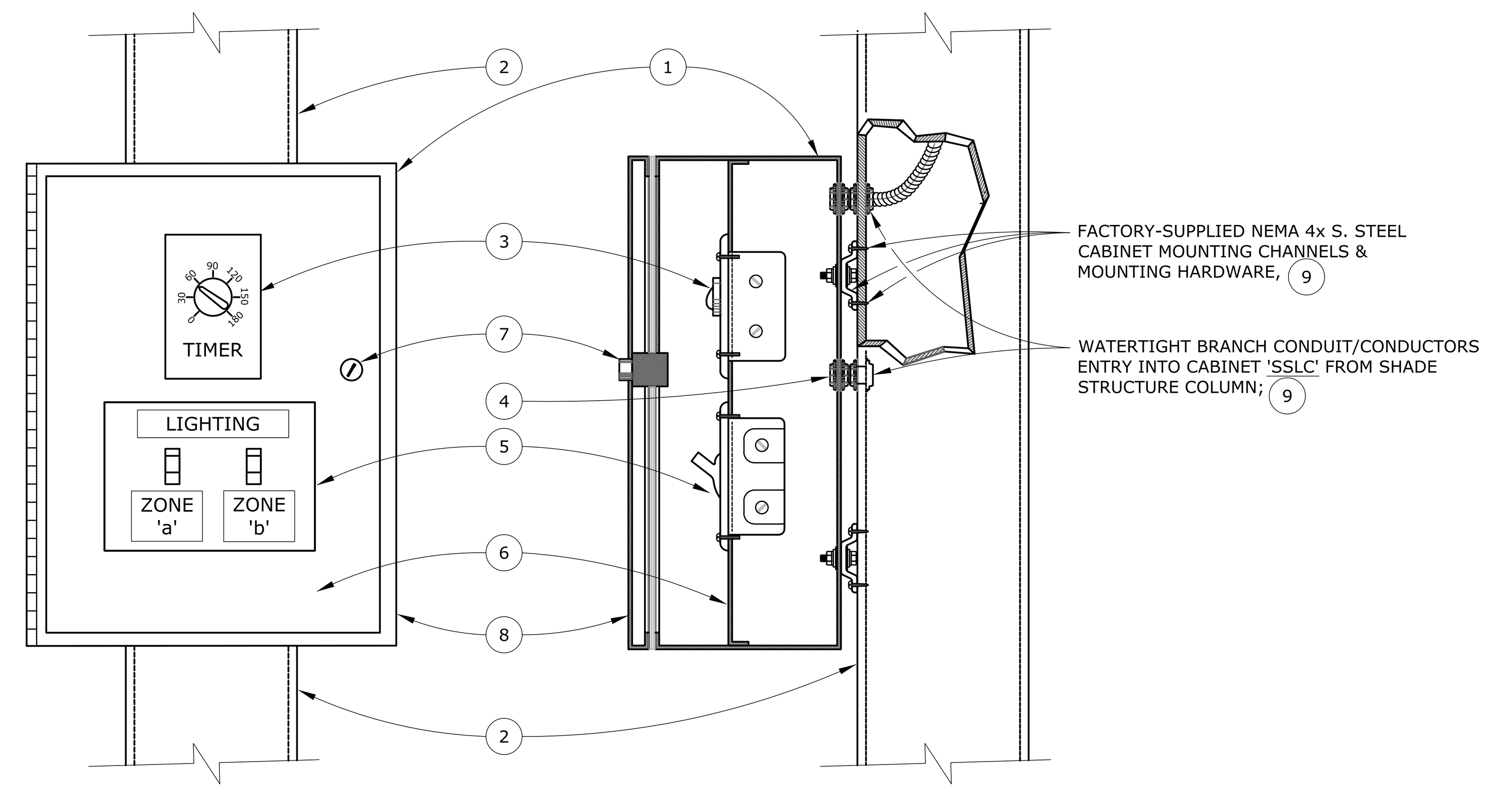
1 / E-1.2

DETAIL NOTES:

1. NEW NEMA 4X STAINLESS STEEL SHADE STRUCTURE LIGHTING CONTROL CABINET 'SSLC', WITH MANUAL (3) HOUR TIME SWITCH AND ZONES 'a' & 'b' LIGHT SWITCHES, ALL MOUNTED ON CABINET INTERIOR DEAD FRONT PANEL. CABINET: HOFFMAN#CSD161210SS, WITH OPTIONAL KEYED DOOR LATCH & STAINLESS STEEL MOUNTING BRACKETS. ENCLOSURE DIMENSIONS: 16"H x 12"W x 10"D.
2. STRUCTURAL SQUARE TUBE STEEL SHADE STRUCTURE COLUMN.
3. MANUAL 120V, (3)-HOUR TIMER SWITCH.
4. 1/2" DIA. THREADED STAINLESS STEEL CONDUIT NIPPLE BETWEEN COLUMN AND CABINET, COMPLETE WITH ALL REQUIRED STAINLESS STEEL FLAT & LOCK WASHERS, RUBBER FLAT WASHERS (BOTH SIDES OF CABINET WALL & COLUMN), FOR COMPLETELY WATERTIGHT CONDUIT/CONDUCTOR ENTRY & EXIT INSTALLATIONS.
5. (2) 20A 1P LIGHTING 'ON/OFF' TOGGLE SWITCHES, COMPLETE WITH CUSTOM ENGRAVED S.S. 2-GANG COVERPLATE.
6. CONTROL ENCLOSURE DEAD FRONT S.S. PANEL.
7. OPTIONAL KEYED CABINET LATCH.
8. HINGED & GASKETED CABINET DOOR, WITH KEYED LATCH.
9. FACTORY EXTERNAL NEMA 4X CABINET STAINLESS STEEL MOUNTING CHANNELS & HARDWARE SECURED TO CABINET WITH FACTORY-SUPPLIED HARDWARE, SEALING WASHERS, ETC.; SECURED TO SHADE STRUCTURE COLUMN W/MIN. (6) 1/8" X 3/8" S.S. SELF-TAPPING SHEET METAL SCREWS EACH.



TOP VIEW



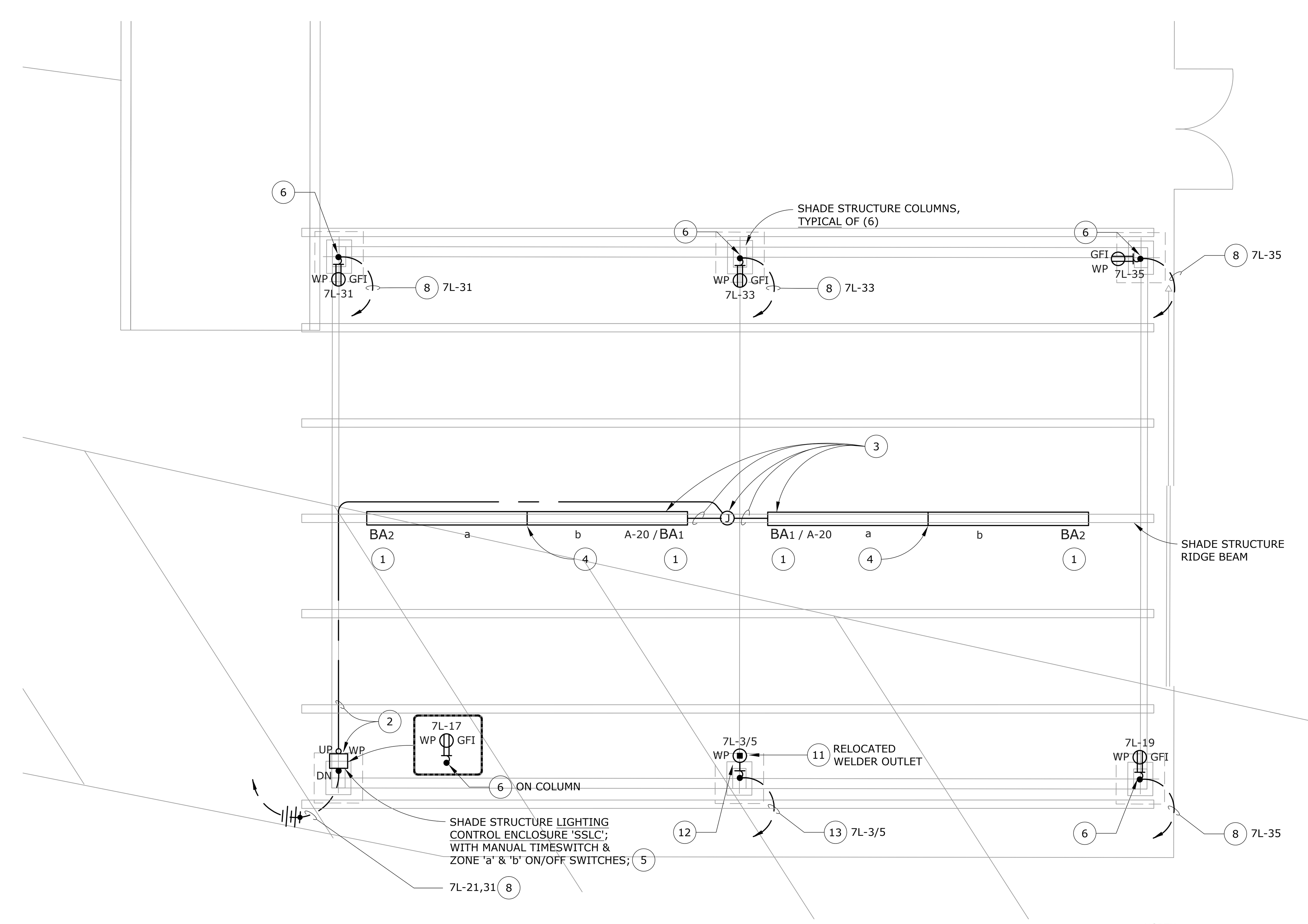
FRONT VIEW

SIDE VIEW

LIGHTING CONTROL CABINET - 'SSLC'

SCALE: 1/4" = 1'-0"

3 / E-1.2



ENLARGED CANOPY PLAN - ELECTRICAL

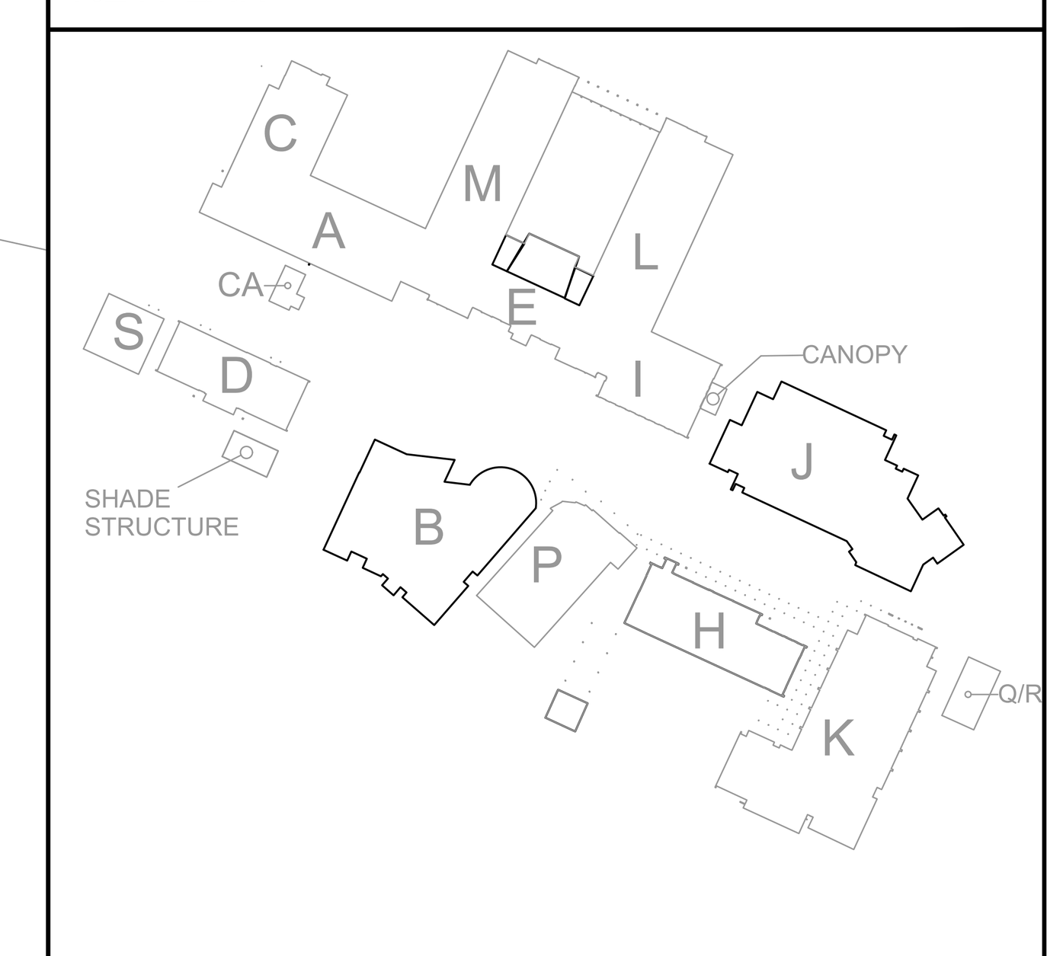
SCALE: 1/4" = 1'-0"

2 / E-1.2

NUMBERED SHEET NOTES

1. 'BA'-SERIES UNITS TO BE SECURED TO THE 'RIDGE BEAM' OF THE NEW SHADE STRUCTURE, UTILIZING FACTORY-SUPPLIED OPTIONAL STAINLESS STEEL MOUNTING BRACKETS, SECURED TO STRUCTURAL ROOF BEAM USING MIN. 1/8" DIA. x 3/8" L. SELF-TAPPING S. STEEL SCREWS, AND S. STEEL FACTORY MOUNTING HARDWARE. UTILIZE NEOPRENE FLAT-WASHERS AS REQUIRED FOR WATERTIGHT INSTALLATION.
2. COORDINATE INSTALLATION OF U/G RATED PVC COATED 12/3 METAL CLAD CABLE FOR NEW 'B1A/BA2' LUMINAIRE ASSEMBLIES, ROUTED INSIDE SHED STRUCTURE COLUMN, END RAFTER AND RIDGE BEAM, UTILIZING PROVISIONS (HANDHOLES FOR PULLING, ACCESS COVERPLATES, ETC.) PROVIDED BY THE SHED MFGR. FOR THIS PURPOSE. VERIFY EXACT REQUIREMENTS AND COORDINATE WITH SHED STRUCTURE INSTALLER.
3. PROVIDE AND INSTALL NEW PROPERLY-CONFIGURED 'FD'-TYPE DIECAST ALUMINUM, GASKETED, WET LOCATION J-BOX, SECURED TO RIDGE BEAM USING PROPERLY SIZED S. STEEL SELF-TAPPING SHEET METAL SCREWS, AND NEOPRENE AND S.S. FLAT- WASHERS. EXTEND THREADED S.S. CONDUIT AND CONDUCTORS TO NEW 'BA'-SERIES LUMINAIRES INDICATED, AND CONNECT COMPLETE, UTILIZING W.P. CONNECTING HUBS SUPPLIED WITH THE LUMINAIRES.
4. UTILIZE W.P. HUBS PROVIDED BY THE 'BA'-SERIES LUMINAIRE MANUFACTURER, AND SHORTEST POSSIBLE MATCHING THREADED RIGID STAINLESS STEEL CONDUIT NIPPLES FOR CONNECTIONS BETWEEN THE 'BA1' AND 'BA2' UNITS AS SHOWN.
5. SEE SPEC'S AND DETAIL 3/E-1.2. MOUNT ENCLOSURE AT +36" ABOVE FINISHED GRADE TO THE BOTTOM OF THE ENCLOSURE.
6. SURFACE MTD. 1-GANG J-BOX (TYPE FD) WITH CORROSION RESISTANT GFCI RECEPTACLE AND WEATHERPROOF COVER. MOUNT OVER SHADE STRUCTURE CUSTOM CUT-OUT AT +/-18" TO CENTER. SEE E-1.2 FOR SHADE STRUCTURE ELECTRICAL ROUTING AND CUT-OUT DETAILS.
7. UTILIZE (6) EXISTING SPARE 20A/1P CIRCUIT BREAKERS 17,19,21,31,33, AND 35 IN (E) PANEL FOR (N) CANOPY LIGHTING AND OUTLETS . PROVIDE NEW FULLY TYPED PANEL DIRECTORY TO IDENTIFY NEW AND EXISTING BRANCH CIRCUITS.
8. DIRECT BURIAL RATED 12/2 PVC COATED METAL CLAD CABLE FOR EACH CIRCUIT. STUB UP AT BASE OF COLUMN TO DIRECTLY ALIGN AND FALL WITHIN THE 3" BASE PLATE CUT-OUT. SEE E-1.2. DIRECT BURY AT MIN. 24" BELOW GRADE TO CHRISTY BOX AS SHOWN ON 1/E-1.1 AND SPLICE TO THWN CONDUCTORS FOR HOMERUN TO PANEL.
9. FLUSH IN-GROUND CHRISTY #N9 OR EQUAL, WITH TRAFFIC RATED H20 STEEL COVER LABELED "ELECTRIC".
10. STUB UP AT BASE OF COLUMN. SEE 2/E-1.2
11. (E) WELDER OUTLET (NEMA 6-50R). DISCONNECT AND RELOCATE / RECONNECT AT NEW CANOPY STRUCTURE AT SOUTH/CENTER COLUMN. SPLICE AND EXTEND (E) CIRCUIT WITH (2)#6 + (1)#10G IN 3/4" CONDUIT.
12. SURFACE MTD. 1-GANG J-BOX (TYPE FD) WITH RELOCATED NEMA 6-50R WELDER RECEPTACLE AND WEATHERPROOF COVER. MOUNT OVER SHADE STRUCTURE CUSTOM CUT-OUT AT +/-18" TO CENTER. SEE E-1.2 FOR SHADE STRUCTURE ELECTRICAL ROUTING AND CUT-OUT DETAILS.
13. DIRECT BURIAL RATED 6/2 PVC COATED METAL CLAD CABLE FOR (E) EXTENDED WELDER OUTLET CIRCUIT. STUB UP AT BASE OF COLUMN TO DIRECTLY ALIGN AND FALL WITHIN THE 3" BASE PLATE CUT-OUT. SEE E-1.2. DIRECT BURY AT MIN. 24" BELOW GRADE TO CHRISTY BOX AS SHOWN ON 1/E-1.1 AND SPLICE TO THWN CONDUCTORS FOR HOMERUN TO (E) WELDER CIRCUIT RUN.
14. (2) NEW 3/4" SCHEDULE 40 PVC FOR CANOPY POWER AND LIGHTING CIRCUITS, MINIMUM 24" COVER. PATCH (E) SURFACE TO (N) CONDITION.
15. TURN UP AT SIDE OF (E) BUILDING AND TRANSITION TO SURFACE MOUNTED RGS, PAINTED TO MATCH BUILDING EXTERIOR. PENETRATE BUILDING WALL WITH CONDULET ELBOW ABOVE INTERIOR CEILING LEVEL AND SEAL WEATHER-TIGHT.
16. EXTEND OVERHEAD INSIDE BUILDING (ABOVE CEILING) TO (E) POWER PANEL '7L' WITH (2) 3/4" EMT.
17. PROVIDE (1) 2" CONDUIT FOR FUTURE POWER AT SHADE STRUCTURE. STUB UP ADJACENT TO SHADE STRUCTURE COLUMN AS SHOWN AND CAP. HOMERUN CONDUIT INSIDE BUILDING ABOVE CEILING AND STUB ADJACENT TO (E) POWER PANEL '7L'.
18. PROVIDE (1) 2" CONDUIT FOR FUTURE SIGNAL CABLING AT SHADE STRUCTURE. STUB UP ADJACENT TO SHADE STRUCTURE COLUMN AS SHOWN AND CAP. HOMERUN CONDUIT INSIDE BUILDING ABOVE CEILING AND STUB ADJACENT TO (E) IDF.
19. STUB-UP 3/4" CONDUIT WITH (1) CAT 6A UTP AT BASE OF COLUMN AND ROUTE RGS AND WIRE SURFACE MOUNTED UP COLUMN TO WP SURFACE MOUNTED 1-GANG J-BOX, FOR DISTRICT PROVIDED IP SECURITY CAMERA. PAINT CONDUIT AND BOX TO MATCH COLUMN SURFACE. HOMERUN BACK TO IDF AT ADJACENT BUILDING.
20. FLUSH IN-GROUND CHRISTY #N9 OR EQUAL, WITH TRAFFIC RATED H20 STEEL COVER LABELED "SIGNAL". ASI-002
21. DISCONNECT AND REMOVE (E) DUST COLLECTOR CONTROL PANEL AT INTERIOR CLASSROOM, INCLUDING (E) 20A, 3-PHASE CIRCUIT BACK TO PANEL 7L-8/10/12 AND OUT TO (E) MOTOR.
22. REPLACE (E) 20A/3P BREAKER AT POSITION 8/10/12 WITH (N) 60A/3P BREAKER. (N) BREAKER TO MATCH (E) IN MFGR. AND AIC RATING (EATON / 10KAIC).
23. CONNECT COMPLETE TO (N) DUST COLLECTOR CONTROL PANEL (BY DIV 23) AND PROVIDE AND INSTALL (N) 1" C. HOMERUN WITH (3)#4+(1)#10G TO PANEL 7L-8/10/12.
24. PROVIDE AND INSTALL (N) 1"C. WITH (3)#4+(1)#10G FROM CONTROL PANEL TO 15HP(208V) DUST COLLECTOR MOTOR. DISCONNECT AT DUST COLLECTOR PROVIDED BY DIV. 23, PER SHEET M-1.0, INSTALLED BY DIV. 26.
25. PROVIDE AND INSTALL (N) 1/2"C. WITH (3)#12+(1)#120G FROM CONTROL PANEL TO 3/4HP(208V) SHAKER MOTOR. DISCONNECT AT SHAKER MOTOR PROVIDED BY DIV. 23, PER SHEET M-1.0, INSTALLED BY DIV. 26.
26. DISCONNECT AND RELOCATE (E) WALL MOUNTED LIGHT FIXTURE SOUTH AS SHOWN. RECONNECT COMPLETE.
27. DISCONNECT AND SLIGHTLY RELOCATE (E) WALL MOUNTED EM LIGHT FIXTURE BATTERY UNIT AT THIS LOCATION, IF IN THE WAY OF THE NEW DUCT PENETRATION. COORDINATE WITH MECHANICAL DIVISION. RFP #001.1

KEYPLAN



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DATE: 12/18/2023

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REVISIONS

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E-1.2

SECTION 23 3513

DUST COLLECTION EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. The Bidding Requirements and Contract Forms, including General Conditions and Supplemental General Conditions, Division 01 - General Requirements, and Section 23 0500 - General Mechanical, apply to all work herein.

1.02 DESCRIPTION

A. This Specification establishes the required standards for all labor, materials, equipment, and workmanship in connection with the furnishing, fabrication, and installation of "Dust Collection Equipment". Dust Collection Equipment includes, but is not necessarily limited to, the following items of work:
1. Dust Collector
2. After Filter
3. Electrical
4. Duct System

PART 2 - PRODUCTS

2.01 CYCLONE UNIT DUST COLLECTOR

A. Cyclone unit dust collector shall be a DUSTKOP Model #70SN70-D2-SP, as manufactured by AGET Manufacturing Company, Adrian, Michigan, or approved equal.

B. Dust collection system exhaust ventilation requirement shall be 3400 CFM at 12.7" w.c. E.S.P. @ 50 ft. elevation ASL.

C. Unit Fan
1. The cyclone unit fan shall be located on the "clean air side" of the cyclone. The fan wheel shall be a backward curved blade industrial material handling design of spark-resistant A356-T6 aluminum alloy and shall rotate at a nominal speed of 3600 RPM in a direct drive configuration.
2. The cyclone unit fan shall be driven by a 15 HP, TEFC, 3600 RPM continuous duty premium efficiency motor. The motor shall include a weather cap assembly to protect it from rain, sleet, ice, and snow. The motor shall be rated to operate on 208/60/3 power, shall include a minimum 3 year manufacturer's warranty, and shall comply with EISA 2007 motor efficiency standards.
3. The cyclone shall be a high efficiency design, measuring 30" in diameter. Additionally, the cyclone shall be constructed in a component bolt-together design of AISI 1010 CQ cold rolled steel.
4. The cyclone unit shall incorporate a "pressure relief door", designed to open and release overpressure from the cyclone in the event of an explosion. Hinge and latches shall be stainless steel. Opening size shall be 8" x 18", minimum.
5. The cyclone unit shall incorporate a supporting angle iron framework, lending support at the base of the cone and the base of the cylinder. The unit frame shall be constructed of 2" x 2" x ¼" angle, ASTM spec. A36, minimum.
6. The cyclone unit shall be mounted on a welded structural steel support stand. The stand shall be constructed of 2 ½" x 2 ½" x ¼" angle, ASTM spec. A36, minimum.

7. Collected dust shall be deposited into two (2) standard steel DOT type 55-gallon drums for storage. Storage capacity shall be 7.3 cu. ft. per drum, or 14.6 cu. ft. total.
8. The drum cover assemblies shall be of a clamp-on positive sealing design. Those held/sealed in place by fan suction only shall be unacceptable for this service.
9. The cyclone unit dust collector shall be finished with a minimum of one coat of Sherwin-Williams "Powdura-RAL" series super durable polyester TGIC-free powder coating, RAL 7015 GL.
10. The inlet duct to the cyclone unit dust collector shall be fit-up with an explosion isolation device (explosion backdraft damper), to prevent the pressure wave from an explosion in the dust collector from traveling back through the system ductwork into the shop. The basis for design shall be a Boss VGF-12 no return valve.
11. The silencing of fan generated noise shall be accomplished with an in-line 16" HD attenuator of basic Helmholtz resonator design. The 16" HD attenuator shall be heavy-duty bolt-together construction and shall include a fiberglass acoustic media packing in the expanded section, protected by an expanded metal retainer.

2.02 AFTER-FILTER

A. After-Filter unit dust collector shall be a DUSTKOP Model #FT64-SP, manufactured by AGET Manufacturing Company, Adrian, Michigan, or approved equal.

B. The After-Filter shall contain 612 square feet of filter area in the form of 10.1 oz. high efficiency cotton sateen filter media. The DUSTKOP Model #FT64-SP shall contain 64 five-inch diameter filter tubes, open at both top and bottom.

C. Air-to-filter ratio (CFM/SQ. FT.) shall not exceed 5.55/1, based on a design exhaust rate of 3400 CFM.

D. The After-Filter unit shall be structurally self-supporting, incorporating angle iron support legs (alignment legs to align inlet with cyclone outlet), and sheet metal enclosure panels for "unibody" construction.

E. The After-Filter shall be provided with a shaker mechanism, which is to be operated electrically. The motorized shaker shall be driven by a ¾ HP, TEFC, 1800 RPM motor, capable of operating on 208/60/3 power.

F. The motorized shaker is to be controlled automatically by adjustable timing relays (2), mounted indoors in the system electrical control panel.

G. Collected dust shall be deposited into two dust bin drawers, each containing 6.4 cubic feet dust storage capacity. Dust storage in the filter bags is unacceptable.

H. The FT40 After-Filter shall include top (inlet) plenum acoustic lining to reduce fan generated noise. The acoustic lining shall be a minimum 1" thick, 2# density polyurethane foam.

I. The Model #FT64-SP after-filter shall incorporate weatherproof enclosure panels and shall be completely weatherproofed for outdoor installation. Included shall be a 28" x48" x 90° outlet weatherhood with birdscreen for venting filtered exhaust air to outdoors.

J. The enclosure panels shall be fit-up with pressure relief doors (2), designed to open and release overpressure from the after-filter in the event of an explosion. The pressure relief openings shall be sized for a minimum vent area of 3.97 sq. ft. each (2-26" x 22" openings). Hinges and latches shall be stainless steel.

K. The FT64-SP after-filter shall include alignment legs to align its inlet with the cyclone unit fan outlet for close coupling capability.

L. 2.11 The after-filter shall be finished with a minimum of (1) coat of Sherwin Williams Powdura RAL series super durable polyester TGIC-free powder coating, RAL 7015 GL

2.03 ELECTRICAL

A. All electrical controls and wiring shall conform to NFPA 70, the National Electrical Code, Article #430 – motors, motor circuits, and controllers, and/or any appropriate local codes.

B. All electrical controls shall be located indoors, and shall comply with NFPA 70, the National Electrical Code, Article #500-7-Class III locations, necessitating NEMA type "12" enclosures (dust-tight), unless otherwise specified.

C. All electrical controls shall be contained in a pre-wired control panel for single point wiring. The control panel shall include a disconnect, fuse blocks, fuses, starters, heater elements, control circuit transformer, shaker timing relays, VGF interlock relays, wiring, pilot lights, start-stop pushbuttons, and UL508 certification.

D. Non-fusible disconnect(s) outdoors shall require minimum NEMA type '3R' enclosures (watertight).

E. The system power supply shall be 208/60/3. All control circuit wiring shall be 120/60/1.

F. All motor starters shall be NEMA size and rating. IEC spec. motor starters shall be unacceptable.

PART 3 - EXECUTION

3.01 DUCT SYSTEM

A. The dust collection duct system shall be designed in accordance with good dust collection practices, for the dust collector to operate at its maximum possible efficiency. The Industrial Ventilation Manual of the American Conference of Governmental Industrial Hygienists, or other recognized reference material, is recommended as a guide to proper duct system design.

B. The duct system conveying velocities shall be designed for a nominal conveying velocity of 4000 feet per minute.

C. Exhaust system ductwork shall be constructed with materials suitable for the conditions of service and installed in a permanent and workmanlike manner.

D. All duct system pipe and elbows shall be galvanized steel. All fittings, such as collection hoods, and floor sweeps, shall be painted with a rust resistant finish. All exhaust system ducting shall be round. The interior of all ducts shall be smooth and free from obstructions, especially at joints.

E. All sheet metal pipe shall be constructed of the following minimum gauges: 3"- 6" diameter - 24 gauge; 7"-14" diameter - 22 gauge.

F. All sheet metal elbows shall be constructed of the following minimum gauges: 3"- 8" diameter - 22 gauge; 9"- 24" diameter - 20 gauge.

G. Elbows shall have a centerline radius of 2.5 times the pipe diameter in sizes 3" to 12".

H. All branches shall enter the main at the large end of the transition at an angle not to exceed 45 degrees. Branch connections should be to the side or top of the main with no two branches entering directly opposite each other. "T" type branches are unacceptable.

I. All ductwork shall be rigidly supported, such that there shall be no unsupported span of ductwork greater than 10 feet. Additionally, it is recommended that branch drops to machine connections be rigidly supported.

J. Cleanouts are recommended in horizontal runs of ducts carrying dust-laden air. Proper spacing of cleanouts is generally every 12 feet, however, the types of operations being collected from may influence this distance.

K. Where reinforced flexible hose is required, the section should be kept as straight as possible, and the overall length kept to a minimum.

L. Adequate clearances shall be provided between ductwork and ceilings, walls, lights, and utilities, so as not to hinder installation, maintenance, or lighting quality.

M. All machine connections shall incorporate cut off gates.

N. All dust collection hoods shall be efficiently designed to effect proper dust collection

END OF SECTION