DOCUMENT 009113 - ADDENDUM

1.1 PROJECT INFORMATION

- A. Project Name: District Office Board Room & 2nd Floor Office Remodel
- B. Owner: Sequim School District No. 323
- C. Owner Project Number: 2023-02-1001
- D. Architect: design2 Last, Inc.
- E. Architect Project Number: 2023-323
- F. Date of Addendum: September 8, 2023

1.2 NOTICE TO BIDDERS

- A. This Addendum is issued to all plan centers and posting entities pursuant to the **Instructions to Bidders**. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.
- B. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.
- C. The date for receipt of bids is **changed to the following**, at same time and the original location and the following additional location.
 - 1. Bid Date: **September 19, 2023**.
 - 2. Bid Receipt Locations:
 - a. Sequim School District Office at 503 N. Sequim Avenue, Sequim, WA 98382
 - b. Wenaha Group Federal Way office at 505 S 336th Street, Suite 630, Federal Way, WA 98003
- D. The summary of Addendum #2 changes:
 - 1. Delete reference to E1.0 on the drawing index. There is no sheet E1.0.
 - 2. Note added to sheet E-0.1 deferring any fire alarm redesign scope to Johnson Controls Fire Protection
 - 3. Fire alarm specifications have been added (E-3.3)
 - 4. Note added to sheet E-1.4 for penetrations to existing building and trenching for added exterior power.

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ADDENDUM 2 - September 8th, 2023

1.3 ATTACHMENTS

- A. This Addendum includes no attachments.
- B. This Addendum includes the following attached Documents and Specification Sections:
 - 1. Section 004100, Bid Form, dated September 8,2023, (reissued).
- C. This Addendum includes the following attached Sheets:
 - 1. Electrical Sheet E-0.1 (**reissued**).
 - 2. Electrical Sheet E-0.2 (**reissued**).
 - 3. Electrical Sheet E-1.4 (**reissued**).
 - 4. Electrical Sheet E-2.1 (**reissued**).
 - 5. Electrical Sheet E-3.1 (**reissued**).
 - 6. Electrical Sheet E-3.2 (**reissued**).
 - 7. Electrical Sheet E-3.3 (**new**).

END OF DOCUMENT 009113

ADDENDUM 009113 - 2

NOTE TO CONTRACTOR

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE SAME.

SHEET INDEX	
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OHEET INDEX		
SHEET NUMBER	SHEET TITLE	
E-0.1	ELECTRICAL LEGENDS AND NOTES	
E-0.2	ELECTRICAL LEGENDS AND NOTES	
E-0.3	LUMINAIRE SCHEDULE	
E-0.4	SINGLE LINE DIAGRAM AND PANEL SCHEDULES	
E-0.5	PANEL SCHEDULES	
E-1.1	OVERALL ELECTRICAL FLOOR PLANS	
E-1.2	OVERALL SECOND FLOOR PLAN	
E-1.3	ENLARGED ELECTRICAL FLOOR PLANS	
E-1.4	ENLARGED ELECTRICAL FLOOR PLANS	
E-2.1	ELECTRICAL DETAILS	
E-3.1	ELECTRICAL SPECIFICATIONS	
F-32~~~	ELECTRICAL SPECIFICATIONS	
E-3.3	ELECTRICAL SPECIFICATIONS	



FIRE ALARM NOTE:

MODIFICATIONS TO EXISTING SIMPLEX FIRE ALARM SYSTEM SHALL BE UNDER A DEFERRED SUBMITTAL. BIDDING CONTRACTOR SHALL CONTACT JOHNSON CONTROLS FIRE PROTECTION (JOE HUGHES 206-886-9127 JOE.HUGHES@JCI.COM)

GENERAL NOTES

- 1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LATEST CODE OF FEDERAL REGULATIONS (CFR), NATIONAL ELECTRICAL CODE EDITION AND ALL APPLICABLE LOCAL CODES AND REGULATIONS.
- 2. ALL PANELS, SWITCHES, ETC. SHALL HAVE SUFFICIENT GUTTER SPACE AND LUGS IN COMPLIANCE TO UL REQUIREMENTS TO ACCOMMODATE CONDUCTORS SHOWN.
- 3. WHERE WIRE SIZES ARE INDICATED ON PLANS, FOR INDIVIDUAL CIRCUITS, THE WIRE SIZE INDICATED SHALL APPLY TO THE COMPLETE CIRCUIT, UNLESS OTHERWISE NOTED.
- 4. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF MECHANICAL, PLUMBING AND OTHER EQUIPMENT REQUIRING ELECTRICAL CONNECTION PRIOR TO ANY WORK.
- CONTRACTOR SHALL EXTEND WIRING FROM ALL JUNCTION BOXES, SWITCHES, ETC. AND MAKE FINAL CONNECTION AS REQUIRED TO ALL BUILDING EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS.
- 6. LOCATION OF LOCAL WALL SWITCHES ARE SUBJECT TO MODIFICATIONS. AT OR NEAR DOORS, INSTALL SWITCHES ON SIDE OPPOSITE TO DOOR HINGE. VERIFY FINAL HINGE LOCATION IN FIELD PRIOR TO ANY WORK.
- 7. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OR OTHER TRADES RELATING TO WORK TO VERIFY SPACE IN WHICH WORK WILL BE INSTALLED. MAINTAIN HEADROOM AND MINIMUM CODE REQUIRED WORKING CLEARANCES AT ALL TIMES.
- 8. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL WALL OUTLET BOXES FOR SWITCHES, BELL/STROBES, FIRE ALARM PULL STATIONS. RECEPTACLES ETC. WITH CABINETS, FURNITURE, EQUIPMENT ETC., TO AVOID CONFLICT.
- 9. WHERE ELECTRIC MOTORS OR HEATERS ARE INSTALLED IN HUNG CEILINGS, PROVIDE DISCONNECT SWITCH IN HUNG CEILING WITHIN REACH FROM ACCESS POINT.
- 10. FURNISH APPROVED EXPANSION FITTINGS WHERE RACEWAY CROSSES BUILDING EXPANSION JOINTS.
- 11. FURNISH PULL STRING IN EACH RACEWAY RUN OVER 10' IN LENGTH, IN WHICH PERMANENT WIRING IS NOT INSTALLED.
- 12. NOT MORE THAN THREE LIGHTING OR CONVENIENCE OUTLET CIRCUITS ARE PERMITTED IN ONE CONDUIT, PROVIDE SEPARATE CONDUIT FOR EACH HOMERUN INDICATED ON THE DRAWING, UNLESS INDICATED OTHERWISE.
- 13. PROVIDE PULL BOXES WHEREVER NECESSARY TO FACILITATE PULLING OF CONDUCTORS. COORDINATE LOCATIONS OF BOXES WITH OTHER TRADES TO AVOID CONFLICT. PULL BOXES SHALL BE ACCESSIBLE. THE SIZE OF PULL BOX SHALL COMPLY WITH N.E.C. REQUIREMENTS.
- 14. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILING SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURES.
- 15. SEE MECHANICAL AND PLUMBING DRAWINGS AND SPECIFICATION FOR ADDITIONAL CONNECTION REQUIREMENTS TO CONTROL PANELS, CONTROL TRANSFORMERS, POWER FOR CONTROL SYSTEM EP AND PE SWITCHES, TIME CLOCKS, VALVES, STATS, RELAYS, DUCT SMOKE DETECTOR LOCATIONS, ETC. INDICATED ON CONTROL WIRING DIAGRAMS. ELECTRICAL CONTRACTOR SHALL VERIFY FINAL CONTROL WIRING REQUIREMENTS WITH MECHANICAL AND PLUMBING CONTRACTORS PRIOR TO ANY WORK AND PROVIDE ALL NECESSARY DEVICES AND CONNECTIONS AS REQUIRED.
- 16. ALL EXTERIOR ELECTRICAL DEVICES AND EQUIPMENT INCLUDING THOSE THAT ARE EXPOSED TO OUTSIDE ENVIRONMENT (UP TO 16') SHALL BE WEATHERPROOF TYPE, NEMA 3R.
- 17. NO CONDUIT RUNS SHALL BE ALLOWED IN CONCRETE SLABS. ALL CONDUITS WILL BE PLACED ABOVE ACCESSIBLE CEILING SPACES UNLESS SPECIFICALLY INDICATED TO BE UNDERGROUND.
- 18. LIGHTING, POWER, TELEPHONE AND COMMUNICATIONS OUTLETS SHALL NOT BE PLACED BACK-TO-BACK.
- 19. WHERE MORE THAN ONE LIGHT SWITCH OCCURS AT SAME LOCATION, SWITCHES SHALL BE MOUNTED IN A MULTIPLE GANG BOX UNDER A SINGLE COVER PLATE. PLATES WITH MORE THAN (3) LIGHT SWITCHES SHALL BE LABELED TO INDICATE THE LIGHT FIXTURES CONTROLLED.
- 20. DISCONNECT SWITCHES SHALL BE MOUNTED ON INDIVIDUAL SUPPORTS, OR OTHERWISE DIRECTLY ON EQUIPMENT, PROVIDED NO MODIFICATION TO EQUIPMENT IS NECESSARY.
- 21. ALL ELECTRICAL POWER, LIGHTING, TELEPHONE OR SIGNAL WIRING IN FIRE RATED WALL IS TO BE INSTALLED IN A METALLIC CONDUIT SYSTEM.
- 22. ALL ELECTRIC MATERIAL SHALL BE LISTED BY "UL" FOR THE TYPE OF APPLICATION AND "UL" LABEL SHALL APPEAR ON
- 23. CONTACT UTILITY COMPANIES FOR SCOPE OF WORK PRIOR TO SUBMITTING BID; INCLUDE UTILITY CHARGES IF ANY.
- 24. ALL DISTRIBUTION AND CONTROL EQUIPMENT (SUCH AS CB's, SWITCHES, CONTACTORS, ETC.), TERMINATIONS SHALL BE FULLY RATED PER UL AS FOLLOWS:
- a. 125A OR LESS : 60°C OR MORE; b. MORE THAN 125A : 75°C OR MORE.

ALL ELECTRICAL EQUIPMENT.

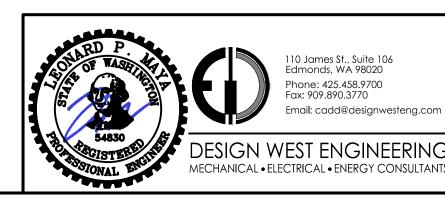
- 25. ANY ERRORS, OMISSIONS, OR DESIGN DISCREPANCIES ON PLANS OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ELECTRICAL ENGINEER FOR CLARIFICATION OR CORRECTION PRIOR TO CONSTRUCTION AND PREPARATION OF SUBMITTAL PACKAGES.
- 26. CONDUCTORS SHALL HAVE UNDERWRITER'S LABORATORIES, INC.(UL) LISTED, 600 VOLT INSULATION OF TYPE SPECIFIED BELOW OR ELSEWHERE IN THE SPECIFICATIONS. CONDUCTORS SHALL BE COPPER.
- 1. BRANCH CIRCUITS LIGHTING AND POWER.
- a. #10 AWG AND SMALLER, SOLID WIRE TYPE THW OR THHN/THWN, THHW(THHN FOR DRY LOCATION ONLY).
 b. #8 AWG TO #2 AWG, STRANDED TYPE THW OR THHN/THHW.
 c. #1 AWG AND LARGER, STRANDED TYPE XHHW.
- 2. FEEDERS: TYPE THW OR THHN/THWN, OR XHHW.
- 27. PROVIDE GREEN INSULATED GROUNDING CONDUCTOR IN EACH RACEWAY INCLUDING CONDUITS, PLUG STRIPS, WIREMOLD. SIZE OF GROUNDING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 250.
- 28. WIRING METHOD SHALL BE EMT ABOVE GROUND AND MOUNTED IN CONCEALED SPACES AND SCHEDULE-40 PVC FOR UNDERGROUND INSTALLATION. USE RIGID WHEN ENCASED IN CONCRETE OR SUSCEPTIBLE TO DAMAGE.
- 29. PROVIDE 110V OUTLET, CFL LIGHT & SWITCH FOR LIGHT @ FAU IN ATTIC, WHERE APPLICABLE.
- 30. ALL SWITCH LOCATIONS ARE REQUIRED TO HAVE A NEUTRAL CONDUCTOR PROVIDED AT THE SWITCH LOCATION PER NEC 404.2(C).
- 31. UNLESS OTHERWISE INDICATED, SHARING OF NEUTRAL/GROUNDED CONDUCTORS AMONG SINGLE PHASE BRANCH CIRCUITS OF DIFFERENT PHASES INSTALLED IN THE SAME RACEWAY IS NOT PERMITTED. PROVIDE DEDICATED NEUTRAL/GROUNDED CONDUCTOR FOR EACH INDIVIDUAL BRANCH CIRCUIT.
- 32. UNLESS OTHERWISE INDICATED, PROVIDE A SEPARATE SWITCHED AND UNSWITCHED PHASE CONDUCTOR TO ALL CONTROLLED RECEPTACLES REGARDLESS OF RECEPTACLE CONFIGURATION.
- 33. BASIS OF ELECTRICAL DESIGN LIMITS VOLTAGE DROP TO 2% FOR FEEDERS AND 3% FOR BRANCH CIRCUITS. ANY CHANGES MADE IN THE FIELD SHALL LIMIT VOLTAGE DROP TO THESE PERCENTAGES.
- 34. BRANCH CIRCUIT CONDUITS SHALL BE CONCEALED IN WALL OR CEILING SPACES. EXPOSED CONDUITS ARE NOT ALLOWED WHERE CONCEALED METHODS ARE AVAILABLE.
- 35. CONTRACTOR SHALL PROVIDE CONDUCTORS AND CONDUITS REQUIRED FOR ALL BRANCH CIRCUITS AND FEEDERS. FOR CIRCUIT SIZES NOT SHOWN, REFER TO PANEL SCHEDULES FOR CONDUCTOR AND CONDUIT SIZES.
- 36. ALL EMERGENCY CIRCUITS SHALL BE ENTIRELY INDEPENDENT OF ALL OTHER WIRING AND EQUIPMENT AND SHALL NOT ENTER SAME RACEWAY, BOXES OR CABINETS WITH OTHER WIRING EXCEPT WHERE PROVIDED IN NEC 700.9B.
- 37. REFER TO LIGHTING CONTROL DETAILS FOR WIRING AND CONDUIT REQUIREMENTS. CONTRACTOR SHALL PROVIDE ALL WIRING AND CONDUITS REQUIRED BY MANUFACTURER TO FIXTURES AND CONTROLS.

GENERAL NOTES CONTINUED

- 38. THE CONTRACTOR SHALL COORDINATE THE WORK WITH OTHER TRADES. ANY COSTS TO INSTALL WORK TO ACCOMPLISH SAID COORDINATION, WHICH DIFFERS FROM THE WORK AS SHOWN ON THE CONTRACT DOCUMENTS, SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE DURING BID TIME FOR CLARIFICATION. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERRUPTION OF THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.
- 39. EXACT ROUTING METHOD AND LOCATION OF CONDUIT PENETRATION AND OPENINGS IN WOOD ROOF DECKS, WALL, FLOORS OR STRUCTURAL STEEL MEMBERS SHALL BE DETERMINED BY THE CONTRACTOR IN FIELD. PERFORM CORING, SAWCUTTING, PATCHING AND REFINISHING OF EXISTING WALLS AND SURFACES WHEREVER IT IS NECESSARY TO PENETRATE. OPENINGS SHALL BE SEALED IN AN APPROVED METHOD TO MEET THE FIRE RATING AND WATER PROOFING REQUIREMENTS OF THE PARTICULAR WALL, FLOOR OR CEILING. ALL FIRE SEALS SHALL BE UL APPROVED. CONTRACTOR SHALL SCAN ALL CONCRETE WALLS AND SLABS FOR THE PRESENCE OF REBAR AND/OR UTILITIES PRIOR TO DRILLING OR CUTTING IF CONCRETE WORK IS INVOLVED. CONTRACTOR SHALL PROVIDE CERTIFICATION OF CALIBRATION OF CONCRETE SCANNING EQUIPMENT PRIOR TO PERFORMING WORK.
- 40. STUB OUT (2)1" CONDUITS FROM ALL FLUSHED MOUNTED PANELBOARDS INTO ACCESSIBLE CEILING SPACE AND CAP FOR FUTURE USE

ABBREVIATIONS

	ADDREVIATIONS			
A	AMPERE	NEC	NATIONAL ELECTRICAL CODE	
AF	AMPERE FRAME RATING (CIRCUIT BREAKER)	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S	
AFF	ABOVE FINISHED FLOOR		ASSOCIATION	
AFG	ABOVE FINISHED GRADE	NEW (N)	NEW, TO BE FURNISHED AND INSTALLED BY	
AFU	AMPERE FUSE RATING (FUSE)		CONTRACTOR	
AIC	AMPERE INTERRUPTING CAPACITY	NF	NON-FUSED	
AS	AMPERE SWITCH RATING (FUSE)	NIC	NOT IN CONTRACT	
AT	AMPERE TRIP RATING (CIRCUIT BREAKER)	N/L	NIGHT LIGHT	
AWG	AMERICAN WIRE GAUGE	NO	NUMBER, NORMALLY OPEN	
BKBD	BACKBOARD	NTS	NOT TO SCALE	
BLDG	BUILDING	OC	ON CENTER	
BKR	BREAKER	OD	OUTSIDE DIAMETER	
С	CONDUIT	P	POLE	
СВ	CIRCUIT BREAKER	PB	PULL BOX	
CKT	CIRCUIT	PF	POWER FACTOR	
CFSD	COMBINATION FIRE SMOKE DAMPER	PNL	PANEL	
CO	CONDUIT ONLY	POC	POINT OF CONNECTION	
CT	CURRENT TRANSFORMER	PP	POWER POLE	
CU	COPPER	PWR	POWER	
CL	CENTERLINE	PVC	POLYVINYL CHLORIDE	
DISC	DISCONNECT	QUAD	QUADRUPLEX	
DSBN	DISTRIBUTION SECTION	QTY	QUANTITY	
DN	DOWN	RGS	RIGID GALVANIZED STEEL	
DWG	DRAWING	RMC	RIGID METALLIC CONDUIT	
EA EO	EACH SUBSTITUTE OF STATE OF ST	RM	ROOM	
EC	ELECTRICAL CONTRACTOR	RNC	RIGID NONMETALLIC CONDUIT	
EM	EMERGENCY FLECTRICAL METALLIC TURING	SHT	SHEET	
EMT	ELECTRICAL METALLIC TUBING	SN	SOLID NEUTRAL	
EXIST, (E) EXO	EXISTING EXTERNAL OPERABLE DISCONNECT	SPEC	SPECIFICATIONS SWITCH	
F	FUSE	SWBD	SWITCHBOARD	
r FA	FIRE ALARM	TC	TIME CLOCK	
FACP	FIRE ALARM CONTROL PANEL	TEL	TELEPHONE	
FF	FINISHED FLOOR	TERM	TERMINAL	
FG	FINISHED GRADE	TP	TEMPORARY POLE	
FLA	FULL LOAD CURRENT	TYP	TYPICAL	
GEN	GENERATOR	UGPS	UNDERGROUND PULL SECTION	
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	UL	UNDERWRITERS LABORATORY	
GFP	GROUND FAULT PROTECTION	UPS	UNINTERRUPTIBLE POWER SUPPLY	
GND	GROUND	UON	UNLESS OTHERWISE NOTED	
HOA	HAND-OFF-AUTOMATIC	V	VOLT, VOLTAGE	
HP	HORSE POWER	VA	VOLT-AMPERE	
HV	HIGH VOLTAGE	VFC	VARIABLE FREQUENCY CONTROLLER	
IDF	INTERMEDIATE DISTRIBUTION FRAME	VFD	VARIABLE FREQUENCY DRIVE	
IG	ISOLATED/INSULATED GROUND	W	WATT	
ISC	SHORT CIRCUIT CURRENT AVAILABLE IN RMS	WH	WATT-HOUR	
	SYMMETRICAL AMPERES	WP	WEATHERPROOF	
J-BOX	JUNCTION BOX	WW	WIREWAY	
KCMIL	THOUSAND CIRCULAR MILS	XP	EXPLOSION PROOF	
KW	KILOWATT	Z	IMPEDANCE	
KV	KILO VOLT			
KVA	KILO VOLT-AMPERE			
LDC	LOCAL DISTRIBUTION CABINET	4W	FOUR-WIRE	
LDF	LOCAL DISTRIBUTION FRAME	3W	THREE-WIRE	
LCL	LONG CONTINUOUS LOAD	5S	JUNCTION BOX	
LTG	LIGHTING	_	(4 11/16" SQUARED X2 1/8" DEEP)	
LV	LOW VOLTAGE	Ø	DIAMETER, PHASE	
MFR	MANUFACTURER	#	NUMBER	
MAX	MAXIMUM	°C	DEGREE CELSIUS	
MCC	MOTOR CONTROL CENTER	(E)	EVICTING DEVICE TO DEMAIN	
MIN	MINIMUM	(E)	EXISTING DEVICE TO REMAIN	
MH	MANHOLE / METAL HALIDE	(R)	REMOVE EXISTING DEVICE AND ASSOCIATED	
M/M	METER AND MAIN SECTION	(RL)	CONDUIT AND WIRE REMOVE EXISTING DEVICE AND RELOCATE A:	
MIII TI	MULTI METER CECTION	i (151.)	IN MOVE EVIOLING DEVICE AND RELOCATE A	



MULTI-METER SECTION

MEDIUM VOLTAGE

NORMALLY CLOSED

REMOVE EXISTING DEVICE AND RELOCATE AS

NEW LOCATION OF RELOCATED DEVICE

SHOWN ON PLAN

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REVISION SCHEDULE

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SHEET NAME
ELECTRICAL LEGENDS AND
NOTES

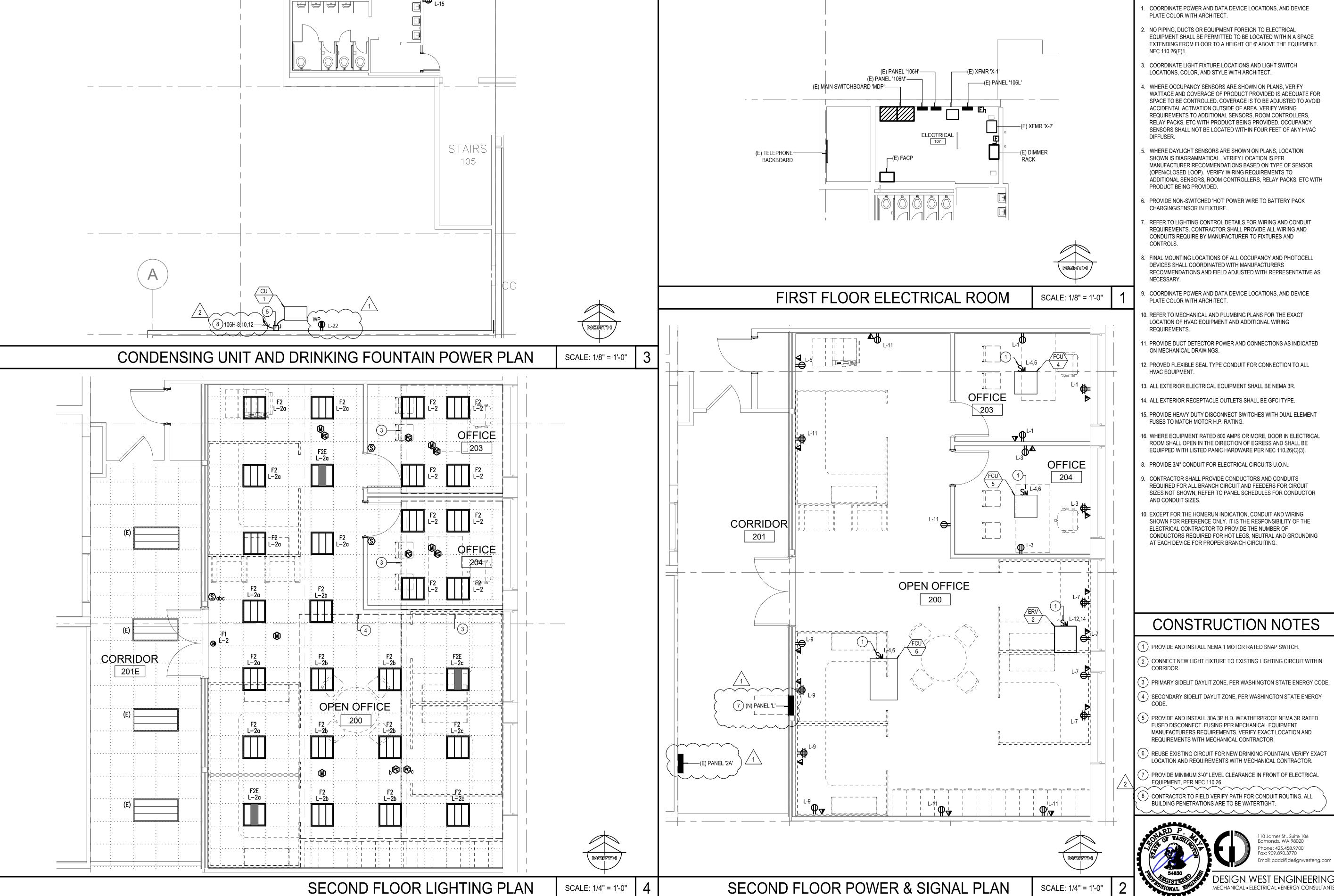
SHEET NO. **E-0.1**

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22-080

.PROJECT\2022\22-080 SEQUIM SCHOOL DISTRICT BOARD ROOM\22-080 E-FRNTSHT - 2023-09-06 - BETHLEHEM ZEKARIAS		
R: _PROJECT		

I	POWER LEGEND AND SYMBOLS		POWER LEGEND AND SYMBOLS	L	IGHTING LEGEND AND SYMBOLS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION]
	SWITCH AND FUSE ASSEMBLY	A-1	SUBSCRIPT "A-1" REFERS TO PANEL DESIGNATION WITH CIRCUIT NUMBER. TYPICAL OF ALL RECEPTACLE OUTLETS.	FN 2ab/2AB N/L	2'X4' RECESSED LUMINAIRE. FN INDICATES LUMINAIRE TYPE - REFER TO LUMINAIRE SCHEDULE, TYPICAL. SUBSCRIPT 2ab REFERS TO CIRCUIT AND SWITCH LEG 'a' AND 'b', SUBSCRIPT 2AB REFERS TO CIRCUIT AND ZONE DESIGNATION 'A' AND 'B'. SUBSCRIPT N/L REFERS TO UNSWITCHED LEG. TYPICAL OF ALL LIGHTING.	
		⊕	DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.	FNE	2'X4' RECESSED LUMINAIRE WITH 90MIN. EMERGENCY BATTERY BACKUP	
	UTILITY COMPANY PULL SECTION LUGS	#	DOUBLE DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.	⊕	SURFACE MOUNTED DOUBLE FACE EXIT SIGN (UNIVERSAL ARROWS INDICATED AS NEEDED)	
N <u>−</u>	GROUNDING CONNECTION AT CAMECUAGE ARYDISTRIBUTION ROADD WITH NEUTRAL BONDING	⇒	DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS, GFCI TYPE) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.	<u>⊗</u>	SURFACE MOUNTED SINGLE FACE EXIT SIGN (UNIVERSAL ARROWS INDICATED AS NEEDED)	
G 💆	GROUNDING CONNECTION AT SWITCHGEAR/DISTRIBUTION BOARD WITH NEUTRAL BONDING.	₩	DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS) WITH MOUNTING HEIGHT HORIZONTALLY ABOVE COUNTER TOP PER ARCHITECTURAL PLANS OR APPROVAL.		SWITCH, SINGLE POLE 20A. MOUNTED 48" A.F.F. TO TOP OF DEVICE. SUBSCRIPTS INDICATE THE FOLLOWING:	-5040
- M	IN-LINE UTILITY COMPANY METER	∓ €	DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS, GFCI TYPE) WITH MOUNTING HEIGHT HORIZONTALLY ABOVE COUNTER TOP PER ARCHITECTURAL PLANS OR APPROVAL.	S3ab	M - MOTOR RATED K - KEY OPERATED 3 - THREE WAY D - DIMMER SWITCH 4 - FOUR WAY T - TIMED SWITCH	Suite 101 A 98020 9 c. 907-317
⊱ M)	UTILITY METER WITH CIRCUIT TRANSFORMERS (CT'S) METER	=	CA WSEC COMPLIANT DUPLEX RECEPTACLE OUTLET, HALF-CONTROLLED, CONVENIENCE, WITH PERMANENT MARKING. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.		a, b, c, ETC DESIGNATES SWITCH-LEGS CONTROLLED AND QUANTITY OF SWITCHES AT EACH LOCATION.	lain St, nds, W s73-726 design
GFP GPP	SOLID STATE DEVICE CONNECTED TO THE POWER DISTRIBUTION SYSTEM GROUND FAULT PROTECTION DEVICE CONNECTED TO THE POWER DISTRIBUTION SYSTEM SURGE PROTECTION DEVICE	#	CA WSEC COMPLIANT DOUBLE DUPLEX RECEPTACLE OUTLET, HALF-CONTROLLED, CONVENIENCE, WITH PERMANENT MARKING. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.	•	OCCUPANCY SENSOR, DUAL-TECHNOLOGY, SURFACE CEILING MOUNTED. WATT STOPPER MODEL #DT-300 OR LEVITON MODEL #OSC20-MOW. PROVIDE WITH POWER PACK(S) AS REQUIRED.	Edmo 6.425-4 www.
<u>\$</u>	SURGE PROTECTION DEVICE	=	SIMPLEX RECEPTACLE OUTLET, CONVENIENCE WITH (2)USB PORTS. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. LEVITON MODEL #T5832.	₩	DUAL TECHNOLOGY OCCUPANCY SENSOR, SURFACE WALL MOUNTED 180° U.O.N. LEVITON MODEL #OSSMT-GD (FOR SINGLE POLE SWITCHING) & LEVITON MODEL #OSSMD-GD FOR (DUAL SWITCHING)	isign 2. LAST 2. Inc.
TRANS. "T-X" 300 KVA PRI:480V Δ SEC:208Y/120	TRANSFORMER WITH SECONDARY GROUND. REFER TO SINGLE LINE DIAGRAM FOR KVA RATING AND GROUNDING REQUIREMENTS.	₩P	WEATHERPROOF DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.	① _{AB}	LOW-VOLTAGE OVERRIDE SWITCH. NUMBER INDICATES OVERRIDE SWITCH. A,B,C, ETC. DESIGNATES AREA AS SHOWN ON LIGHTING SCHEDULE.	<u>წ</u>
$\int_{-\infty}^{\infty} \frac{1}{2\pi} GND.$		⊕	DUPLEX RECEPTACLE OUTLET, SINGLE SPLIT-CIRCUIT SWITCHED. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. SURFACE MOUNTED DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS)	\$ab	LOW-VOLTAGE DIMMER SWITCH. MOUNTED 48" A.F.F. TO TOP OF DEVICE. 'A,B,C' ETC DESIGNATES ZONE CONTROLLED AND QUANTITY OF ZONES AT EACH LOCATION.	D
G	ON-SITE GENERATOR SET	•	MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. RECESSED CEILING MOUNTED DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125	W	LOW-VOLTAGE OCCUPANCY SENSOR, DUAL-TECHNOLOGY, SURFACE CEILING MOUNTED INTERCONNECTED TO NETWORK LIGHTING CONTROLS.	
36" O.C. 🗡	STAINLESS STEEL SURFACE MOUNTED WIREMOLD MOUNTED AT 48" A.F.F. U.O.N. IF POWER AND DATA ARE SHOWN, PROVIDE WITH DUAL CHANNEL RACEWAY. WIREMOLD 4000 SERIES.	⊕ ⊕	VOLTS) U.O.N. ABOVE CEILING, CONCEALED, JUNCTION BOX, WITH COVER, PER NATIONAL ELECTRICAL CODE (NEC) TABLE 314.16(A)/(B), 4" SQUARE DEEP, WITH PLASTER RING.	€	CEILING MOUNTED DIGITAL ROOM CONTROLLER INTERCONNECTED TO NETWORK LIGHTING CONTROLS.	em
200 V	CONDUIT WIDING DECODIDATION DED EFEDED CONFIDENT ON CALVED DIAM	Ю	RECESSED WALL MOUNTED JUNCTION BOX, WITH COVER, PER NATIONAL ELECTRICAL CODE (NEC) TABLE 314.16(A)/(B), 4" SQUARE DEEP, WITH PLASTER RING.			M 28
200-Y	CONDUIT WIRING DESCRIPTION PER FEEDER SCHEDULE ON OTHER PLAN	(DUPLEX RECEPTACLE, FLUSH IN FLOOR, WATERTIGHT JUNCTION BOX (HINGED BRASS COVER: 20 AMP, 120 VOLT, 2-POLE, 3-WIRE) U.O.N.	,	SIGNAL LEGEND AND SYMBOLS	8 8
PB	CONCRETE ELECTRICAL PULL BOX WITH LID APPROPRIATE FOR INSTALLATION LOCATION. LID SHALL BE LABELED "ELECTRICAL" OR "COMM" ACCORDING TO USE.	SEE NOTE BELOW	DOUBLE DUPLEX RECEPTACLE, FLUSH IN FLOOR, WATERTIGHT JUNCTION BOX (20 AMP, 120 VOLT, 2-POLE, 3-WIRE) U.O.N.	SYMBOL	DESCRIPTION	Offic VA 98
▶ ——	SMOKE FIRE DAMPER DUCT MOUNTED SMOKE DETECTOR.		JUNCTION BOX, FLUSH IN FLOOR, WATERTIGHT (HINGED BRASS COVER: 20 AMP, 120 VOLT, 2-POLE, 3-WIRE) U.O.N.	∇	DATA OUTLET BOX 4S, MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO LOCATION OF	3 \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
T	THERMOSTAT SUPPLIED BY MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR SHALL STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH EXPOSED STRUCTURE ABOVE OR HARDLID CEILING, PROVIDE 3/4" C.O. BACK TO ASSOCIATED HVAC		FLOOR BOX NOTE WHERE INDICATED IN AN EXISTING SLAB, PROVIDE SAWCUTTING OF SLAB AS REQUIRED AND EXTEND CONDUIT AND WIRING TO JUNCTION BOX IN NEAREST ACCESSIBLE WALL. DO NOT SAWCUT THROUGH POST TENSION SLABS.		NEAREST IDF/MDF. TELEPHONE OUTLET BOX 4S, MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH	#32 Floc quim
(0)	UNIT. REFER TO MECHANICAL DETAILS FOR T-STAT MOUNTING HEIGHT REQUIREMENTS. VERIFY LOCATIONS WITH HVAC CONTRACTOR PRIOR TO ROUGH IN. CARBON MONOXIDE SENSOR SUPPLIED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL PROVIDE 3/4" GALVANIZED RIGID CONDUIT WITH PULL STRING BACK TO HEAD END CARBON	=6 (L5-30R)	SPECIALTY OUTLET. VERIFY NEMA CONFIGURATION AS NOTED ON PLANS.	▼w	EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO LOCATION OF NEAREST COMMUNICATIONS CABINET OR TELEPHONE BACKBOARD. "W" INDICATES +42" A.F.F. UNLESS OTHERWISE NOTED.	Se Se
(60)	MONOXIDE PANEL. REFER TO MECHANICAL DRAWINGS FOR EXACT EQUIPMENT LOCATIONS AND WIRING DETAILS.	OR 7/1/1/1/2	BRANCH PANELBOARD, WALL MOUNTED, SEE PLANS AND SCHEDULE. (SURFACE MOUNTED)		COMBINATION TELEPHONE & DATA OUTLET BOX 4S, MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF	
®	CEILING MOUNTED PLUG LOAD CONTROLLER.		BRANCH PANELBOARD, WALL MOUNTED, SEE PLANS AND SCHEDULE. (RECESSED MOUNTED) MAIN SWITCHBOARD, POWER OR LIGHT, FLOOR STANDING ENCLOSURE, (SEE SINGLE LINE	4	INSTALLED IN AREA WITH EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO LOCATION OF NEAREST IDF/MDF, COMMUNICATIONS CABINET, OR TELEPHONE BACKBOARD.	
HCS	CONTACT SENSOR FOR HVAC SHUTDOWN. 4S BOX, MOUNTED ABOVE DOOR OR WINDOW, U.O.N. STUB 3/4" C.O. 6" ABOVE CEILING SPACE. PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO	(F)	DIAGRAM AND LOAD SUMMARY) DISCONNECT SWITCH H.P. RATED 600 VOLTS RATED. "F" INDICATES FUSE TYPE. FUSES PER		COMBINATION TELEPHONE & DATA OUTLET BOX 4S, MOUNTED HEIGHT HORIZONTALLY ABOVE	SE
	LOCATION OF ASSOCIATED HVAC THERMOSTAT.	⊠J _{#2}	APPROVED MANUFACTURERS SHOP DRAWINGS. MAGNETIC MOTOR STARTER H.P. RATED (NUMBER INDICATES NEMA SIZE)	₹	COUNTER TOP PER ARCHITECTURAL PLANS OR APPROVAL STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO LOCATION OF NEAREST IDF/MDF,	Rogen
		#2 +96" OR 7'-6" AFF	MOUNTING HEIGHT FROM FINISHED FLOOR TO BOTTOM LINE OF OUTLET OR EQUIPMENT. FOR	v	COMMUNICATIONS CABINET, OR TELEPHONE BACKBOARD. FLUSH FLOOR MOUNTED COMBINATION TELEPHONE & DATA OUTLET BOX, U.O.N.	
		+90 OR 7-0 AFF	LIGHT FIXTURES, IT IS TO BOTTOM OF FIXTURE. CONDUIT STUBBED AND CAPPED, SIZE AND QUANTITIES PER PLANS.	H™	TELEVISION OUTLET BOX 4S, MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH	ar 31
			CONDUIT CONCEALED IN OR UNDER FLOOR, 3/4" UON, COORDINATE WITH G.C.: OR, BURIAL	<u>ηίν</u>	EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO LOCATION OF CABLE TELEVISION TERMINAL OR COMMUNICATIONS CABINET.	Bo 50
			CONDUIT UNDERGROUND IN SCHEDULE - 40 PVC UNLESS NOTED OTHERWISE. VERIFY DEPTH AND TRENCHING WITH G.C.		CEILING MOUNTED PROJECTOR.	99
		DETAIL No. SHEET No.	DETAIL REFERENCE		PROVIDE 4S OUTLET BOX AT +48" A.F.F. AND STUB 3/4" C.O. 6" ABOVE CEILING SPACE FOR CARD READER. PROVIDE BUSHING AND PULL WIRE. VERIFY ADDITIONAL REQUIREMENTS WITH LOW VOLTAGE VENDOR PRIOR TO ROUGH-IN.	
		EQUIPMENT ID. No.	EQUIPMENT REFERENCE	/2		Ö
			ELECTRICAL UTILITY PRIMARY			
		sc	ELECTRICAL UTILITY SECONDARY			REVISION SCHEDULE △ ADDENDUM #1 08/22/23 △ ADDENDUM #2 09/12/23
		— T — — OH——	UTILITY TELEPHONE TEMPORARY OVERHEAD CABLING			ADDENDUM #2 03/12/23
		A-1,3 — — 	1" U.O.N HOMERUN TO CIRCUITS #1 AND #3 IN PANEL "A". (CROSSMARKS INDICATE NUMBER OF PHASES AND NEUTRAL. PROVIDE GROUND WIRE.)			
		•	GROUND WELL			
		[===]	EXISTING (DASH INDICATES) ELECTRICAL EQUIPMENT			
			TELEPHONE BACKBOARD 2'X4'X3/4" PLYWOOD. PROVIDE 2" CONDUIT TO TELEPHONE POC.			JOB NO. 2022-080
		<u> </u>	MOLDED CASE CIRCUIT BREAKER		SD Dec	DATE 08-23-2023 DRAWN AE REVIEWED LM
		~ `~ * `*	MOLDED CASE SHUNT TRIP CIRCUIT BREAKER MOLDED CASE DRAW OUT TYPE CIRCUIT BREAKER		110 James St., Suite 106 Edmonds, WA 98020 Phone: 425.458,9700 Fax: 909,890.3770	SHEET NAME ELECTRICAL LEGENDS AND NOTES
			REMOTE CONTROLLED, ELECTRONICALLY OPERATED CIRCUIT BREAKER		54830 DESIGN WEST ENGINEERING MECHANICAL • ELECTRICAL • ENERGY CONSULTANTS	SHEET NO. E-0.2
						22-080



GENERAL NOTES

- COORDINATE POWER AND DATA DEVICE LOCATIONS, AND DEVICE
- EQUIPMENT SHALL BE PERMITTED TO BE LOCATED WITHIN A SPACE EXTENDING FROM FLOOR TO A HEIGHT OF 6' ABOVE THE EQUIPMENT.
- WATTAGE AND COVERAGE OF PRODUCT PROVIDED IS ADEQUATE FOR SPACE TO BE CONTROLLED. COVERAGE IS TO BE ADJUSTED TO AVOID REQUIREMENTS TO ADDITIONAL SENSORS, ROOM CONTROLLERS. RELAY PACKS, ETC WITH PRODUCT BEING PROVIDED. OCCUPANCY SENSORS SHALL NOT BE LOCATED WITHIN FOUR FEET OF ANY HVAC
- MANUFACTURER RECOMMENDATIONS BASED ON TYPE OF SENSOR ADDITIONAL SENSORS, ROOM CONTROLLERS, RELAY PACKS, ETC WITH
- REFER TO LIGHTING CONTROL DETAILS FOR WIRING AND CONDUIT REQUIREMENTS. CONTRACTOR SHALL PROVIDE ALL WIRING AND
- RECOMMENDATIONS AND FIELD ADJUSTED WITH REPRESENTATIVE AS
- COORDINATE POWER AND DATA DEVICE LOCATIONS, AND DEVICE

- 6. WHERE EQUIPMENT RATED 800 AMPS OR MORE, DOOR IN ELECTRICAL ROOM SHALL OPEN IN THE DIRECTION OF EGRESS AND SHALL BE EQUIPPED WITH LISTED PANIC HARDWARE PER NEC 110.26(C)(3).
- REQUIRED FOR ALL BRANCH CIRCUIT AND FEEDERS FOR CIRCUIT SIZES NOT SHOWN, REFER TO PANEL SCHEDULES FOR CONDUCTOR
- SHOWN FOR REFERENCE ONLY. IT IS THE RESPONSIBILITY OF THE CONDUCTORS REQUIRED FOR HOT LEGS, NEUTRAL AND GROUNDING

- REUSE EXISTING CIRCUIT FOR NEW DRINKING FOUNTAIN. VERIFY EXACT
- PROVIDE MINIMUM 3'-0" LEVEL CLEARANCE IN FRONT OF ELECTRICAL
- CONTRACTOR TO FIELD VERIFY PATH FOR CONDUIT ROUTING. ALL



Phone: 425.458.9700

SHEET NO.

E-1.4

ENLARGED ELECTRICAL

REVIEWED

SHEET NAME

FLOOR PLANS

08-23-2023

100 100 sign2 LAST inc.

Remode

Floor

2nd

Room

Board

Office

REVISION SCHEDULE

ADDENDUM #1

ADDENDUM #2

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503 N

ELECTRICAL SPECIFICATIONS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. WORK COVERED BY THIS SECTION CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, SUPPLIES, AND MATERIALS, UNLESS OTHERWISE SPECIFIED, AND IN PERFORMING ALL OPERATIONS NECESSARY FOR THE INSTALLATION OF A COMPLETE AND OPERABLE ELECTRICAL SYSTEM AS REQUIRED BY THESE SPECIFICATIONS AND AS INDICATED ON THE
- THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND SPECIFICATIONS IN A MANNER TO BE FULLY COGNIZANT OF
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS UNLESS OTHERWISE ARRANGED AND
- SCHEDULE ALL REQUIRED INSPECTIONS FOR THE EXECUTION OF THE WORK UNDER THIS CONTRACT.

1.02 GENERAL REQUIREMENTS

WORK DONE UNDER THIS SECTION SHALL COMPLY WITH THE LATEST EDITION OF THE NEC (NATIONAL ELECTRICAL CODE), THE WASHINGTON STATE ENERGY CODE (WSEC), THE STATE BUILDING STANDARDS, (OSHA) OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, AND TO ANY APPLICABLE LOCAL JURISDICTIONAL REQUIREMENTS. IN CASE OF CONFLICT BETWEEN REQUIREMENT, THE MOST RESTRICTIVE SHALL APPLY.

1.03 ELECTRICAL CONTRACTOR'S RESPONSIBILITY

ALL WORK REQUIRED UNDER THIS SECTION.

- A. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COMPLETE SET OF DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL CHECK THE DRAWINGS OF THE OTHER TRADES AND SHALL CAREFULLY READ THE ENTIRE SPECIFICATIONS AND DETERMINE HIS RESPONSIBILITIES.
- BEFORE SUBMITTING THE BID, THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FULLY ACQUAINT HIMSELF WITH EXISTING CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE EQUIPMENT AND ASSOCIATED WIRING IN SUCH A MANNER AS TO CONFORM WITH THE EXISTING STRUCTURE OF THE BUILDING, AVOID OBSTRUCTIONS, AND MEET APPLICABLE CODE REQUIREMENTS.
- THE INTENT OF THESE DRAWINGS IS TO DESCRIBE A COMPLETE AND OPERABLE SYSTEM. WHERE EXISTING CONDITIONS DIFFER FROM DRAWINGS, ADJUSTMENT SHALL BE MADE AND ALLOWANCES INCLUDED FOR ALL NECESSARY EQUIPMENT TO COMPLETE ALL PARTS OF THE DRAWINGS AND SPECIFICATIONS. BRING ANY QUESTIONS TO THE ARCHITECT OR ENGINEER'S ATTENTION PRIOR TO BIDDING.
- WHEREVER A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT, DEVICES, CIRCUIT BREAKERS, ETC., ARISES ON THE DRAWING AND/OR SPECIFICATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITION NOTED ON DRAWINGS AND/OR IN SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE OWNER AND ENGINEER.

1.04 WORK NOT INCLUDED

CERTAIN LABOR, MATERIALS, OR EQUIPMENT MAY BE FURNISHED UNDER OTHER CONTRACTS BY THE OWNER. WHEN SUCH IS THE CASE, THE EXTENT, SOURCE, AND DESCRIPTION OF THESE ITEMS WILL BE INDICATED ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS. UNLESS OTHERWISE NOTED, ALL LABOR, MATERIALS AND EQUIPMENT FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL WORK SHALL BE PROVIDED UNDER THIS SECTION OF THESE SPECIFICATIONS.

1.05 SPECIAL REQUIREMENTS

THE DRAWINGS INDICATE GENERAL ARRANGEMENT OF CIRCUITS, OUTLETS, LOCATIONS OF MOTOR CONTROLLERS WITH DISCONNECTS, PANELBOARDS, CONDUIT ROUTING, AND OTHER WORK. INFORMATION SHOWN ON THE DRAWINGS IS ESSENTIALLY DIAGRAMMATIC; HOWEVER, RECIRCUITING OR RELOCATING ELECTRICAL EQUIPMENT WILL NOT BE PERMITTED WITHOUT SPECIFIC WRITTEN APPROVAL OF THE ENGINEER.

- A. AFTER AWARD OF THE CONTRACT AND BEFORE ANY MATERIALS ARE DELIVERED TO THE JOB SITE, A COMPLETE LIST OF ALL MATERIALS PROPOSED TO BE FURNISHED AND INSTALLED UNDER THIS SECTION MUST BE PROVIDED.
- SUBMIT TO THE ENGINEER FOR APPROVAL ONE PRINT AND ONE REPRODUCIBLE OF ALL LIGHTING FIXTURES, SWITCHGEAR, PANELBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, AND MOTOR STARTERS. SHOP DRAWINGS SHALL INCLUDE MANUFACTURER'S PRINTED INFORMATION FOR EACH OF THESE ITEMS IDENTIFIED ON THE DRAWINGS. THE INFORMATION SHALL INCLUDE, AS MINIMUM, OVERALL DIMENSIONS, WEIGHT, PHASE, VOLTAGE RATINGS, WIRING DIAGRAMS, AND NAMEPLATE DATA.

1.07 STANDARDS AND MATERIALS

- ALL MATERIALS SHALL CONFORM WITH THE CURRENT APPLICABLE INDUSTRY STANDARDS, NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION), ANSI (AMERICAN NATIONAL STANDARDS INSTITUTE), IPCEA (INSULATED POWER CABLE ENGINEERS ASSOCIATION), IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS), NATIONAL ELECTRICAL SAFETY CODE.
- UNLESS OTHERWISE INDICATED, ALL MATERIALS SHALL BE UNDERWRITERS LABORATORIES LISTED AND LABELED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
- WORKMANSHIP AND NEAT APPEARANCE SHALL BE AS IMPORTANT AS THE ELECTRICAL MECHANICAL EFFICIENCY. DEFECTIVE AND DAMAGED MATERIALS SHALL BE REPLACED OR REPAIRED PRIOR TO FINAL APPROVAL AND ACCEPTANCE. THE DRAWINGS AND SPECIFICATIONS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT THAN CODES, STATUTES, OR ORDINANCES IN EFFECT. APPLICABLE CODES, STANDARDS, ORDINANCES, AND STATUTES TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS OR SPECIFICATIONS.

1.08 DELIVERY AND STORAGE OF MATERIALS

- THE CONTRACTOR SHALL INVESTIGATE EACH SPACE IN THE BUILDING THROUGH WHICH EQUIPMENT MUST PASS TO REACH ITS FINAL LOCATIONS. IF NECESSARY, THE MANUFACTURER SHALL BE REQUIRED TO SHIP HIS MATERIAL IN SECTIONS, SIZED TO PERMIT PASSING THROUGH SUCH RESTRICTED AREAS IN THE BUILDING.
- THE CONTRACTOR SHALL RETAIN IN HIS POSSESSION AND SHALL BE RESPONSIBLE FOR ALL PORTABLE AND DETACHABLE PARTS OF PORTIONS OF INSTALLATIONS SUCH AS FUSES, KEY LOCKS, ADAPTERS, BLOCKING CLIPS, AND INSERTS UNTIL FINAL COMPLETION OF WORK. THESE PARTS SHALL BE DELIVERED TO THE OWNER UPON COMPLETION OF THE WORK.

PART 2 PRODUCTS

2.01 EQUIPMENT AND MATERIALS

- A. ALL MATERIALS FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE NEW, FREE FROM DEFECTS, AND SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE OF THE WORK. SHOULD ANY TROUBLE DEVELOP DURING THEIR PERIOD DUE TO DEFECTIVE MATERIALS OR FAULTY WORKMANSHIP, THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS AND LABOR TO CORRECT THE TROUBLE WITHOUT ANY COST TO THE OWNER. ANY DEFECTIVE MATERIAL OR INFERIOR WORKMANSHIP NOTED AT THE TIME OF INSTALLATION SHALL BE CORRECTED IMMEDIATELY TO THE SATISFACTION OF THE OWNER.
- ALL MAJOR EQUIPMENT COMPONENTS SHALL HAVE THE MANUFACTURER'S NAME, ADDRESS, MODEL NUMBER, AND SERIAL NUMBER PERMANENTLY ATTACHED IN A CONSPICUOUS MANNER.

2.02 CONDUIT

- PROVIDE RACEWAYS AS INDICATED ON THE DRAWINGS AND AS HEREIN SPECIFIED. CONDUITS SHALL BE RIGID STEEL "GRC" (THICK WALL) GALVANIZED; ELECTRICAL METALLIC TUBING "EMT" (THIN WALL); FLEXIBLE STEEL, GALVANIZED; LIQUID-TIGHT, FLEXIBLE STEEL CONDUIT WITH GROUND BOND; ALUMINUM CONDUIT; OR SCHEDULE 40 PVC.
- ALL EMPTY UNDERGROUND CONDUITS (CO) SHALL BE SCHEDULE 40 PVC UNLESS OTHERWISE INDICATED ON THE DRAWING. ABOVE GROUND EMPTY CONDUITS SHALL BE EMT OR GRC AS REQUIRED BY CODE.
- WHERE CONDUIT CROSSES AN EXPANSION JOINT, PROVIDE APPROVED FITTINGS WHICH ALLOW DEFLECTIONS EQUIVALENT TO TWICE THE MOVEMENT ALLOWED BY THE DESIGN.

2.03 CONDUCTORS

- PROVIDE A COMPLETE SYSTEM OF CONDUCTORS IN RACEWAY SYSTEMS AS SHOWN ON THE DRAWINGS AND THEN HEREIN SPECIFIED.
- B. LIGHTING AND POWER CONDUCTORS SHALL BE COPPER, 600 VOLT, TYPE THWN/THHN, NO. 12 MINIMUM UNLESS
- C. CONTROL CONDUCTORS SHALL BE 600V, TYPE THWN/THHN, NO.14 MINIMUM SIZE UNLESS OTHERWISE NOTED.

2.04 FITTINGS

- CONNECTOR, COUPLING, LOCKNUT, BUSHINGS AND CAPS USED WITH RIGID CONDUIT SHALL BE STEEL, THREADED AND GALVANIZED. BUSHINGS SHALL BE INSULATED.
- B. EMT FITTINGS, CONNECTORS AND COUPLINGS SHALL BE STEEL, ZINC, OR CADMIUM PLATED, COMPRESSION TYPE, WITH INSULATED THROAT.
- FLEXIBLE STEEL CONDUIT CONNECTORS SHALL BE TWIST-IN-TYPE WITH INSULATED THROAT. THE FINISH SHALL BE
- D. EMT CONDUIT FITTINGS SHALL BE THE COMPRESSION TYPE; SET SCREW FITTINGS SHALL NOT BE USED.

2.05 JUNCTION AND PULL BOXES

ZINC OR CADMIUM PLATING.

- FOR INTERIOR DRY LOCATIONS, BOXES SHALL BE GALVANIZED ONE-PIECE DRAWN STEEL, KNOCKOUT TYPE WITH REMOVABLE, MACHINE SCREW SECURED COVERS.
- ALL BOXES SHALL BE SIZED FOR THE NUMBER AND SIZES OF CONDUCTORS AND CONDUITS ENTERING THE BOX AND EQUIPPED WITH PLASTER RINGS WHERE REQUIRED.

2.06 OUTLET BOXES

- FOR FIXTURES, BOXES SHALL BE GALVANIZED, ONE-PIECE DRAWN STEEL, KNOCKOUT TYPE EQUIPPED WITH 3/8" FIXTURE STUDS AND PLASTER RINGS WHERE REQUIRED.
- B. FOR CONVENIENCE OUTLETS, WALL SWITCHES, OR OTHER DEVICES, OUTLET BOXES SHALL BE GALVANIZED ONE-PIECE DRAWN STEEL, KNOCKOUT TYPE 4"X4"X1-1/2" MINIMUM.
- C. FOR LOCATIONS WHERE STANDARD BOXES ARE NOT SUITABLE, SPECIAL BOXES SHALL BE DESIGNED TO FIT SPACE OR MEET OTHER REQUIREMENTS AND SUBMITTED FOR APPROVAL

- ALL DEVICES SHALL CONFORM TO NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA) STANDARDS AND SHALL BE UNDERWRITERS' LABORATORIES, INC., (UL) LISTED AND LABELED AND SHALL BE "SPECIFICATION GRADE," MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION WS-896-E, FOR SWITCHES.
- WALL SWITCHES SHALL BE SPECIFICATION COMMERCIAL GRADE (MINIMUM), FULLY ENCLOSED, QUIET-TYPE TUMBLER SWITCHES RATED 20 AMPERES, 120/277-VOLT, BAKELITE OR COMPOSITION, BACK AND SIDE WIRED, BUMPER PAD, FULL RATING FOR INDUCTIVE OR NON-INDUCTIVE LOADS AND INCANDESCENT OR FLUORESCENT LIGHTING LOADS.
- SINGLE POLE SWITCHES: G.E. 59511, HUBBELL #1221, ARROW #1991 OR PASS & SEYMOUR 20AC1.
- THREE-WAY QUIET SWITCHES: G.E. 59531, HUBBELL #1223, ARROW #1993 OR PASS& SEYMOUR 20AC3.
- WALL SWITCH AND PILOT LIGHTS SHALL BE FLUSH MOUNTED COMBINATION WALL TYPE WITH SWITCH AND PILOT LIGHT EQUIPPED WITH A 6-WATT, 125-VOLT CANDELABRA BASE LAMP. THE PILOT LIGHT SHALL HAVE A GREEN JEWEL WITH BRASS RIM FLUSH MOUNTED IN THE WALL PLATE.
- ALL SWITCHES SHALL BE OF THE SAME MANUFACTURE.
- NORMAL SWITCH COLOR IS WHITE APPROVED BY ARCHITECT/OWNER. SWITCHES CONTROLLING CIRCUITS CONNECTED TO EMERGENCY POWER SOURCE SHALL BE RED.
- 30 AMP MOTOR RATED SNAP SWITCHES SHALL BE LEVITON MS302-DS. PROVIDED IN NEMA 1 OR 3R ENCLOSURE AS SHOWN ON DRAWING.
- B. SENSOR SWITCH (MOTION SENSOR)
- WALL SENSOR SWITCH SHALL BE WATT STOPPER DUAL TECHNOLOGY OCCUPANCY SENSOR LEVITON MODEL #OSSMT-GD (FOR SINGLE POLE SWITCHING) & LEVITON MODEL #OSSMD-GD FOR (DUAL SWITCHING).
- CEILING SENSOR SWITCH SHALL BE WATT STOPPER DUAL-TECHNOLOGY MODE.
- PROVIDE 120/277V CEILING SENSOR POWER PACK INSTALLED IN J-BOX NEXT TO LIGHTING CIRCUIT.

2.08 RECEPTACLES

- A. DUPLEX RECEPTACLES SHALL BE SPECIFICATION GRADE, 20 AMPS, 125 VOLTS, 3-WIRE, SIDE-WIRED WITH BINDING SCREWS, PARALLEL SLOTS, U-GROUND, PLASTER EARS AND CAPTIVE MOUNTING SCREWS. BODY SHALL BE PHENOLIC, PLASTIC, OR BAKELITE. RECEPTACLES SHALL BE HEAVY-DUTY, 3-BLADE CURRENT CARRYING CONTACT AND DOUBLEWIDE FLAT BLADE GROUND CONTACTS. PROVIDE ARROW HART 5242-I HUBBELL 5242-I OR LEVITON
- B. SINGLE RECEPTACLES SHALL BE SPECIFICATION GRADE, GROUNDING TYPE, SIDE-WIRED, WITH BINDING SCREWS, AND SHALL HAVE STANDARD SIZE IVORY BAKELITE BASE. FOR CIRCUITS CONSISTING OF ONE SINGLE RECEPTACLE ONLY, AMPERE RATING OF RECEPTACLE SHALL BE THE SAME AS CIRCUIT BREAKER OF FUSE. FOR RECEPTACLES RATED 15 AMPS/125 VOLTS, PROVIDE NEMA 5-15R, ARROW-HART 5251-I. FOR RECEPTACLES RATED 20 AMPS / 125 VOLTS, PROVIDE NEMA 5-20R, ARROW-HART 5721-I, OR EQUAL.

2.09 DEVICE PLATES

- PROVIDE PLATES FOR ALL SWITCHES, RECEPTACLES, JUNCTION BOXES, TELEPHONE AND OTHER OUTLETS.
- PROVIDE ENGRAVED OR ETCHED PLATES FOR ALL LOCK SWITCHES, PILOT SWITCHES, SWITCHES FROM WHICH EQUIPMENT OR CIRCUIT CONTROLLED CANNOT BE READILY SEEN, THREE OR MORE SWITCHES UNDER A COMMON PLATE AND FOR SWITCHES AS INDICATED.
- STAINLESS STEEL PLATES SHALL BE AMERICAN IRON AND STEEL INSTITUTE (AISI) TYPE 302, WITH BEVELED EDGES, 0.040" THICK WITH SATIN SMOOTH FINISH. "SMOOTHIE," HUBBELL #97071 SERIES.
- PLASTIC COVER PLATE SHALL BE HIGH IMPACT THERMOPLASTIC, HIGH STRENGTH, SCRATCH-RESISTANT, SMOOTH AND SELF-EXTINGUISHING, HUBBELL "PI" SERIES OR PASS & SEYMOUR RP SERIES. WHERE OUTLETS ARE INDICATED TO BE WEATHERPROOF, PROVIDE AN AISI TYPE 302 STAINLESS WITH DOUBLE HINGED
- GALVANIZED STEEL PLATES SHALL BE SQUARE OR RECTANGULAR AND HOT DIPPED GALVANIZED OR SHERARDIZED, BEVELED EDGES AND 0.040" THICK. GALVANIZED STEEL PLATES SHALL BE USED IN UTILITY AREA.
- PROVIDE PLATES EQUIPPED WITH CLOSE FITTING OPENINGS FOR THE EXACT DEVICE TO BE USED. PROVIDE PLATES FOR TELEPHONE OUTLETS EQUIPPED WITH BUSHED OPENINGS.
- REFER TO SECTION 3.08 FOR LABELING OF PLATES.

COVERS, PASS & SEYMOUR #WPD-8.

- COVER PLATES ON PRESSED STEEL OUTLET BOXES IN FURRED AREAS, ATTICS, ETC., OR EXPOSED IN MECHANICAL EQUIPMENT ROOMS SHALL BE OF THE SAME MATERIAL AS THE OUTLET BOX.
- 10. COVER PLATES IN LOCATIONS CONCEALED FROM PUBLIC VIEW SHALL HAVE THE CIRCUIT NUMBERS AND SOURCE FEED POINT HAND LABELED WITH MARKING BLACK PEN (PERMANENT MARKER). SEE SECTION 3.08 FOR LABELING.
- 11. PROVIDE PLASTIC COVER PLATES UNLESS NOTED OTHERWISE

2.10 PANELBOARDS

A. FURNISH AND INSTALL ALL BRANCH CIRCUIT PANELBOARDS AS HEREINAFTER SPECIFIED AND AS SHOWN ON THE

- DRAWINGS. PANELBOARDS SHALL BE OF THE DEAD FRONT SAFETY TYPE EQUIPPED WITH THE THERMAL MAGNETIC 40°C CIRCUIT BREAKERS.
- B. CIRCUIT BREAKERS SHALL BE RATED MINIMUM 10.000 AMPS RMS SYMMETRICAL INTERRUPTING CAPACITY AND SHALL BE THE NUMBER OF POLES AND CURRENT CAPACITY AS INDICATED ON THE PANEL SCHEDULE. BRANCH CIRCUIT PANELBOARDS SHALL BE SQUARE-D OR EATON/CUTLER HAMMER WITH LUGS UL LISTED FOR USE WITH 75°C WIRE.
- C. DOOR SHALL HAVE A PLASTIC COVERED DIRECTORY FRAME WITH A TYPED IDENTIFICATION CARD OR ALL CIRCUIT AND PANEL NUMBERS FOR BRANCH CIRCUIT PANELBOARDS.
- D. PROVIDE NAMEPLATE FOR ALL PANELBOARDS, ENGRAVED WHITE LETTERS ON BLACK BACKGROUND INSTALL NAME PLATES ON THE TRIM ABOVE DOOR.
- E. ALL WIRING SHALL BE NEATLY ARRANGED AND LACED TOGETHER.
- F. ALL CIRCUIT BREAKERS USED FOR HVAC LOADS SHALL BE RATED "HACR".
- G. BUS BARS SHALL BE RECTANGULAR IN CROSS SECTION CONSTRUCTED OF COPPER. NEUTRAL AND GROUND BUSES SHALL BE FULL SIZE.

2.11 INTERIOR LIGHTING FIXTURES

- A. FURNISH, INSTALL AND WIRE LIGHTING FIXTURES SCHEDULED OR INDICATED BY TYPE DESIGNATION ON THE DRAWINGS. IF TYPE DESIGNATION IS OMITTED, FIXTURES SHALL BE OF THE SAME TYPE AS SHOWN FOR ROOMS OF SIMILAR USAGE. VERIFY BEFORE PURCHASE AND INSTALLATION. NO ALTERNATIVE FIXTURES WILL BE ACCEPTED.
- LOCATIONS OF FIXTURES ON ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. VERIFY LOCATION AND SPACING WITH ARCHITECTURAL REFLECTED CEILING PLANS AND OTHER REFERENCE DATA BEFORE PURCHASING. COORDINATE SPACE CONDITIONS, INCLUDING HEADROOM CLEARANCES AND INTERFERENCES WITH CEILING COMPONENTS SUCH AS DUCTS, OPENINGS, BEAMS AND PIPING PRIOR TO INSTALLATION.
- C. CHECK THE ARCHITECTURAL FINISHES AND, REGARDLESS OF THE CATALOG PREFIXES AND SUFFIXES SHOWN, FURNISH FIXTURES WITH THE PROPER TRIM, FRAMES, SUPPORTS, HANGERS AND OTHER MISCELLANEOUS APPURTENANCES OR PROPERLY COORDINATE WITH SAID FINISHES. WHERE REQUIRED, FURNISH REINFORCING FOR CEILING CONSTRUCTION TO SUPPORT THE WEIGHT OF THE FIXTURES.
- FIXTURES SHALL BE FREE OF LIGHT LEAKS AND DESIGNED TO PROVIDE SUFFICIENT VENTILATION OF LAMPS AND BALLASTS, INCLUDING VENT HOLES WHERE REQUIRED. OUTDOOR FIXTURES WITH VENT HOLES SHALL HAVE WIRE MESH SCREENS IN THE VENT HOLES.
- E. REPLACE BLEMISHED, DAMAGED OR UNSATISFACTORY FIXTURES AT NO ADDITIONAL COST TO THE OWNER AND IN A MANNER SATISFACTORY TO THE ARCHITECT.
- 1. LAMPS SHALL BE NEW AND OF WATTAGE AND TYPE INDICATED OR AS REQUIRED FOR THE PARTICULAR FIXTURE INSTALLED.
- 2. UNLESS OTHERWISE NOTED, LAMPS DESCRIBED IN FIXTURE SCHEDULE, ANSI NOMENCLATURE, MANUFACTURED BY GENERAL ELECTRIC, SYLVANIA, PHILLIPS, OR EQUAL.
- 3. PROVIDE INCANDESCENT LAMPS AND TUNGSTEN-HALOGEN LAMPS AS 130 VOLT RATED WHENEVER SUCH DESIGNS ARE AVAILABLE.
- PROVIDE FLUORESCENT LAMPS AS INDICATED ON THE DRAWINGS. ALL LINEAR FLUORESCENT LAMPS ARE TO BE INSTALLED WITH THE LABEL FACING THE SAME DIRECTION.
- 5. PROVIDE HIGH INTENSITY DISCHARGE (H.I.D.) LAMPS OF TYPE AND WATTAGE AS SHOWN ON THE DRAWINGS. LAMPS SHALL BE COMPATIBLE WITH FIXTURE BALLAST. MANUFACTURERS: G.E. CO., PHILLIPS, SYLVANIA, OR EQUAL.
- G. HIGH INTENSITY DISCHARGE LAMP BALLASTS
- PROVIDE HIGH INTENSITY DISCHARGE LAMP BALLASTS AS HIGH POWER FACTOR REGULATING TYPE, CONFORMING TO APPLICABLE NEMA STANDARDS. INPUT VOLTAGE AND WATTAGES ARE LISTED IN THE FIXTURE SCHEDULE.
- 2. MINIMUM STARTING TEMPERATURE: MINUS 20 DEGREES F.
- 3. PROVIDE HIGH INTENSITY DISCHARGE BALLASTS OF THE ENCAPSULATED TYPE WITH LOWEST SOUND RATING
- H. EXIT SIGNS LIGHTS SHALL BE LED TYPE AND PROVIDED WITH AN INTEGRAL EMERGENCY BATTERY PACK.
- I. LED LIGHT FIXTURES
- A. GENERAL:
- 1. LED LIGHT FIXTURES SHALL BE IN ACCORDANCE WITH IES, NFPA, UL, AS SHOWN ON THE DRAWINGS, AND AS
- LED LIGHT FIXTURES SHALL BE REDUCTION OF HAZARDOUS SUBSTANCES (ROHS)-COMPLIANT.
- 3. LED DRIVERS SHALL INCLUDE THE FOLLOWING FEATURES UNLESS OTHERWISE INDICATED: a. MINIMUM EFFICIENCY: 85% AT FULL LOAD.
 - b. MINIMUM OPERATING AMBIENT TEMPERATURE: -20 DEG C. (-4 DEG F.) c. INPUT VOLTAGE: 120 - 277V (±10%) AT 60 HZ.
 - d. INTEGRAL SHORT CIRCUIT, OPEN CIRCUIT, AND OVERLOAD PROTECTION. e. POWER FACTOR: >=0.95.
 - f. TOTAL HARMONIC DISTORTION: <=20%
 - g. COMPLY WITH FCC 47 CFR PART 15.
- 4. LED MODULES SHALL INCLUDE THE FOLLOWING FEATURES UNLESS OTHERWISE INDICATED:
 - a. COMPLY WITH IES LM-79 AND LM-80 REQUIREMENTS.
 - b. MINIMUM CRI 80 AND COLOR TEMPERATURE 4000K UNLESS OTHERWISE SPECIFIED IN LUMINAIRE SCHEDULE.
 - c. MINIMUM RATED LIFE: 50,000 HOURS PER IES L70.
 - d. LIGHT OUTPUT LUMENS AS INDICATED IN THE LUMINAIRE SCHEDULE.
- B. LED DOWNLIGHTS:
- 1. HOUSING, LED DRIVER, AND LED MODULE SHALL BE PRODUCTS OF THE SAME MANUFACTURER.
- C. LED TROFFERS:
- 1. LED DRIVERS, MODULES, AND REFLECTOR SHALL BE ACCESSIBLE, SERVICEABLE, AND REPLACEABLE FROM BELOW THE CEILING
- HOUSING, LED DRIVER, AND LED MODULE SHALL BE PRODUCTS OF THE SAME MANUFACTURER.

2.12 LOW VOLTAGE SWITCHGEAR

- A. FURNISH AND INSTALL ALL SWITCHBOARDS AS HEREINAFTER SPECIFIED AND AS SHOWN ON THE DRAWINGS. SWITCHBOARDS SHALL BE OF THE DEAD FRONT SAFETY TYPE EQUIPPED WITH THE THERMAL MAGNETIC 40°C CIRCUIT BREAKERS.
- B. CIRCUIT BREAKERS SHALL BE RATED MINIMUM 10,000 AMPS RMS SYMMETRICAL INTERRUPTING CAPACITY AND SHALL BE THE NUMBER OF POLES AND CURRENT CAPACITY AS INDICATED ON THE SINGLE LINE DIAGRAM. SWITCHBOARDS

- SHALL BE SQUARE-D , GE, OR EATON/CUTLER HAMMER.
- LABEL EACH SWITCHBOARD COMPARTMENT WITH ENGRAVED METAL OR LAMINATED-PLASTIC NAMEPLATE WITH WHITE LETTERS ON BLACK BACKGROUND, MOUNTED WITH CORROSION-RESISTANT SCREWS.
- ENCLOSURE FINISH FOR OUTDOOR UNITS: NEMA 3R WEATHERPROOF ENCLOSURE WITH FACTORY-APPLIED FINISH IN MANUFACTURER'S STANDARD COLOR, UNDERSURFACES TREATED WITH CORROSION-RESISTANT UNDERCOATING.



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REVISION SCHEDULE

ADDENDUM #1 ADDENDUM #2

design west engineering

MECHANICAL • ELECTRICAL • ENERGY CONSULTAN

REVIEWED SHEET NAME 110 James St., Suite 106 Edmonds, WA 98020 Phone: 425.458.9700 Fax: 909.890.3770 Email: cadd@designwesteng.cor SHEET NO.

ELECTRICAL SPECIFICATIONS

2022-080

08-23-2023

ELECTRICAL SPECIFICATIONS

- E. ENCLOSURE FINISH FOR INDOOR UNITS: FACTORY-APPLIED FINISH IN MANUFACTURER'S STANDARD GRAY FINISH OVER A RUST-INHIBITING PRIMER ON TREATED METAL SURFACE.
- F. BARRIERS: BETWEEN ADJACENT SWITCHBOARD SECTIONS.
- G. UTILITY METERING COMPARTMENT: FABRICATED COMPARTMENT AND SECTION COMPLYING WITH UTILITY COMPANY'S REQUIREMENTS. IF SEPARATE VERTICAL SECTION IS REQUIRED FOR UTILITY METERING, MATCH AND ALIGN WITH BASIC SWITCHBOARD.
- H. BUS TRANSITION AND INCOMING PULL SECTIONS: MATCHED AND ALIGNED WITH BASIC SWITCHBOARD.
- I. BUSES AND CONNECTIONS: THREE PHASE, FOUR WIRE, UNLESS OTHERWISE INDICATED.
- 1. PHASE- AND NEUTRAL-BUS MATERIAL: HARD-DRAWN COPPER OF 98 PERCENT CONDUCTIVITY WITH FEEDER CIRCUIT-BREAKER LINE CONNECTIONS. IF BUS IS COPPER, USE COPPER FOR FEEDER CIRCUIT-BREAKER LINE CONNECTIONS.
- LOAD TERMINALS: INSULATED, RIGIDLY BRACED, SILVER-PLATED, COPPER RUNBACK BUS EXTENSIONS EQUIPPED WITH PRESSURE CONNECTORS FOR OUTGOING CIRCUIT CONDUCTORS. PROVIDE LOAD TERMINALS FOR FUTURE CIRCUIT-BREAKER POSITIONS AT FULL AMPERE RATING OF CIRCUIT-BREAKER POSITION.
- GROUND BUS: 1/4-BY-2-INCH- (6-BY-50-MM-) MINIMUM-SIZE, HARD-DRAWN COPPER OF 98 PERCENT CONDUCTIVITY, EQUIPPED WITH PRESSURE CONNECTORS FOR FEEDER AND BRANCH-CIRCUIT GROUND CONDUCTORS. FOR BUSWAY FEEDERS, EXTEND INSULATED EQUIPMENT GROUNDING CABLE TO BUSWAY GROUND CONNECTION AND SUPPORT CABLE AT INTERVALS IN VERTICAL RUN.
- 4. CONTACT SURFACES OF BUSES: SILVER PLATED.
- MAIN PHASE BUSES, NEUTRAL BUSES, AND EQUIPMENT GROUND BUSES: UNIFORM CAPACITY FOR ENTIRE LENGTH OF SWITCHBOARD'S MAIN AND DISTRIBUTION SECTIONS. PROVIDE FOR FUTURE EXTENSIONS FROM BOTH ENDS.
- 6. ISOLATION BARRIER ACCESS PROVISIONS: PERMIT CHECKING OF BUS-BOLT TIGHTNESS.
- NEUTRAL BUSES: 100 PERCENT OF THE AMPACITY OF PHASE BUSES, UNLESS OTHERWISE INDICATED, EQUIPPED WITH PRESSURE CONNECTORS FOR OUTGOING CIRCUIT NEUTRAL CABLES. BUS EXTENSIONS FOR BUSWAY FEEDER NEUTRAL BUS ARE BRACED.
- J. FUTURE DEVICES: EQUIP COMPARTMENTS WITH MOUNTING BRACKETS, SUPPORTS, BUS CONNECTIONS, AND APPURTENANCES AT FULL RATING OF CIRCUIT-BREAKER COMPARTMENT.
- K. EQUIP DISTRIBUTION SECTIONS WITH FULL HEIGHT VERTICAL BUSSING TO ACCOMMODATE MAXIMUM UTILIZATION OF SPACE FOR DEVICES.

2.13 CIRCUIT AND MOTOR DISCONNECTS

- DISCONNECT (SAFETY) SWITCHES SHALL BE FUSED, HEAVY DUTY TYPE SWITCHES MEETING NEMA SPECIFICATIONS. SWITCHES SHALL BE PROVIDED WITH REJECTION TYPE FUSE BLOCKS. PROVIDE SWITCHES WITH THE NUMBER OF POLES, THE VOLTAGE, CURRENT AND HORSEPOWER RATINGS AS REQUIRED. PROVIDE EXTERNALLY OPERABLE QUICK-MAKE, QUICK-BREAK TYPE MECHANISM WITH COVER INTERLOCK AND PADLOCKABLE IN EITHER THE OPEN OR CLOSED POSITION.
- B. SWITCHES SHALL BE NEMA 3R (RAIN TIGHT ENCLOSURE) WHERE INDICATED TO BE OUTDOORS WEATHERPROOF.
- C. PROVIDE NAMEPLATE INDICATING EQUIPMENT SERVED. ALL GENERAL SNAP SWITCHES OPERATING MOTOR LOADS SHALL BE HORSEPOWER RATED OR BE RATED AT LEAST 125% OF THE FULL LOAD CURRENT.

2.15 ELECTRICAL CONNECTIONS

- A. UNLESS OTHERWISE NOTED, ALL WIRING FOR MOTORS, STARTERS, CONTROLS, AND EQUIPMENT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. WHERE MOTORS FOR MECHANICAL EQUIPMENT ARE FURNISHED BY OTHER DIVISIONS, WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR, EXCEPT WHERE WIRED INTEGRALLY WITH THE EQUIPMENT.
- B. CONNECTION AND CONTROL DIAGRAMS FOR ALL MECHANICAL AND CONTROL EQUIPMENT SHALL BE FURNISHED UNDER OTHER DIVISIONS, AND BE APPROVED BY THE OWNER FOR CONNECTION BY THE ELECTRICAL CONTRACTOR.

2.16 SUPPORTING DEVICES

ALL EQUIPMENT CONDUITS SHALL BE SUPPORTED, ANCHORED AND BRACED IN ACCORDANCE WITH THE MOST STRINGENT CODES AND REQUIREMENTS.

PART 3 EXECUTION

3.01 WORKMANSHIP AND COMPLETION OF INSTALLATION

- A. WORKMANSHIP AND NEAT APPEARANCE SHALL BE AS IMPORTANT AS THE ELECTRICAL AND MECHANICAL EFFICIENCY. DEFECTIVE AND DAMAGED MATERIALS SHALL BE REPLACED OR REPAIRED PRIOR TO FINAL INTERPRETATIONS INCLUDED. ANY DEFICIENCY PERTAINING TO EITHER WORKMANSHIP OR MATERIALS FOUND BY THE INSPECTOR SHALL BE CORRECTED WITHOUT ADDITIONAL COST TO THE OWNER.
- B. THE CONTRACTOR SHALL MAINTAIN ON JOB SITE A SET OF THE WORKING DRAWINGS WHICH SHALL BE UPDATED DAILY IN DETAIL FOR WORK ACCOMPLISHED. UPON COMPLETION OF THE WORK, A SET OF REPRODUCIBLE CONTRACT DRAWINGS SHALL BE OBTAINED FROM THE GENERAL CONTRACTOR AND ALL CHANGES AS NOTED ON THE RECORD SET OF PRINTS SHALL BE INCORPORATED THEREON WITH RED INK IN A NEAT, LEGIBLE, UNDERSTANDABLE AND PROFESSIONAL MANNER.
- C. ALL EQUIPMENT AND MATERIAL CONNECTED WITH THIS PROJECT SHALL BE INSTALLED COMPLETE, THOROUGHLY CLEANED, AND ALL RESIDUE REMOVED FROM INSIDE SURFACES. EXTERIOR SURFACES OF ALL MATERIAL AND EQUIPMENT SHALL BE CLEANED AND DELIVERED IN A PERFECT, UNBLEMISHED CONDITION.
- D. UPON COMPLETION OF THE INSTALLATION AND AS A CONDITION OF ITS ACCEPTANCE FURNISH ONE COPY OF THE FINAL INSPECTION CERTIFICATE TO THE OWNER.

3.02 PREPARATION COORDINATION.

- A. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH ALL OTHER CONTRACTORS FURNISHING LABOR, MATERIALS AND WORK, SO THAT THE WORK AS WHOLE SHALL BE EXECUTED AND COMPLETED WITHOUT CONFLICT OR DELAY.
- B. EXAMINE THE DRAWINGS AND SPECIFICATIONS AND DETERMINE THE WORK TO BE PERFORMED BY THE ELECTRICAL, MECHANICAL AND OTHER TRADES. PROVIDE THE TYPE AND AMOUNT OF ELECTRICAL MATERIALS AND EQUIPMENT NECESSARY TO PLACE THIS WORK IN PROPER OPERATION, COMPLETELY WIRED TESTED AND READY FOR USE. THIS SHALL INCLUDE ALL CONDUIT, WIRE, DISCONNECTS, RELAYS, AND OTHER DEVICES FOR THE REQUIRED OPERATION SEQUENCE OF ALL ELECTRICAL, MECHANICAL, AND OTHER SYSTEMS OR EQUIPMENT.
- C. PERFORM ALL WORK IN A MANNER WHICH WILL NOT CAUSE UNNECESSARY INCONVENIENCE OR DANGER TO THE OCCUPANTS, NOR INTERFERE WITH THE ACTIVITIES IN THE BUILDING.
- D. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE EACH POWER INTERRUPTION WITH OWNER, AND SHALL PROVIDE AT LEAST TWO WEEKS NOTICE OF PROPOSED INTERRUPTION AND WORK TO BE ACCOMPLISHED.

3.03 TRENCHING AND BACKFILLING

A. PERFORM ALL SUCH TRENCHING AND BACKFILLING IN ACCORDANCE WITH DRAWING DETAILS.

3.04 CORE CUTTING, DRILLING, AND PATCHING

A. NO HOLES WILL BE ALLOWED IN ANY STRUCTURAL MEMBERS WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT OR STRUCTURAL ENGINEER AND GENERAL CONTRACTOR.

3.05 INSTALLATION

- WORKMANSHIP IS TO BE NEAT, BY EXPERIENCED WORKMEN WITH ADEQUATE SUPERVISION, AND IN LINE WITH NORMAL INDUSTRY WORK PRACTICES.
- . MAINTAIN WORKING CLEARANCE AROUND ELECTRICAL EQUIPMENT, IN ACCORDANCE WITH CODE REQUIREMENTS AS A MINIMUM
- C. WHERE LIGHTING FIXTURES AND OTHER ELECTRICAL ITEMS ARE SHOWN IN CONFLICT WITH LOCATIONS OF STRUCTURAL MEMBERS AND MECHANICAL OR OTHER EQUIPMENT, FURNISH AND INSTALL ALL REQUIRED SUPPORTS AND WIRING TO CLEAR THE ENCROACHMENT.
- D. VERIFY LOCATION OF EACH OUTLET FOR POWER, SIGNAL, TELEPHONE/DATA, AND EACH LIGHTING FIXTURE WITH ARCHITECT PRIOR TO ROUGH-IN. INCLUDE IN BID COST OF RELOCATING EACH ITEM WITHIN TEN-FEET RADIUS OF ITS INDICATED LOCATION.
- E. ALL CONDUIT TO BE RUN CONCEALED UNLESS OTHERWISE NOTED. ALL CONDUITS SHALL BE ROUTED OVERHEAD IN CEILING SPACES. NO CONDUITS SHALL BE PERMITTED IN CONCRETE SLAB, MASONRY WALLS UNLESS SPECIFICALLY SO INDICATED. CONDUIT SHALL BE RUN SO AS NOT TO INTERFERE WITH OTHER PIPING FIXTURES OR EQUIPMENT.
- F. WHERE ALLOWED, EXPOSED CONDUIT RUNS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS, OR INTERSECTION OF VERTICAL PLANES AND CEILINGS.
- G. ALL ELECTRICAL CONDUITS AND OTHER ELECTRICAL RACEWAYS PASSING THROUGH FIRE RATED CEILINGS, SLABS, CABLE TRAYS, WALLS AND PARTITIONS SHALL BE SEALED TO PREVENT THE SPREAD OF FIRE, SMOKE, AND GASSES. USE A UL LISTED AND APPROVED FIRE-STOP MATERIAL EQUAL TO RATING OF A WALL OR A FLOOR SLAB PENETRATED; INSTALLATION OF FIRE-STOP MATERIAL SHALL BE IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
- H. UNLESS WRITTEN PERMISSION IS GRANTED BY THE ARCHITECT, NO MATERIAL SHALL BE MOUNTED ON THE EXTERIOR WALLS OR PARAPET TOP OF THE BUILDING.
- ALL ROTATING ELECTRICAL EQUIPMENT SHALL BE SUPPLIED WITH A FLEXIBLE, LIQUID-TIGHT CONDUIT WITH APPROPRIATE SLACK AND SHALL NOT EXCEED THIRTY-SIX (36) INCHES.
- J. ALL POWER WIRING SHALL BE INSTALLED IN CONDUIT.
- TELEPHONE WIRES SHALL BE PLENUM RATED CABLE FOR MOUNTING IN CEILING SPACES WITHOUT CONDUIT UNLESS OTHERWISE NOTED.
- L. ALL WIRES FOR ALL SYSTEMS SHALL BE CONTINUOUS FROM SWITCH TO TERMINAL OR FURTHEST OUTLET. NO JOINTS SHALL BE MADE EXCEPT IN PULL, JUNCTION OR OUTLET BOXES, OR IN PANEL OR SWITCHBOARD GUTTERS.
- M. ALL RECEPTACLE, CONTROL DEVICE, AND SWITCH MOUNTING HEIGHTS SHALL BE COORDINATED WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.

3.06 GROUNDING

- A. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AS INDICATED ON DRAWINGS AND AS REQUIRED BY THE LATEST EDITION OF APPLICABLE CODES.
- B. FURNISH AND INSTALL ALL GROUNDING CONDUCTORS, CONDUIT AND CLAMPS. THE SIZE OF THE GROUNDING CONDUCTORS SHALL BE NOT LESS THAN THAT SPECIFIED IN THE NEC.
- BUILDING GROUNDING SYSTEM RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS.
- D. EACH BRANCH CIRCUIT SHALL BE EQUIPPED WITH CODE SIZE GREEN GROUND, EQUIPMENT WIRE (PER NEC 250-95) (NOT INDICATED ON DRAWINGS) WITHIN THE SAME CONDUIT FOR ALL CIRCUITS OF PANELBOARDS.

3.07 BRANCH CIRCUITS

A. NO MORE THAN THREE BRANCH CIRCUITS PERMITTED IN ONE CONDUIT UNLESS INDICATED OTHERWISE

3.08 IDENTIFICATION

- A. THE FOLLOWING ITEMS SHALL BE EQUIPPED WITH NAMEPLATES:
- ALL MOTORS, MOTOR STARTERS, CONTROL PANELS, MOTORS CONTROL REMOTE STATIONS.
- 2. ALL DISCONNECT AND SAFETY SWITCHES, MAIN DISTRIBUTION PANEL FEEDER OVERCURRENT DEVICES AND SPARES, CIRCUIT EQUIPMENT IN SEPARATE ENCLOSURES.
- 3. SPECIAL ELECTRICAL SYSTEMS SHALL BE PROPERLY IDENTIFIED AT JUNCTION AND PULL BOXES
- 4. ALL BRANCH CIRCUIT PANEL BOARDS SHALL HAVE IDENTIFYING ENGRAVED PLASTIC NAMEPLATES. ALSO, PROVIDE A TYPED DIRECTORY CARD FOR EACH BRANCH CIRCUIT PANELBOARD. THE CARD IS TO BE PLACED ON THE INTERIOR SIDE OF THE PANELBOARD DOOR BEHIND A CLEAR PLASTIC SHIELD. THE CARD SHALL IDENTIFY EACH CIRCUIT BY NUMBER, LOAD, AND LOCATION.
- 5. IN GENERAL, EQUIPMENT SHALL BE IDENTIFIED AS DESIGNATED ON THE ELECTRICAL DRAWINGS. NAMEPLATES FOR PANELBOARDS AND SWITCHBOARDS SHALL INCLUDE THE PANEL DESIGNATION, VOLTAGE AND PHASE OF THE SUPPLY. THE NAME OF THE MACHINE SHALL BE THE SAME AS THE NAME USED ON ALL MOTOR STARTERS, DISCONNECTS, AND P.B STATION NAMEPLATES FOR THAT MACHINE.
- B. NAMEPLATES SHALL BE FABRICATED AS FOLLOWS:
- NAMEPLATE MATERIALS SHALL CONSIST OF 3-PLY, 1/16" LAMINATED PLASTIC WITH WHITE CORE FOR LETTERING AND BLACK BACKGROUND.
- 2. CAPITAL LETTERS SHALL BE USED.
- NAMEPLATES SHALL BE FASTENED WITH CADMIUM-PLATED SELF-TAPPING NO. 6 SCREWS 1/4" LONG
- 4. THE MINIMUM SIZE OF ALL NAME PLATES AND LETTERING SHALL BE 3/4" HIGH BY 2" LONG WITH 1/4" LETTERS.

3.09 PROTECTION

A. USE ALL MEANS NECESSARY TO PROTECT THE WORK AND MATERIALS FROM LOSS DURING AND AFTER INSTALLATION, AND PROVIDE ADEQUATE AND PROPER STORAGE FACILITIES DURING THE PROGRESS OF THE WORK. PROVIDE FOR THE SAFETY AND GOOD CONDITION OF ALL WORK UNTIL FINAL ACCEPTANCE OF THE WORK BY THE OWNER. REPLACE ALL DAMAGE OR DEFECTIVE WORK, MATERIAL, AND EQUIPMENT AT NO EXPENSE TO THE OWNER BEFORE REQUESTING FINAL ACCEPTANCE.

3.10 CLEANING OF EQUIPMENT, MATERIAL, AND PREMISES $\,$

- A. SITE SHALL BE LEFT BROOM CLEAN AFTER COMPLETION OF WORK EACH DAY. UPON COMPLETION OF THE WORK, LEAVE THE PREMISES CLEAN OF ALL DIRT AND DEBRIS.
- B. ALL EQUIPMENT AND MATERIAL CONNECTED WITH THIS PROJECT SHALL BE INSTALLED COMPLETE, THOROUGHLY CLEANED, AND ALL RESIDUE REMOVED FROM INSIDE SURFACES. EXTERIOR SURFACES OF ALL MATERIAL AND EQUIPMENT SHALL BE CLEANED AND DELIVERED IN A PERFECT, UNBLEMISHED CONDITION.

3.11 HANDLING OF WIRE AND CABLE

- A. HANDLE WIRE AND CABLE SO AS TO AVOID DAMAGE TO CONDUCTORS AND TAKE EVERY PRECAUTION TO AVOID SHARP BENDING OR SCORING OF THE CABLE. CABLE SHALL NOT BE LAID NOR DRAGGED UPON THE GROUND.
- B. THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE AT HIS OWN EXPENSE ALL WIRE AND CABLE DAMAGED DUE TO IMPROPER HANDLING, AND SHALL PAY FOR THE NEW WIRE OR CABLE.

3.12 TESTING AND INSPECTIONS

- A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS FOR THE EXECUTION OF THE WORK UNDER THIS CONTRACT.
- B. THE CONTRACTOR SHALL REPLACE ALL DAMAGED OR DEFECTIVE EQUIPMENT OR WORK.
- C. ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY AND CIRCUIT INTEGRITY BY THE CONTRACTOR. ADJUSTMENTS SHALL BE MADE FOR CIRCUITS NOT COMPLYING WITH TESTING CRITERIA.
- D. THE CONTRACTOR SHALL FURNISH ALL INSTRUMENTS AND PERFORM ANY ADDITIONAL TESTS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL ALSO CORRECT ALL FAILURES AND REPLACE ANY DAMAGED PORTIONS OF THE WORK RESULTING FROM THOSE TESTS. THE COST OF THE FOREGOING ITEMS SHALL BE PAID BY THE CONTRACTOR.
- THE CONTRACTOR SHALL FURNISH THE OWNER CERTIFICATES OF INSPECTION AND APPROVAL BY THE ELECTRICAL INSPECTION AUTHORITY ON ALL WORK COMPETED AS REQUIRED.
- F. CONTRACT DRAWINGS AND SPECIFICATIONS, GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS, ELECTRICAL PROVISIONS AND DIVISION-1 SPECIFICATION SECTIONS APPLY TO WORK OF THIS SECTION.
- G. RESPONSIBILITIES OF INSTALLING CONTRACTORS
- A.A. GENERAL CONTRACTOR (GC)
 - a. ENSURE THAT ALL CONTRACTORS IDENTIFIED AS THE CONTRACTOR RESPONSIBLE FOR ACCEPTANCE TESTING AND COMPLETION OF THE WSEC CERTIFICATE(S) OF ACCEPTANCE ARE CERTIFIED BY THE STATE OF WASHINGTON OR ITS DESIGNATED BODY TO CONDUCT EACH RESPECTIVE TEST.
- A.A. ELECTRICAL CONTRACTOR (EC)
 - a. VERIFY PROPER INSTALLATION AND PERFORMANCE OF ALL ELECTRICAL SERVICES PROVIDED.b. COMPLETE WSEC CERTIFICATE(S) OF INSTALLATION AND MANUFACTURER'S PRE-START CHECKLISTS PRIOR TO
 - SCHEDULING STARTUP/PROGRAMMING OF LIGHTING CONTROL EQUIPMENT.

 i. RETAIN CERTIFICATE(S) OF INSTALLATION IN A 3-RING BINDER IN AN ORGANIZED FASHION. BINDER IS TO REMAIN ON THE JOB SITE
 - ii. MAKE CERTIFICATE(S) OF INSTALLATION AVAILABLE FOR BUILDING INSPECTOR'S REVIEW.
 - iii. RETAIN CALIBRATION RECORDS FOR EQUIPMENT PROVIDED WITH MANUFACTURER CALIBRATED SENSORS IN THE CERTIFICATE(S) OF INSTALLATION BINDER.
 - iv. CORRECT LABELING OF ALL CIRCUITS WITH CONNECTED EQUIPMENT.
 - c. COMPLETE THE CERTIFICATE(S) OF ACCEPTANCE PER THE CONTRACT DOCUMENTS.
 - i. THE COMPANY INSTALLING THE LIGHTING SYSTEMS MUST BE AN AUTHORIZED LIGHTING CONTROLS
 ACCEPTANCE TEST EMPLOYER CERTIFIED BY A LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN
 CERTIFICATION PROVIDER OR INCLUDE IN THEIR BID THE COST OF RETAINING AND OVERSEEING A CONTRACTOR
 WHO IS AN AUTHORIZED LIGHTING CONTROLS ACCEPTANCE TEST EMPLOYER TO COMPLETE THE ACCEPTANCE
 - ii. ALL REQUIRED ACCEPTANCE TESTING MUST BE COMPLETED BY A LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN EMPLOYED BY THE LIGHTING CONTROLS ACCEPTANCE TEST EMPLOYER.
 - iii. RETAIN CERTIFICATE(S) OF ACCEPTANCE IN A 3-RING BINDER IN AN ORGANIZED FASHION. BINDER IS TO REMAIN ON THE JOB SITE
- iv. SUCCESSFUL COMPLETION OF THE REQUIRED ACCEPTANCE TESTS IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR. ANY COSTS ASSOCIATED WITH MODIFICATIONS NECESSARY TO OBTAIN COMPLIANCE AND RE-TESTING OF SYSTEMS SHALL BE INCLUDED IN THE BASE BID OF THIS PROJECT.

3.13 TELEPHONE AND DATA

- A. PROVIDE AND INSTALL COMPLETE SYSTEM OF CONDUIT WITH PULL LINES, BACKBOARDS, EQUIPMENT RACK, PULL BOXES, JUNCTION BOXES, OUTLET BOXES, AND PLASTER RINGS, FOR TELEPHONE/ DATA SYSTEMS, TO BE INSTALLED AS PART OF THIS BUILDING CONTRACT.
- B. PROVIDE OVERHEAD CONDUIT CONNECTIONS BETWEEN THE MAIN TELECOM ROOM AND THE NETWORK RACK.
- C. A FIRE RATED PLYWOOD BACK-BOARD SHALL BE PROVIDED OVER THE BACK OF THE TELEPHONE ROOM AS SHOWN ON THE DRAWINGS. PROVIDE NATIONAL ELECTRICAL CODE (NEC) SIZED GROUND CONDUCTOR FROM THE TELEPHONE BACKBOARD TO MAIN BUILDING GROUNDING SYSTEM.
- D. THE TELEPHONE AND DATA CONDUITS SHALL BE FROM OUTLET BOX TO 6" ABOVE THE ACCESSIBLE CEILING SPACE. CONDUIT RUNS OVER 200 FEET IN LENGTH, OR WITH MORE THAN TWO 90 DEGREE BENDS, SHALL BE PROVIDED WITH ACCESSIBLE PULL BOXES OF SIZES AS APPROVED BY THE OWNER.
- E. PULLWIRES SHALL BE INSTALLED IN ALL TELEPHONE/ DATA CONDUITS CONTINUOUS AND WITHOUT SPLICES, PROJECTING 36 INCHES OUT OF EACH END OF CONDUIT/OUTLET BOX. EQUIP ALL JUNCTION BOXES WITH PLASTER PINCS



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110 James St., Suite 106
Edmonds, WA 98020
Phone: 425.458.9700
Fax: 909.890.3770
Email: cadd@designwesteng.com

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JOB NO. 2022-080
DATE 08-23-2023
DRAWN AE
REVIEWED LM

SHEET NAME
ELECTRICAL

SHEET NO. **F-3** 2

SPECIFICATIONS

22-080

ELECTRICAL SPECIFICATIONS

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

SECTION 283100 - FIRE DETECTION AND ALARM

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.02 REFERENCE STANDARDS

- 36 CFR 1191 AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES; ARCHITECTURAL BARRIERS ACT (ABA) ACCESSIBILITY GUIDELINES CURRENT EDITION.
- ADA STANDARDS 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN 2010. IEEE C62.41.2 - IEEE RECOMMENDED PRACTICE ON CHARACTERIZATION OF SURGES IN LOW-VOLTAGE (1000 V AND
- LESS) AC POWER CIRCUITS 2002 (CORRIGENDUM 2012). NFPA 70 - NATIONAL ELECTRICAL CODE MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION,
- INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS.
- NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE 2016. NFPA 101 - LIFE SAFETY CODE MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS.

1.03 SUMMARY

THIS SECTION INCLUDES FIRE ALARM SYSTEM DESIGN AND INSTALLATION, INCLUDING ALL COMPONENTS,

WIRING, AND CONDUIT. 1.04 DEFINITIONS

FACP: FIRE ALARM CONTROL PANEL. LED: LIGHT-EMITTING DIODE.

NICET: NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES. DEFINITIONS IN NFPA 72, APPLY TO FIRE ALARM TERMS USED IN THIS SECTION.

1.05 SYSTEM DESCRIPTION

NONCODED, ANALOG-ADDRESSABLE SYSTEM; AUTOMATIC SENSITIVITY CONTROL OF CERTAIN SMOKE DETECTORS; AND MULTIPLEXED SIGNAL TRANSMISSION DEDICATED TO FIRE ALARM SERVICE ONLY.

INTERFACE WITH EXISTING FIRE ALARM SYSTEM. 1.06 PERFORMANCE REQUIREMENTS

COMPLY WITH NFPA 72

FIRE ALARM SIGNAL INITIATION SHALL BE BY ONE OR MORE OF THE FOLLOWING DEVICES:

- MANUAL STATIONS
- **HEAT DETECTORS** FLAME DETECTORS
- SMOKE DETECTORS VERIFIED AUTOMATIC ALARM OPERATION OF SMOKE DETECTORS.
- AUTOMATIC SPRINKLER SYSTEM WATER FLOW.
- FIRE EXTINGUISHING SYSTEM OPERATION.
- FIRE STANDPIPE SYSTEM.
- FIRE ALARM SIGNAL SHALL INITIATE THE FOLLOWING ACTIONS:
 - ALARM NOTIFICATION APPLIANCES SHALL OPERATE CONTINUOUSLY. IDENTIFY ALARM AT THE FACP AND REMOTE ANNUNCIATORS.
 - DE-ENERGIZE ELECTROMAGNETIC DOOR HOLDERS.
 - TRANSMIT AN ALARM SIGNAL TO THE REMOTE ALARM RECEIVING STATION.
 - UNLOCK ELECTRIC DOOR LOCKS IN DESIGNATED EGRESS PATHS. RELEASE FIRE AND SMOKE DOORS HELD OPEN BY MAGNETIC DOOR HOLDERS
 - ACTIVATE VOICE/ALARM COMMUNICATION SYSTEM.
 - SWITCH HEATING, VENTILATING, AND AIR-CONDITIONING EQUIPMENT CONTROLS TO FIRE ALARM MODE. CLOSE SMOKE DAMPERS IN AIR DUCTS OF SYSTEM SERVING ZONE WHERE ALARM WAS INITIATED.
- RECORD EVENTS IN THE SYSTEM MEMORY. RECORD EVENTS BY THE SYSTEM PRINTER.
- SUPERVISORY SIGNAL INITIATION SHALL BE BY ONE OR MORE OF THE FOLLOWING DEVICES OR ACTIONS: OPERATION OF A FIRE-PROTECTION SYSTEM VALVE TAMPER.
- SYSTEM TROUBLE SIGNAL INITIATION SHALL BE BY ONE OR MORE OF THE FOLLOWING DEVICES OR ACTIONS: OPEN CIRCUITS, SHORTS AND GROUNDS OF WIRING FOR INITIATING DEVICE, SIGNALING LINE, AND
- NOTIFICATION-APPLIANCE CIRCUITS. OPENING, TAMPERING, OR REMOVAL OF ALARM-INITIATING AND SUPERVISORY SIGNAL-INITIATING
- LOSS OF PRIMARY POWER AT THE FACP. GROUND OR A SINGLE BREAK IN FACP INTERNAL CIRCUITS.
- ABNORMAL AC VOLTAGE AT THE FACP.
- A BREAK IN STANDBY BATTERY CIRCUITRY
- FAILURE OF BATTERY CHARGING.
- ABNORMAL POSITION OF ANY SWITCH AT THE FACP OR ANNUNCIATOR. FIRE-PUMP POWER FAILURE, INCLUDING A DEAD-PHASE OR PHASE-REVERSAL CONDITION
- LOW-AIR-PRESSURE SWITCH OPERATION ON A DRY-PIPE OR PREACTION SPRINKLER SYSTEM. SYSTEM TROUBLE AND SUPERVISORY SIGNAL ACTIONS: RING TROUBLE BELL AND ANNUNCIATE AT THE FACP AND REMOTE ANNUNCIATORS. RECORD THE EVENT ON SYSTEM PRINTER.

PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

- SHOP DRAWINGS:
 - SHOP DRAWINGS SHALL BE PREPARED BY PERSONS WITH THE FOLLOWING QUALIFICATIONS: TRAINED AND CERTIFIED BY MANUFACTURER IN FIRE ALARM SYSTEM DESIGN. FIRE ALARM CERTIFIED BY NICET, MINIMUM LEVEL III.
- SYSTEM OPERATION DESCRIPTION: DETAILED DESCRIPTION FOR THIS PROJECT, INCLUDING METHOD OF OPERATION AND SUPERVISION OF EACH TYPE OF CIRCUIT AND SEQUENCE OF OPERATIONS FOR MANUALLY AND AUTOMATICALLY INITIATED SYSTEM INPUTS AND OUTPUTS. MANUFACTURER'S STANDARD DESCRIPTIONS FOR GENERIC SYSTEMS ARE NOT ACCEPTABLE.
- DEVICE ADDRESS LIST: COORDINATE WITH FINAL SYSTEM PROGRAMMING. SYSTEM RISER DIAGRAM WITH DEVICE ADDRESSES, CONDUIT SIZES, AND CABLE AND WIRE TYPES AND
- WIRING DIAGRAMS: POWER, SIGNAL, AND CONTROL WIRING. INCLUDE DIAGRAMS FOR EQUIPMENT AND FOR SYSTEM WITH ALL TERMINALS AND INTERCONNECTIONS IDENTIFIED. SHOW WIRING COLOR CODE.
- BATTERIES: SIZE CALCULATIONS. DUCT SMOKE DETECTORS: PERFORMANCE PARAMETERS AND INSTALLATION DETAILS FOR EACH DETECTOR. VERIFYING THAT EACH DETECTOR IS LISTED FOR THE COMPLETE RANGE OF AIR VELOCITY.
- TEMPERATURE, AND HUMIDITY POSSIBLE WHEN AIR-HANDLING SYSTEM IS OPERATING. DUCTWORK COORDINATION DRAWINGS: PLANS, SECTIONS, AND ELEVATIONS OF DUCTS, DRAWN TO SCALE AND COORDINATING THE INSTALLATION OF DUCT SMOKE DETECTORS AND ACCESS TO THEM. SHOW CRITICAL DIMENSIONS THAT RELATE TO PLACEMENT AND SUPPORT OF SAMPLING TUBES, THE
- DETECTOR HOUSING, AND REMOTE STATUS AND ALARM INDICATORS. LOCATE DETECTORS ACCORDING TO MANUFACTURER'S WRITTEN RECOMMENDATIONS. VOICE/ALARM SIGNALING SERVICE: EQUIPMENT RACK OR CONSOLE LAYOUT, GROUNDING SCHEMATIC,
- AMPLIFIER POWER CALCULATION, AND SINGLE-LINE CONNECTION DIAGRAM. FLOOR PLANS: INDICATE FINAL OUTLET LOCATIONS SHOWING ADDRESS OF EACH ADDRESSABLE DEVICE.
- SHOW SIZE AND ROUTE OF CABLE AND CONDUITS. QUALIFICATION DATA: FOR INSTALLER.
- FIELD QUALITY-CONTROL TEST REPORTS.
- OPERATION AND MAINTENANCE DATA: FOR FIRE ALARM SYSTEM TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS. COMPLY WITH NFPA 72, APPENDIX A, RECOMMENDATIONS FOR OWNER'S MANUAL. INCLUDE ABBREVIATED OPERATING INSTRUCTIONS FOR MOUNTING AT THE FACP.
- SUBMITTALS TO AUTHORITIES HAVING JURISDICTION: IN ADDITION TO DISTRIBUTION REQUIREMENTS FOR SUBMITTALS SPECIFIED IN DIVISION 01 SECTION "SUBMITTALS," MAKE AN IDENTICAL SUBMITTAL TO AUTHORITIES HAVING JURISDICTION. TO FACILITATE REVIEW, INCLUDE COPIES OF ANNOTATED CONTRACT DRAWINGS AS NEEDED TO DEPICT COMPONENT LOCATIONS. RESUBMIT IF REQUIRED TO MAKE CLARIFICATIONS OR REVISIONS TO OBTAIN APPROVAL. ON RECEIPT OF COMMENTS FROM AUTHORITIES HAVING JURISDICTION, SUBMIT THEM TO ARCHITECT FOR REVIEW.
- DOCUMENTATION:
 - APPROVAL AND ACCEPTANCE: PROVIDE THE "RECORD OF COMPLETION" FORM ACCORDING TO NFPA 72 TO OWNER, ARCHITECT, AND AUTHORITIES HAVING JURISDICTION. RECORD OF COMPLETION DOCUMENTS: PROVIDE THE "PERMANENT RECORDS" ACCORDING TO NFPA 72
 - TO OWNER, ARCHITECT, AND AUTHORITIES HAVING JURISDICTION. FORMAT OF THE WRITTEN SEQUENCE OF OPERATION SHALL BE THE OPTIONAL INPUT/OUTPUT MATRIX. HARD COPIES ON PAPER TO OWNER, ARCHITECT, AND AUTHORITIES HAVING JURISDICTION.
- ELECTRONIC MEDIA MAY BE PROVIDED TO ARCHITECT AND AUTHORITIES HAVING JURISDICTION. 1.08 QUALITY ASSURANCE

INSTALLER QUALIFICATIONS: PERSONNEL SHALL BE TRAINED AND CERTIFIED BY MANUFACTURER FOR

- INSTALLATION OF UNITS REQUIRED FOR THIS PROJECT.
- ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NEC ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
- INTERRUPTION OF EXISTING FIRE ALARM SERVICE: DO NOT INTERRUPT FIRE ALARM SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY GUARD SERVICE ACCORDING TO REQUIREMENTS INDICATED: NOTIFY ARCHITECT NO FEWER THAN FOURTEEN DAYS IN ADVANCE OF PROPOSED INTERRUPTION OF
 - DO NOT PROCEED WITH INTERRUPTION OF FIRE ALARM SERVICE WITHOUT ARCHITECT'S AND OWNER'S WRITTEN PERMISSION.

1.10 EXTRA MATERIALS

- FURNISH EXTRA MATERIALS DESCRIBED BELOW THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS. SMOKE, FIRE, AND FLAME DETECTORS: QUANTITY EQUAL TO 10 PERCENT OF AMOUNT OF EACH TYPE
 - INSTALLED, BUT NOT LESS THAN 1 UNIT OF EACH TYPE. DETECTOR BASES: QUANTITY EQUAL TO 2 PERCENT OF AMOUNT OF EACH TYPE INSTALLED, BUT NOT

LESS THAN 1 UNIT OF EACH TYPE. PART 2 - PRODUCTS

2.01 MANUFACTURERS

- AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 - COMPATIBLE WITH EXISTING FACP WIRE AND CABLE:
 - a. WEST PENN WIRE/CDT; A DIVISION OF CABLE DESIGN TECHNOLOGIES OR EQUAL
- AUDIBLE AND VISUAL SIGNALS: a. COMPATIBLE WITH EXISTING FACP

FIRE ALARM SERVICE

2.02 EXISTING FIRE ALARM SYSTEM

COMPATIBILITY WITH EXISTING EQUIPMENT: FIRE ALARM SYSTEM AND COMPONENTS SHALL OPERATE AS AN EXTENSION OF AN EXISTING SYSTEM.

2.03 SYSTEM SMOKE DETECTORS

- - UL 268 LISTED, OPERATING AT 24-V DC, NOMINAL. INTEGRAL ADDRESSABLE MODULE: ARRANGED TO COMMUNICATE DETECTOR STATUS (NORMAL, ALARM,
 - OR TROUBLE) TO THE FACE MULTIPURPOSE TYPE, CONTAINING THE FOLLOWING:
 - INTEGRAL ADDRESSABLE MODULE: ARRANGED TO COMMUNICATE DETECTOR STATUS (NORMAL,
 - ALARM. OR TROUBLE) TO THE FACP.
 - PIEZOELECTRIC SOUNDER RATED AT 88 DBA AT 10 FEET (3 M) ACCORDING TO UL 464 HEAT SENSOR, COMBINATION RATE-OF-RISE AND FIXED TEMPERATURE. PLUG-IN ARRANGEMENT: DETECTOR AND ASSOCIATED ELECTRONIC COMPONENTS SHALL BE MOUNTED
 - IN A PLUG-IN MODULE THAT CONNECTS TO A FIXED BASE. PROVIDE TERMINALS IN THE FIXED BASE FOR CONNECTION OF BUILDING WIRING. SELF-RESTORING: DETECTORS DO NOT REQUIRE RESETTING OR READJUSTMENT AFTER ACTUATION TO
- RESTORE THEM TO NORMAL OPERATION. INTEGRAL VISUAL-INDICATING LIGHT: LED TYPE. INDICATING DETECTOR HAS OPERATED AND POWER-ON
- REMOTE CONTROL: UNLESS OTHERWISE INDICATED, DETECTORS SHALL BE ANALOG-ADDRESSABLE TYPE, INDIVIDUALLY MONITORED AT THE FACP FOR CALIBRATION, SENSITIVITY, AND ALARM CONDITION, AND INDIVIDUALLY ADJUSTABLE FOR SENSITIVITY FROM THE FACP.
 - RATE-OF-RISE TEMPERATURE CHARACTERISTIC SHALL BE SELECTABLE AT THE FACP FOR 15 OR 20 DEG F (8 OR 11 DEG C) PER MINUTE. FIXED-TEMPERATURE SENSING SHALL BE INDEPENDENT OF RATE-OF-RISE SENSING AND SHALL

BE SETTABLE AT THE FACP TO OPERATE AT 135 OR 155 DEG F (57 OR 68 DEG C).

- PROVIDE MULTIPLE LEVELS OF DETECTION SENSITIVITY FOR EACH SENSOR. PHOTOELECTRIC SMOKE DETECTORS:
- SENSOR: LED OR INFRARED LIGHT SOURCE WITH MATCHING SILICON-CELL RECEIVER. DETECTOR SENSITIVITY: BETWEEN 2.5 AND 3.5 PERCENT/FOOT (0.008 AND 0.011 PERCENT/MM) SMOKE OBSCURATION WHEN TESTED ACCORDING TO UL 268A.
- DUCT SMOKE DETECTORS:
 - PHOTOELECTRIC SMOKE DETECTORS: SENSOR: LED OR INFRARED LIGHT SOURCE WITH MATCHING SILICON-CELL RECEIVER. DETECTOR SENSITIVITY: BETWEEN 2.5 AND 3.5 PERCENT/FOOT (0.008 AND 0.011 PERCENT/MM)
 - SMOKE OBSCURATION WHEN TESTED ACCORDING TO UL 268A. UL 268A LISTED, OPERATING AT 24-V DC, NOMINAL.
 - INTEGRAL ADDRESSABLE MODULE: ARRANGED TO COMMUNICATE DETECTOR STATUS (NORMAL, ALARM,
 - PLUG-IN ARRANGEMENT: DETECTOR AND ASSOCIATED ELECTRONIC COMPONENTS SHALL BE MOUNTED IN A PLUG-IN MODULE THAT CONNECTS TO A FIXED BASE. THE FIXED BASE SHALL BE DESIGNED FOR MOUNTING DIRECTLY TO THE AIR DUCT. PROVIDE TERMINALS IN THE FIXED BASE FOR CONNECTION TO BUILDING WIRING.
 - WEATHERPROOF DUCT HOUSING ENCLOSURE: UL LISTED FOR USE WITH THE SUPPLIED DETECTOR. THE ENCLOSURE SHALL COMPLY WITH NEMA 250 REQUIREMENTS FOR TYPE 4X. SELF-RESTORING: DETECTORS SHALL NOT REQUIRE RESETTING OR READJUSTMENT AFTER ACTUATION
 - TO RESTORE THEM TO NORMAL OPERATION. INTEGRAL VISUAL-INDICATING LIGHT: LED TYPE. INDICATING DETECTOR HAS OPERATED AND POWER-ON STATUS. PROVIDE REMOTE STATUS AND ALARM INDICATOR AND TEST STATION WHERE INDICATED.
- REMOTE CONTROL: UNLESS OTHERWISE INDICATED, DETECTORS SHALL BE ANALOG-ADDRESSABLE TYPE. INDIVIDUALLY MONITORED AT THE FACP FOR CALIBRATION. SENSITIVITY. AND ALARM CONDITION. AND INDIVIDUALLY ADJUSTABLE FOR SENSITIVITY FROM THE FACP.
- EACH SENSOR SHALL HAVE MULTIPLE LEVELS OF DETECTION SENSITIVITY. SAMPLING TUBES: DESIGN AND DIMENSIONS AS RECOMMENDED BY MANUFACTURER FOR THE SPECIFIC DUCT SIZE, AIR VELOCITY, AND INSTALLATION CONDITIONS WHERE APPLIED. RELAY FAN SHUTDOWN: RATED TO INTERRUPT FAN MOTOR-CONTROL CIRCUIT

2.04 HEAT DETECTORS

- HEAT DETECTOR, COMBINATION TYPE: ACTUATED BY EITHER A FIXED TEMPERATURE OF 135 DEG F (57 DEG C) OR RATE-OF-RISE OF TEMPERATURE THAT EXCEEDS 15 DEG F (8 DEG C) PER MINUTE, UNLESS OTHERWISE
- INDICATED MOUNTING: PLUG-IN BASE, INTERCHANGEABLE WITH SMOKE-DETECTOR BASES. INTEGRAL ADDRESSABLE MODULE: ARRANGED TO COMMUNICATE DETECTOR STATUS (NORMAL, ALARM,
- OR TROUBLE) TO THE FACE HEAT DETECTOR, FIXED-TEMPERATURE TYPE: ACTUATED BY TEMPERATURE THAT EXCEEDS A FIXED TEMPERATURE OF 190 DEG F (88 DEG C)
- MOUNTING: ADAPTER PLATE FOR OUTLET BOX MOUNTING OR PLUG-IN BASE, INTERCHANGEABLE WITH SMOKE-DETECTOR BASES. INTEGRAL ADDRESSABLE MODULE: ARRANGED TO COMMUNICATE DETECTOR STATUS (NORMAL, ALARM, OR TROUBLE) TO THE FACP.
- CONTINUOUS LINEAR HEAT-DETECTOR SYSTEM: CONSISTS OF DETECTOR CABLE AND CONTROL UNIT. DETECTOR CABLE: RATED DETECTION TEMPERATURE 155 DEG F (68 DEG C). LISTED FOR "REGULAR" SERVICE AND A STANDARD ENVIRONMENT. CABLE INCLUDES TWO STEEL ACTUATOR WIRES TWISTED TOGETHER WITH SPRING PRESSURE, WRAPPED WITH PROTECTIVE TAPE, AND FINISHED WITH PVC OUTER SHEATH. EACH ACTUATOR WIRE IS INSULATED WITH HEAT-SENSITIVE MATERIAL THAT REACTS WITH HEAT TO ALLOW THE CABLE TWIST PRESSURE TO SHORT CIRCUIT WIRES AT THE LOCATION OF ELEVATED
- CONTROL UNIT: TWO-ZONE OR MULTIZONE UNIT AS INDICATED. PROVIDES SAME SYSTEM POWER
- SUPPLY, SUPERVISION, AND ALARM FEATURES AS SPECIFIED FOR THE CENTRAL FACP. SIGNALS TO THE CENTRAL FACP: ANY TYPE OF LOCAL SYSTEM TROUBLE IS REPORTED TO THE CENTRAL FACP AS A COMPOSITE "TROUBLE" SIGNAL. ALARMS ON EACH DETECTION ZONE ARE INDIVIDUALLY
- REPORTED TO THE CENTRAL FACP AS SEPARATELY IDENTIFIED ZONES. INTEGRAL ADDRESSABLE MODULE: ARRANGED TO COMMUNICATE DETECTOR STATUS (NORMAL, ALARM,

OR TROUBLE) TO THE FACP. 2.05 NOTIFICATION APPLIANCES

- DESCRIPTION: EQUIPPED FOR MOUNTING AS INDICATED AND WITH SCREW TERMINALS FOR SYSTEM
 - COMBINATION DEVICES: FACTORY-INTEGRATED AUDIBLE AND VISIBLE DEVICES IN A SINGLE-MOUNTING ASSEMBLY

- REVISE SOUND-LEVEL VALUES IN FIRST FOUR PARAGRAPHS BELOW TO COMPLY WITH LOCAL INTERPRETATIONS OF ADA REQUIREMENTS. SEE EDITING INSTRUCTION NO. 10 IN THE EVALUATIONS. BELLS: ELECTRIC-VIBRATING, 24-V DC, UNDER-DOME TYPE; WITH PROVISION FOR HOUSING THE OPERATING MECHANISM BEHIND THE BELL. BELLS SHALL PRODUCE A SOUND-PRESSURE LEVEL OF 94 DBA, MEASURED 10 FEET (3 M) FROM THE BELL. 10-INCH (254-MM) SIZE, UNLESS OTHERWISE INDICATED. BELLS ARE WEATHERPROOF
- CHIMES, LOW-LEVEL OUTPUT: VIBRATING TYPE, 75-DBA MINIMUM RATED OUTPUT
- CHIMES, HIGH-LEVEL OUTPUT: VIBRATING TYPE, 81-DBA MINIMUM RATED OUTPUT. HORNS: ELECTRIC-VIBRATING-POLARIZED TYPE, 24-V DC; WITH PROVISION FOR HOUSING THE OPERATING MECHANISM BEHIND A GRILLE. HORNS SHALL PRODUCE A SOUND-PRESSURE LEVEL OF 90 DBA, MEASURED 10 FEET (3 M) FROM THE HORN.
- VISIBLE ALARM DEVICES: XENON STROBE LIGHTS LISTED UNDER UL 1971, WITH CLEAR OR NOMINAL WHITE POLYCARBONATE LENS MOUNTED ON AN ALUMINUM FACEPLATE. THE WORD "FIRE" IS ENGRAVED IN MINIMUM 1-INCH- (25-MM-) HIGH LETTERS ON THE LENS.
- RATED LIGHT OUTPUT: CANDELA AS INDICATED ON DRAWINGS. STROBE LEADS: FACTORY CONNECTED TO SCREW TERMINALS.

2.06 ADDRESSABLE INTERFACE DEVICE

WHERE INDICATED

- DESCRIPTION: MICROELECTRONIC MONITOR MODULE LISTED FOR USE IN PROVIDING A SYSTEM ADDRESS FOR LISTED ALARM-INITIATING DEVICES FOR WIRED APPLICATIONS WITH NORMALLY OPEN CONTACTS.
- INTEGRAL RELAY: CAPABLE OF PROVIDING A DIRECT SIGNAL TO THE ELEVATOR CONTROLLER TO INITIATE ELEVATOR RECALL AND TO A CIRCUIT-BREAKER SHUNT TRIP FOR POWER SHUTDOWN.

2.07 WIRE AND CABLE

PART 3 - EXECUTION

- WIRE AND CABLE FOR FIRE ALARM SYSTEMS SHALL BE UL LISTED AND LABELED AS COMPLYING WITH NEC,
- SIGNALING LINE CIRCUITS: TWISTED, SHIELDED PAIR, NO. 14 AWG OR AS INDICATED ON DRAWINGS CIRCUIT INTEGRITY CABLE: TWISTED SHIELDED PAIR, NEC ARTICLE 760, CLASSIFICATION CI, FOR POWER-LIMITED FIRE ALARM SIGNAL SERVICE. UL LISTED AS TYPE FPL, AND COMPLYING WITH REQUIREMENTS IN
- UL 1424 AND IN UL 2196 FOR A 2-HOUR RATING. NON-POWER-LIMITED CIRCUITS: SOLID-COPPER CONDUCTORS WITH 600-V RATED, 75 DEG C, COLOR-CODED INSULATION.
- LOW-VOLTAGE CIRCUITS: NO. 16 AWG, MINIMUM.

LINE-VOLTAGE CIRCUITS: NO. 12 AWG, MINIMUM.

- 3.01 EQUIPMENT INSTALLATION CONNECTING TO EXISTING EQUIPMENT: VERIFY THAT EXISTING FIRE ALARM SYSTEM IS OPERATIONAL BEFORE
 - MAKING CHANGES OR CONNECTIONS. CONNECT NEW EQUIPMENT TO THE EXISTING CONTROL PANEL IN THE EXISTING PART OF THE BUILDING. CONNECT NEW EQUIPMENT TO THE EXISTING MONITORING EQUIPMENT AT THE SUPERVISING STATION. EXPAND, MODIFY, AND SUPPLEMENT THE EXISTING CONTROL EQUIPMENT AS NECESSARY TO EXTEND THE EXISTING CONTROL FUNCTIONS TO THE NEW POINTS. NEW COMPONENTS SHALL BE CAPABLE OF MERGING WITH THE EXISTING CONFIGURATION WITHOUT DEGRADING THE PERFORMANCE OF EITHER

 - SMOKE OR HEAT DETECTOR SPACING: SMOOTH CEILING SPACING SHALL NOT EXCEED 30 FEET (9 M) AND THE RATING OF THE DETECTOR. SPACING OF HEAT DETECTORS FOR IRREGULAR AREAS. FOR IRREGULAR CEILING CONSTRUCTION, AND
 - FOR HIGH CEILING AREAS, SHALL BE DETERMINED ACCORDING TO APPENDIX A IN NFPA 72. SPACING OF HEAT DETECTORS SHALL BE DETERMINED BASED ON GUIDELINES AND RECOMMENDATIONS
 - DUCT SMOKE DETECTORS: COMPLY WITH NFPA 72,NFPA 90A AND CMC. INSTALL SAMPLING TUBES SO THEY EXTEND THE FULL WIDTH OF THE DUCT.

3.02 WIRING INSTALLATION

- INSTALL WIRING ACCORDING TO THE FOLLOWING: NFCA 1
- TIA/EIA 568-A.
- WIRING METHOD: INSTALL WIRING IN METAL RACEWAY ACCORDING TO SECTION 260533.13 CONDUIT FOR
- FIRE ALARM CIRCUITS AND EQUIPMENT CONTROL WIRING ASSOCIATED WITH THE FIRE ALARM SYSTEM SHALL BE INSTALLED IN A DEDICATED RACEWAY SYSTEM. THIS SYSTEM SHALL NOT BE USED FOR ANY OTHER WIRE OR CABLE. WIRING WITHIN ENCLOSURES: SEPARATE POWER-LIMITED AND NON-POWER-LIMITED CONDUCTORS AS
- RECOMMENDED BY MANUFACTURER. INSTALL CONDUCTORS PARALLEL WITH OR AT RIGHT ANGLES TO SIDES AND BACK OF THE ENCLOSURE. BUNDLE, LACE, AND TRAIN CONDUCTORS TO TERMINAL POINTS WITH NO EXCESS. CONNECT CONDUCTORS THAT ARE TERMINATED. SPLICED. OR INTERRUPTED IN ANY ENCLOSURE ASSOCIATED WITH THE FIRE ALARM SYSTEM TO TERMINAL BLOCKS. MARK EACH TERMINAL ACCORDING TO THE SYSTEM'S WIRING DIAGRAMS. MAKE ALL CONNECTIONS WITH APPROVED CRIMP-ON TERMINAL SPADE LUGS,
- PRESSURE-TYPE TERMINAL BLOCKS, OR PLUG CONNECTORS. CABLE TAPS: USE NUMBERED TERMINAL STRIPS IN JUNCTION, PULL, AND OUTLET BOXES, CABINETS, OR
- EQUIPMENT ENCLOSURES WHERE CIRCUIT CONNECTIONS ARE MADE. COLOR-CODING: COLOR-CODE FIRE ALARM CONDUCTORS DIFFERENTLY FROM THE NORMAL BUILDING POWER WIRING. USE ONE COLOR-CODE FOR ALARM CIRCUIT WIRING AND A DIFFERENT COLOR-CODE FOR SUPERVISORY CIRCUITS. COLOR-CODE AUDIBLE ALARM-INDICATING CIRCUITS DIFFERENTLY FROM ALARM-INITIATING CIRCUITS.
- USE DIFFERENT COLORS FOR VISIBLE ALARM-INDICATING DEVICES. PAINT FIRE ALARM SYSTEM JUNCTION BOXES AND COVERS RED. RISERS: INSTALL AT LEAST TWO VERTICAL CABLE RISERS TO SERVE THE FIRE ALARM SYSTEM. SEPARATE RISERS IN CLOSE PROXIMITY TO EACH OTHER WITH A MINIMUM 1-HOUR-RATED WALL. SO THE LOSS OF ONE
- RISER DOES NOT PREVENT THE RECEIPT OR TRANSMISSION OF SIGNALS FROM OTHER FLOORS OR ZONES. WIRING TO REMOTE ALARM TRANSMITTING DEVICE: 1-INCH (25-MM) CONDUIT BETWEEN THE FACP AND THE TRANSMITTER. INSTALL NUMBER OF CONDUCTORS AND ELECTRICAL SUPERVISION FOR CONNECTING WIRING AS

NEEDED TO SUIT MONITORING FUNCTION. 3.03 IDENTIFICATION

- INSTALL INSTRUCTIONS FRAME IN A LOCATION VISIBLE FROM THE FACP. PAINT POWER-SUPPLY DISCONNECT SWITCH RED AND LABEL "FIRE ALARM."
- 3.04 GROUNDING

GROUND THE FACP AND ASSOCIATED CIRCUITS: COMPLY WITH IEEE 1100. INSTALL A GROUND WIRE FROM MAIN SERVICE GROUND TO THE FACP.

- 3.05 FIELD QUALITY CONTROL MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT. TEST, AND ADJUST FIELD-ASSEMBLED COMPONENTS AND EQUIPMENT INSTALLATION, INCLUDING CONNECTIONS,
 - AND TO ASSIST IN FIELD TESTING. REPORT RESULTS IN WRITING. TESTING AGENCY: OWNER WILL ENGAGE A QUALIFIED TESTING AND INSPECTING AGENCY TO PERFORM FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS.
 - FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS: PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS: BEFORE REQUESTING FINAL APPROVAL OF THE INSTALLATION, SUBMIT A WRITTEN STATEMENT USING THE FORM FOR RECORD OF COMPLETION SHOWN IN NFPA 72.

TESTING AGENCY: ENGAGE A QUALIFIED TESTING AND INSPECTING AGENCY TO PERFORM THE FOLLOWING

- PERFORM EACH ELECTRICAL TEST AND VISUAL AND MECHANICAL INSPECTION LISTED IN NFPA 72. CERTIFY COMPLIANCE WITH TEST PARAMETERS. ALL TESTS SHALL BE CONDUCTED UNDER THE DIRECT SUPERVISION OF A NICET TECHNICIAN CERTIFIED UNDER THE FIRE ALARM SYSTEMS PROGRAM AT LEVEL
- INCLUDE THE EXISTING SYSTEM IN TESTS AND INSPECTIONS. VISUAL INSPECTION: CONDUCT A VISUAL INSPECTION BEFORE ANY TESTING. USE AS-BUILT DRAWINGS AND SYSTEM DOCUMENTATION FOR THE INSPECTION. IDENTIFY IMPROPERLY LOCATED, DAMAGED, OR
- NONFUNCTIONAL EQUIPMENT, AND CORRECT BEFORE BEGINNING TESTS. TESTING: FOLLOW PROCEDURE AND RECORD RESULTS COMPLYING WITH REQUIREMENTS IN NFPA 72. a. DETECTORS THAT ARE OUTSIDE THEIR MARKED SENSITIVITY RANGE SHALL BE REPLACED.

TEST AND INSPECTION RECORDS: PREPARE ACCORDING TO NFPA 72, INCLUDING DEMONSTRATION OF SEQUENCES OF OPERATION BY USING THE MATRIX-STYLE FORM IN APPENDIX A IN NEC. 3.06 ADJUSTING

OCCUPANCY ADJUSTMENTS: WHEN REQUESTED WITHIN 12 MONTHS OF DATE OF SUBSTANTIAL COMPLETION. PROVIDE ON-SITE ASSISTANCE IN ADJUSTING SYSTEM TO SUIT ACTUAL OCCUPIED CONDITIONS. PROVIDE UP TO

FOLLOW-UP TESTS AND INSPECTIONS: AFTER DATE OF SUBSTANTIAL COMPLETION, TEST THE FIRE ALARM

SYSTEM COMPLYING WITH TESTING AND VISUAL INSPECTION REQUIREMENTS IN NFPA 72. PERFORM TESTS AND

INSPECTIONS LISTED FOR THREE MONTHLY, AND ONE QUARTERLY, PERIODS. WORK IN TWO PARAGRAPHS BELOW IS NORMALLY THE RESPONSIBILITY OF OWNER. RETAIN ONE OR BOTH PARAGRAPHS IF OWNER NEEDS ADDITIONAL TIME FOR INSPECTIONS REQUIRED BY NFPA 72.

TWO VISITS TO PROJECT OUTSIDE NORMAL OCCUPANCY HOURS FOR THIS PURPOSE.

- SEMIANNUAL TEST AND INSPECTION: SIX MONTHS AFTER DATE OF SUBSTANTIAL COMPLETION, TEST THE FIRE ALARM SYSTEM COMPLYING WITH THE TESTING AND VISUAL INSPECTION REQUIREMENTS IN NFPA 72. PERFORM TESTS AND INSPECTIONS LISTED FOR MONTHLY, QUARTERLY, AND SEMIANNUAL PERIODS. USE FORMS DEVELOPED FOR INITIAL TESTS AND INSPECTIONS.
- ANNUAL TEST AND INSPECTION: ONE YEAR AFTER DATE OF SUBSTANTIAL COMPLETION, TEST THE FIRE ALARM SYSTEM COMPLYING WITH THE TESTING AND VISUAL INSPECTION REQUIREMENTS IN NFPA 72. PERFORM TESTS AND INSPECTIONS LISTED FOR MONTHLY, QUARTERLY, SEMIANNUAL, AND ANNUAL PERIODS. USE FORMS

DEVELOPED FOR INITIAL TESTS AND INSPECTIONS. 3.07 DEMONSTRATION

ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN THE FIRE ALARM SYSTEM, APPLIANCES, AND DEVICES. REFER TO DIVISION 01 SECTION "DEMONSTRATION AND TRAINING."

3.08 DOCUMENTATION

PROVIDE AN NFPA CERTIFICATE OF COMPLIANCE TO THE SCHOOL DISTRICT, LOCAL FIRE MARSHAL, AND

END OF SECTION 283100

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REVISION SCHEDULE ADDENDUM #2

2022-080 08-23-2023 DRAWN

SHEET NAME 110 James St., Suite 106 Edmonds, WA 98020 ELECTRICAL SPECIFICATIONS Phone: 425.458.9700 Email: cadd@desianwestena.cor

design west engineering MECHANICAL • ELECTRICAL • ENERGY CONSULTANT



REVIEWED

DOCUMENT 004100 - BID FORM (ADDENDUM 2)

BIDS WILL ONLY BE RECEIVED AT:

Owner:	Sequim School District 503 North Sequim Ave, Sequim, WA 98382
Bids Must Be Received By:	September 19 th at 2:00 PM (ADDENDUM 2)
Owner's Representative:	Wenaha Group, Chris Marfori, Project Manager

BID IS FOR THE PROJECT REFERENCED:

Project No.	2023-02-1001
Project Location:	503 North Sequim Avenue, Sequim, Washington 98382
Architect:	design2 LAST, Inc.

The undersigned Bidder acknowledges receipt of, and declares that it has examined and is fully familiar with, the Bidding Documents, the Project Manual, the Drawings, the Specifications, the Contract Documents, and the Addenda specified below.

The Bidder further declares that it has inspected the site and familiarized itself with local conditions that may affect the cost of the Work, the time for performance of the Work, and/or the difficulty thereof; that it has satisfied itself as to nature, location, character, quality, and quantity of the Work required by the Contract, including materials and equipment, and including the fact that the description of quantities of work and materials as included in the Bid is brief and is intended only to indicate the general nature of the work and to correlate said quantities with detailed requirements in the Contract Documents; that this Bid is made according to provisions and under terms of the Contract Documents, which are hereby made a part of this Bid; and that Bidder has carefully checked all of the words and figures that compose this Bid.

IN SUBMITTING THE BID, THE UNDERSIGNED AGREES:

- 1. To furnish all material, labor, tools, equipment, management, supervision, and utility and transportation services necessary to perform and complete, in a workmanlike manner, all of the Work required for construction of the Project in accordance with the Contract Documents and contained or referenced in the Bidding Documents. Bidder acknowledges that the Contract Documents consist of the Public Works Contract (Document 007200.01) and General Conditions (Document 007200.02); Supplemental Conditions; Drawings; Specifications; and Addenda.
- 2. The Base Bid reflected in Attachment 01 to this Bid Form, and the Alternatives reflected in Attachment 02 to this Bid Form, represent full compensation for satisfactory performance of all obligations under the Contract Documents.
- 3. Bidder has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by Owner, as well as from the Drawings and Specifications made a part of the Contract Documents.

- 4. The Owner may continue to occupy parts of the site and may employ, under separate contracts, other contractors at or near the site concurrently with the Work of the Contract. As a result, the Bidder will have limited use of the premises for work, storage, access, parking, and equipment, and Bidder will be required to coordinate the use of the premises under the direction of the Owner. Further, adjoining areas may be conducting normal operations during the Work, and Bidder should anticipate pedestrian and traffic congestion, limited parking, and the requirement that the Work be coordinated with ongoing operations. Bidder acknowledges that its Bid is based upon a schedule and assumptions that incorporate these conditions, and upon a schedule that complies with schedule requirements set forth in the Contract Documents.
- 5. To hold its Bid open for sixty (60) consecutive calendar days from the date designated for opening of bids.
- 6. To accept the provisions of the Instructions to Bidders, including the disposition of Bid Security.
- 7. Within ten (10) days of award, to execute and deliver the Contract, to furnish the Performance Bond and Payment Bond in accordance with the requirements of the Contract Documents, to deliver the required certificates of insurance, and to perform the other obligations specified in the Contract Documents.
- 8. To commence the Work of the Contract upon receipt of a written Notice to Proceed and complete all such Work by the dates for Substantial Completion and Final Completion, respectively, specified in the Contract Documents.
- 9. The requirements of Chapter 39.12 RCW ("Prevailing Wages") are included as a part of this Bid, and the undersigned agrees to comply with all of the provisions thereof.
- 10. The undersigned Bidder has enclosed the required Bid Security in the amount of five percent (5%) of the Base Bid in the form required by and otherwise in accordance with the Instructions to Bidders. The Bidder agrees to enter into the Contract with the Owner in the form provided, in a timely manner, and on the terms stated in its Bid and to furnish in a timely manner the Payment Bond and Performance Bond, certificates of insurance, Contractor's Construction Schedule, and all other documents required by the Contract Documents. Bidder agrees that, should it fail or refuse to enter into the Contract or fail to furnish such documents, the amount of the Bid Security will be forfeited to the Owner as liquidated damages, not as a penalty. By submitting its Bid and Bid Security, the Bidder agrees that any forfeiture is a reasonable prediction at the time of Bid submittal of future damages to the Owner.
- 11. It satisfies the Bidder responsibility criteria listed in RCW 39.04.350(1).
- 12. Failure to timely complete and submit this Bid Form, Attachments 1-7, or the inclusion of false information in any aspect of its Bid, will render this Bid nonresponsive.
- 13. The Owner reserves the right to reject any or all bids and to waive informalities and irregularities.

BIDDER SUBMISSION INFORMATION

Bidder Information		
Legal Name of Bidder:		
Type of Entity (e.g., corporation, partnership, joint		
venture, or sole proprietor):		
Business Address:		
Business Phone No:		
Website (if applicable):		
Email:		
Washington State Contractor's Registration No.:		
NOTE: Failure to have required license at time of		
bid opening will result in rejection of the Bid.		
Contractor's License Expiration Date:		
Federal Tax Identification Number (TIN):		
Unified Business Identifier Number (UBI):		
Bidder's Authorized Repr	esentative Information	
Name:		
Title:		
Phone No:		
Email:		
Bid Bonding Company Information		
Bonding Company Name:		
Bonding Company Address:		
D !! C D! V		
Bonding Company Phone No:		
Bonding Agent Name:		
Bonding Agent Email:		

(Continued on next page)

ADDENDA ACKNOWLEDGEMENT

Bidder acknowledges receipt, review, and full consideration of those Addenda indicated below. (If a given addendum number was not utilized, that row should be left blank.)

Number:	Addendum Dated:	Bidder Authorized Representative Initials
Addendum #1	August 28, 2023	
Addendum #2	September 8, 2023	
Addendum #3		
Addendum #4		
Addendum #5		
Addendum #6		

ATTACHMENTS REQUIRED

Bidder has fully completed and included the following attachments to this Bid Form, which are required for the Bid to be considered responsive.

Number:	Description:	Bidder Authorized Representative Initials
Attachment 1	Bid Price Form	Tropi escribina i
Attachment 2	Bid Alternates Form	
Attachment 3	Insurance Binder	
Attachment 4	Bid Security	
Attachment 5	Non-Collusion Affidavit	
Attachment 6	Statement of Non-Segregated Facilities	
Attachment 7	Certification of Compliance with Wage Payment Statutes	

Name of Authorized Representative	Signature of Authorized Representative
Dated:	-

END OF BID FORM

(Complete and include Attachments 1-7)