

OFFICE OF COUNTY MAYOR GLENN JACOBS

Procurement Division, 1000 N. Central Street, Suite 100, Knoxville, TN 37917

Knox County Procurement Division Addendum I to Invitation for Bid 3538 Innovative School Model Renovations – Phase 2

Addendum Date: March 28, 2024

Buyer: Ben Sharbel

Opening Date: April 3, 2024 at 4:00 PM

Total Page(s): Seven (7)

Notes and Clarifications:

1. Please see Addendum I from DIA.

End of Addendum I.

Ben Sharbel, CPPO, CPPB Supervisor of Property Development & Asset Management Knox County Procurement Division

ADDENDUM #01

File No.: J04



LEWIS GROUP ARCHITECTS

Project Name: Project No:	Knox County Schools ISM Phase 02 DIA_22100
Date:	March 28, 2024
To:	All Bidding Contractors of Record
Owner:	Knox County Schools Attention: Knox County Procurement Division 1000 N. Central Street, Suite 100 Knoxville, TN 37917
Architect:	Design Innovation (DIA) 402 S. Gay Street, Suite 201 Knoxville, TN 37902

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated February 22, 2024, as noted below. The items listed below shall supersede the previous information in the previously issued Bidding Documents and shall be incorporated into the entire Work described therein. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disgualification.

This Addendum consists of two (2) pages and the attached documents as listed below.

Attachments:

- 1. Specification Sections: None
- 2. Drawings:
 - a. Whittle Springs Middle School: E101, E102
 - b. Gibbs Middle School: A101, E101

Changes to prior Addenda:

3. None.

Changes to Bidding Requirements:

4. None

Changes to Agreement:

5. None

Changes to Conditions of the Contract:

6. None

Changes to Specifications:

7. None

Changes to Drawings:

- 8. Whittle Springs Middle School, sheet E101, added emergency lighting and fire alarm strobes.
- 9. Whittle Springs Middle School, sheet E102, added notes on Fire Alarm System
- 10. Gibbs Middle School, sheet A101, added canopy lights

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11. Gibbs Middle School, sheet E101, added canopy lights, updated panel board.

Questions & Answers / Clarifications:

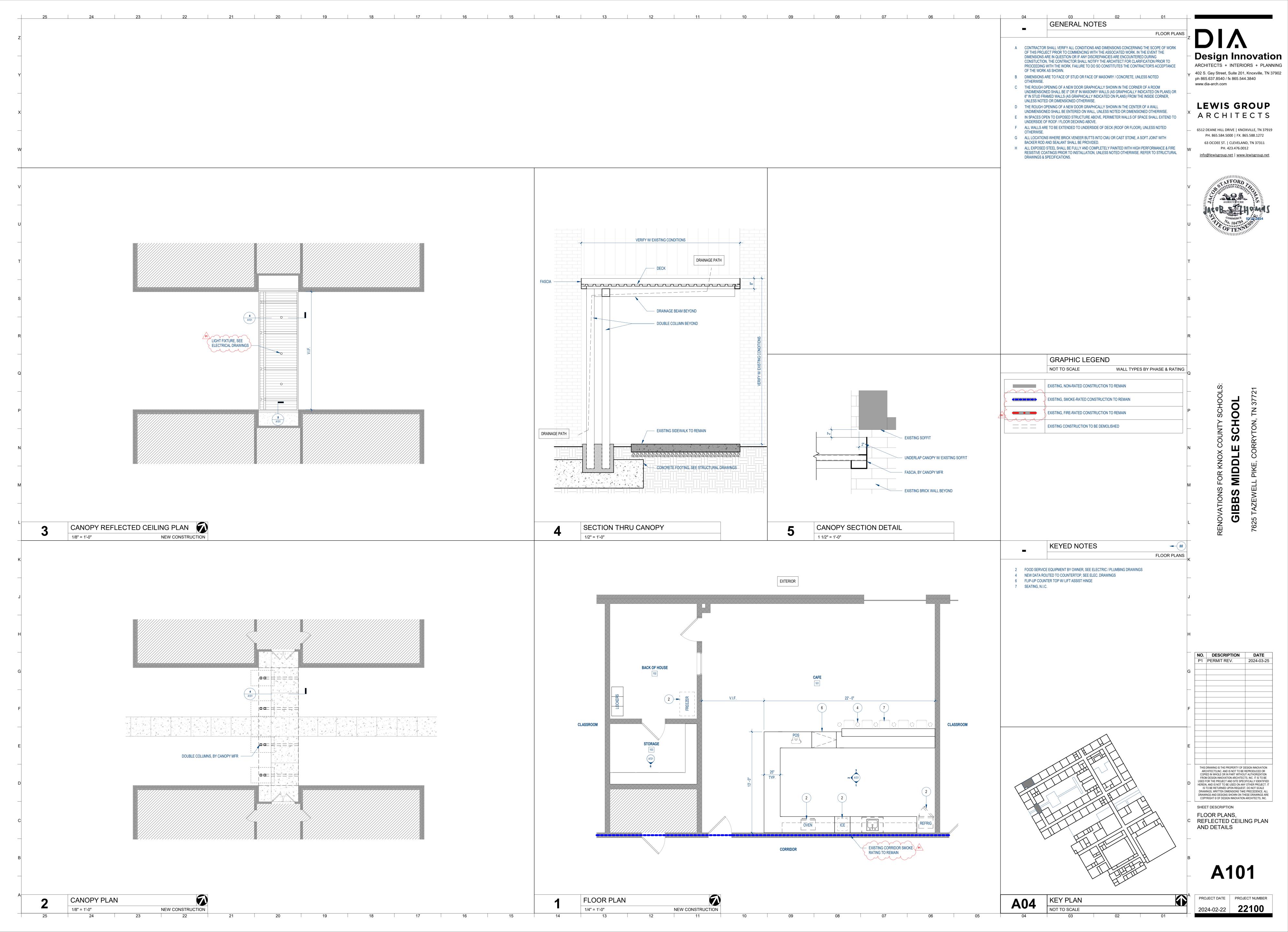
(Note these are the questions received from Bidders. These answers do amend the documents and are binding.) **GENERAL**

1. None Received

End of Addendum

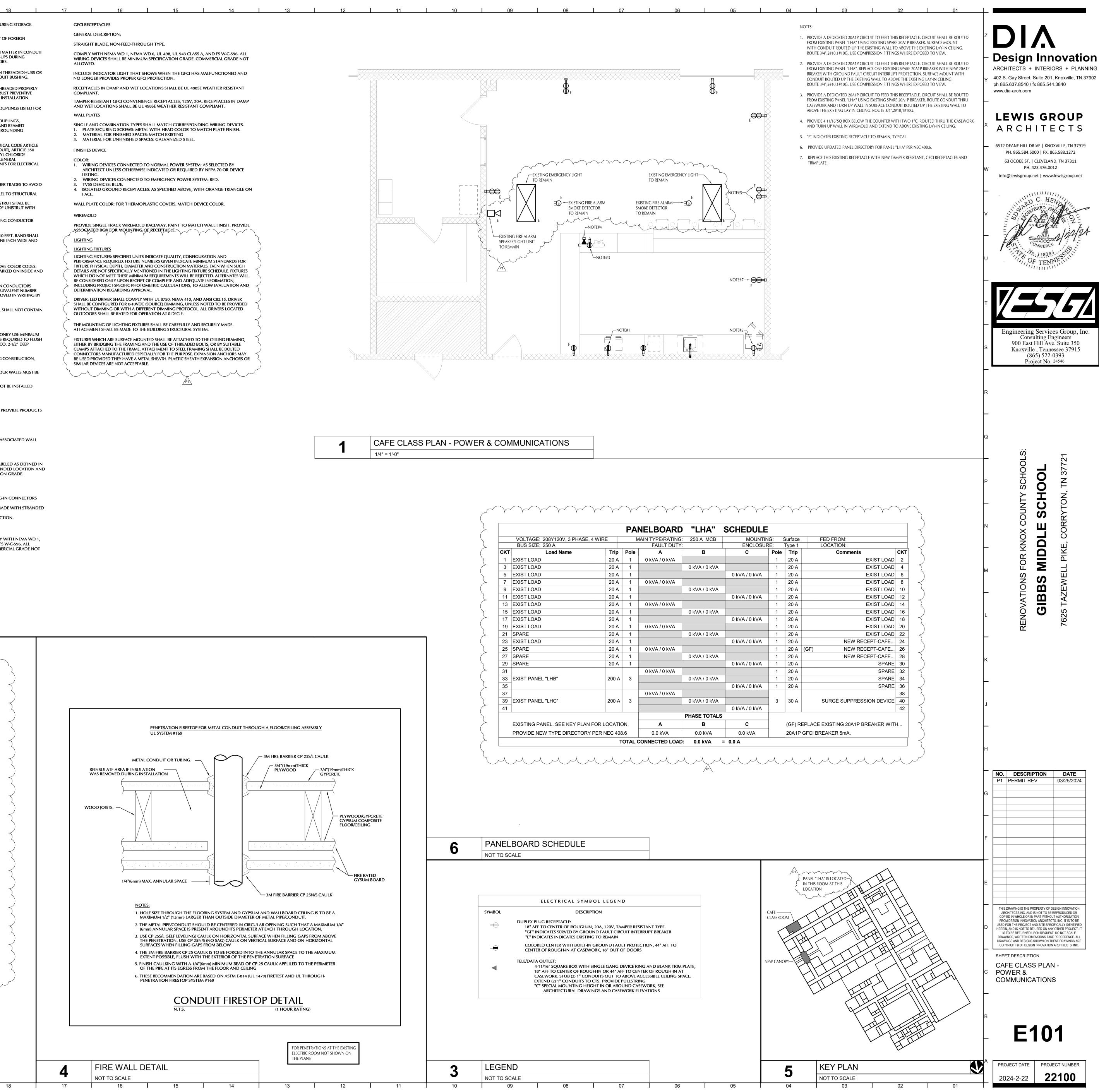
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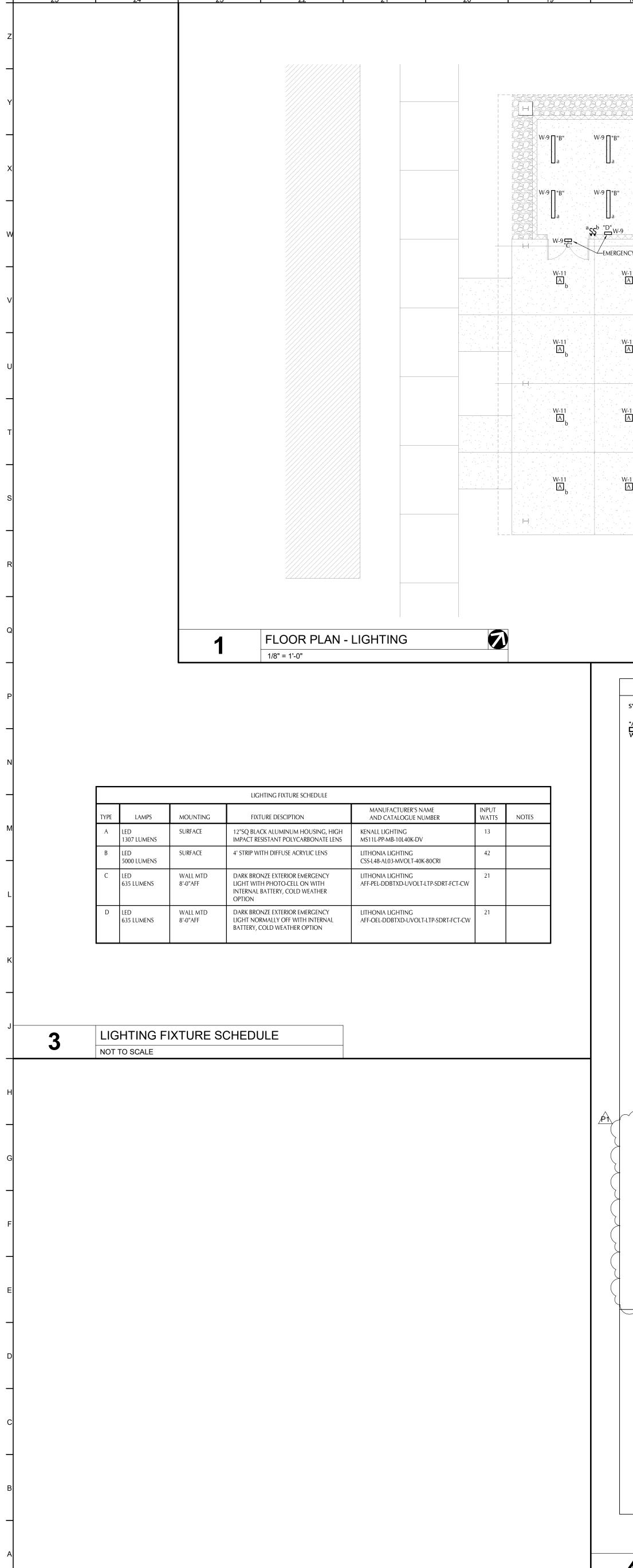


+	25	24 23 22 2 ELECTRICAL SPECIFICATIONS	PROTECT THREADS OF GALVANIZED RIGID STEEL CONDUIT AND IMC DURING
z		THE CONTRACTOR SHALL BE GOVERNED BY THE PRESENT SPECIFICATIONS TOGETHER WITH THE CURRENT RECOMMENDATIONS AND REGULATIONS OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND UL STANDARDS. OBTAIN ALL PERMITS AND INSPECTIONS REQUIRED FOR THE WORK AND PAY ALL FEES AND COSTS THEREOF. THE OWNER RESERVES	STACK CONDUIT ON BLOCKING OFF GROUND TO PREVENT THE ENTRY OF F MATERIAL.
_		THE RIGHT TO RELOCATE ANY EQUIPMENT UP TO 10 FEET IN ANY DIRECTION PRIOR TO ROUGH-IN.	TAKE EVERY PRECAUTION TO PREVENT ENTRY OF WATER AND FOREIGN MAT DURING CONSTRUCTION. INSTALL FACTORY CONDUIT CAPS ON STUB-UPS E CONSTRUCTION. SWAB TRAPPED RUNS PRIOR TO PULLING CONDUCTORS.
Y		WITH OWNER AND GENERAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL BÉ RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED BY THEIR WORK. COORDINATE WITH GENERAL CONTRACTOR.	GALVANIZED RIGID STEEL CONDUIT OR "IMC" SHALL BE TERMINATED IN THR WITH DOUBLE LOCKNUTS (BONDNUT TYPE) DRAWN TIGHT AND CONDUIT I
		SITE VISIT: BEFORE SUBMITIING BID, CONTRACTOR SHALL VISIT THE JOB SITE FOR THE PURPOSE OF EXAMINING THE SITE AND CONDITIONS UNDER WHICH THE WORK MUST BE PERFORMED. NO EXTRA CHARGES WILL BE ALLOWED FOR SITUATIONS ARISING FROM FAILURE OF CONTRACTOR TO THOROUGHLY FAMILIARIZE HIMSELF WITH SITE AND EXISTING	FIELD CUT CONDUIT SHALL BE CUT SQUARE, REAMED SMOOTH AND THREAT AND FULL. PAINT FIELD CUT MALE THREADS WITH CONDUCTIVE AND RUST I COMPOUND. CUTTING OIL AND DEBRIS SHALL BE REMOVED PRIOR TO INST/
		BUILDING CONDITIONS, INCLUDING CHARGES AND REQUIREMENTS TO UTILITIES AS SHOWN FOR THE PROJECT. CONTRACTOR SHALL VERIFY THAT CONNECTIONS TO EXISTING EQUIPMENT ARE AS INDICATED ON DRAWINGS AND SPECIFICATIONS. ANY DEVIATIONS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY. ANY DEVIATIONS SHALL BE REPORTED	FLEXIBLE CONDUIT SHALL BE INSTALLED NEATLY, TERMINATED WITH COUPL THE APPLICATION, AND SUPPORTED PER NEC. "EMT" CONDUIT SHALL BE TERMINATED WITH STEEL SET-SCREW TYPE COUPLI
X		PRIOR TO BIDDING. <u>RECORD DRAWING</u>	CONNECTORS AND FITTINGS. FIELD-CUT CONDUIT SHALL BE SQUARE AND R SMOOTH. ALL CONDUIT 1-1/4" AND LARGER SHALL HAVE INSULATED GROU BUSHINGS INSTALLED.
		CONTRACTOR SHALL MAINTAIN A SET OF RECORD DRAWINGS SHOWING ANY CHANGES AND MODIFICATIONS THAT OCCURRED DURING THE CONSTRUCTION PERIOD. AFTER COMPLETION OF CONSTRUCTION THESE RECORD DRAWINGS SHALL BE TURNED OVER TO THE OWNER.	CONDUIT SHALL BE INSTALLED AND SUPPORTED PER NATIONAL ELECTRICAL 342 (INTERMEDIATE METAL CONDUIT), ARTICLE 344 (RIGID METAL CONDUIT), (LIQUIDTIGHT FLEXIBLE METAL CONDUIT), ARTICLE 352 (RIGID POLYVINYL CF CONDUIT), ARTICLE 358 (ELECTRICAL METALLIC TUBING), ARTICLE 300 (GENEI
w		<u>WARRANTY</u> THE CONTRACTOR SHALL WARRANT AND GUARANTEE ALL WORK EXECUTED UNDER THIS	REQUIREMENTS FOR WIRING METHODS) AND ARTICLE 110 (REQUIREMENTS F INSTALLATIONS). WHERE EXPOSED:
-		DIVISION TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION. SECTION 16030 BASIC MATERIALS	 ORGANIZE THE RUNS INTO GROUPS AND COORDINATE WITH OTHER TH INTERFERENCE. ARRANGEMENT SHALL BE NEAT AND ORDERLY WITH RUNS PARALLEL TO ELEMENTS. NO DIAGONAL RUNS WILL BE ALLOWED.
v		<u>CONDUCTORS</u> THE MINIMUM SIZE CONDUCTOR FOR ALL POWER AND LIGHTING SHALL BE NO. 12 AWG, SOLID FOR SIZES NO. 10 AWG AND SMALLER, STRANDED FOR NO. 8 AWG AND LARGER.	3. SUPPORTS SHALL BE "UNISTRUT" WITH SUITABLE CLAMPS THE UNISTRU SUPPORTED FROM THE BUILDING STRUCTURES. PAINT CUT ENDS OF UN RUST PROHIBITOR.
		UNLESS SPECIFICALLY INDICATED ON DRAWINGS TO BE ALUMINUM, CONDUCTORS SHALL BE 98% CONDUCTIVITY DRAWN COPPER AND MEET OR EXCEED UL STANDARD 83, FEDERAL	ALL CONDUITS ARE TO CONTAIN A CODE SIZED EQUIPMENT GROUNDING C WHICH MAY NOT BE ILLUSTRATED. ALL CONDUIT SHALL BE IDENTIFIED BY A COLOR CODED BAND EVERY 10 FEE
		SPECIFICATION A-A-59544A AND NATIONAL ELECTRICAL CODE.	BE PAINTED OR COLOR CODE TAPE, (DO NOT DIP FITTINGS IN PAINT) ONE IN IDENTIFIED ACCORDING TO SYSTEMS AS FOLLOWS: 1. 120/208 VOLT NONE 2. TELE/DATA YELLOW
U		MEET OR EXCEED UL STANDARD 83, FEDERAL SPECIFICATION A-A-59544A AND NATIONAL ELECTRICAL CODE. MINIMUM SIZE FOR ANY ALUMINUM UNGROUNDED (HOT) OR GROUNDED (NEUTRAL) CONDUCTORS SHALL BE NO. 1 AWG.	ALL JUNCTION BOXES SHALL BE PAINTED TO CORRESPOND TO THE ABOVE C CIRCUIT NUMBERS CONTAINED WITH-IN A JUNCTION BOX SHALL BE MARKEI OUTSIDE OF JUNCTION BOX COVER WITH A PERMANENT MARKING.
		ALL CONDUCTORS NO. 6 AWG AND SMALLER SHALL BE 600V INSULATED WITH TYPE "THWN/THHN" DUAL RATED INSULATION. ALL CONDUCTORS LARGER THAN NO. 6 AWG SHALL BE EITHER TYPE "THWN/THHN" DUAL RATED OR "THW" INSULATION.	JUNCTION AND/OR PULL BOXES, AND WIREWAYS, SHALL NOT CONTAIN CO FROM MORE THAN SIX LINE-TO-NEUTRAL BRANCH CIRCUITS (OR AN EQUIVA
т		CURRENT CARRYING CAPACITY OF ALL CONDUCTORS IS TO BE BASED ON 60° C FOR 100 AMP AND LESS ALL OTHERS SHALL BE BASED ON 75° C, REGARDLESS OF THE CONDUCTOR INSULATION TYPE.	OF LINE-TO-LINE CIRCUITS) UNLESS INDICATED ON THE PLANS OR APPROVED THE ENGINEER. JUNCTION AND/OR PULL BOXES, WIREWAYS, AND AUXILIARY GUTTERS, SHA
_		ALL CONDUITS SHALL CONTAIN A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR WHICH MAY NOT BE ILLUSTRATED ON THE PLANS. REFER TO OTHER SECTIONS FOR COLOR CODING OR MARKING OF CONDUCTORS IN	CONDUCTORS ORIGINATING FROM MORE THAN ONE PANELBOARD. <u>WIRING BOXES</u>
s		MULTI-VOLTAGE SYSTEM BUILDING. WHERE MORE THAN ONE VOLTAGE SYSTEM (I.E., 480/277V, 208/120V) IS PRESENT CONDUCTORS FOR EACH SYSTEM SHALL BE COLOR CODED. ORANGE, YELLOW, BROWN AND GREY FOR 480/277V SYSTEMS AND BLACK, RED, BLUE AND WHITE FOR 208/120V SYSTEMS. CODING SHALL BE CONSISTENT THROUGHOUT.	FLUSH SWITCH AND RECEPTACLE BOXES: IN STUD AND PLASTERED MASONR' BOX SIZES OF 4"SQUARE X 1-1/2" DEEP WITH DEVICE EXTENSION RING AS REC WITH WALL. IN EXPOSED MASONRY AND CONCRETE WALLS USE RACO CO. 2 "MASONRY" TYPE BOXES.
		NO LUBRICANT OTHER THAN POWDERED SOAPSTONE OR APPROVED PULLING COMPOUND MAY BE USED TO PULL CONDUCTORS.	PROPERLY SECURE AND ATTACH ALL BOXES DIRECTLY TO THE BUILDING CON SUPPORT BY CONDUIT IS NOT ACCEPTABLE.
		CONDUCTORS SHALL NOT BE NICKED DURING INSULATION REMOVAL OR BENT AT SHARP ANGLES DURING DEVICE INSTALLATION OR PANELBOARD MAKE-UP. CONDUCTORS NO. 10 AWG AND SMALLER FOR LIGHTING AND POWER BRANCH CIRCUITS	ALL BOXES INSTALLED ON OPPOSITE SIDES OF ONE-HOUR AND TWO-HOUR SEPARATED BY A HORIZONTAL DISTANCE OF 24 INCHES. BOXES INSTALLED ON OPPOSITE SIDES OF A NON-RATED WALL SHALL NOT B
R		SHALL BE SPLICED WITH SPRING TYPE WIRE CONNECTORS. THE CONNECTOR SHALL BE A UL LISTED PRESSURE TYPE CONNECTOR RATED AT 600V AND 105° C. IN-LINE SPLICING OF NO. 8 AWG AND LARGER CONDUCTORS SHALL BE WITH COMPRESSION TYPE SLEEVES. WHERE CONDUCTORS ARE TAPPED OFF FEEDER CONDUCTORS NO. 6 AWG AND LARGER THE CONNECTION SHALL BE MADE AT POWER DISTRIBUTION BLOCKS SECURELY MOUNTED IN AN	BACK TO BACK. <u>WIRING DEVICES</u>
		CONNECTION SHALL BE MADE AT POWER DISTRIBUTION BLOCKS SECURELY MOUNTED IN AN ENCLOSURE. THE POWER DISTRIBUTION BLOCK SHALL BE RATED AT 600V, 75° C AND UL RECOGNIZED. THE POWER DISTRIBUTION BLOCK SHALL BE NSI POLARIS, ILSCO, BURNDY OR APPROVED SUBSTITUTE.	MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PRO' BY ONE OF THE FOLLOWING: EATON (ARROW HART) HUBBELL INCORPORATED; WIRING DEVICE-KELLEMS
Q		WHERE GROUNDING CONDUCTORS ARE TERMINATED IN JUNCTION OR OUTLET BOXES AN APPROVED GROUNDING SCREW OR CLIP SHALL BE USED. COVER SCREW IS NOT AN ACCEPTABLE MEANS OF TERMINATION. SURFACES SHALL BE FREE OF PAINT, RUST, AND GREASE OR OTHER FOREIGN MATERIAL.	PASS & SEYMOUR/LEGRAND (PASS & SEYMOUR) SOURCE LIMITATIONS: OBTAIN EACH TYPE OF WIRING DEVICE AND ASSO
		GREASE OR OTHER FOREIGN MATERIAL.	PLATE FROM SINGLE SOURCE FROM SINGLE MANUFACTURER. GENERAL WIRING-DEVICE REQUIREMENTS
		<u>CONDUIT</u> USE GALVANIZED RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT UNDERGROUND, IN CONCRETE, OR WHERE MECHANICAL STRENGTH OR EXPOSURE TO	WIRING DEVICES, COMPONENTS, AND ACCESSORIES: LISTED AND LABELE NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDEI APPLICATION. ALL WIRING DEVICES SHALL BE MINIMUM SPECIFICATION C COMMERCIAL GRADE NOT ALLOWED.
P		PHYSICAL DAMAGE IS REQUIRED. SCHEDULE 40 RIGID NONMETALLIC CONDUIT MAY ALSO BE USED UNDERGROUND OR IN CONCRETE. ELECTRICAL METALLIC TUBING SHALL BE USED ELSEWHERE, UNLESS NOTED OTHERWISE.	DEVICES SHALL COMPLY WITH NFPA 70. DEVICES THAT ARE MANUFACTURED FOR USE WITH MODULAR PLUG-IN (
		ALL CONDUCTORS SHALL BE INSTALLED IN CONDUIT EXCEPT WHERE METAL-CLAD CABLE MAY BE PERMITTED BY OTHER SECTIONS OF THIS SPECIFICATION. NON-METALLIC SHEATHED CABLES (TYPES NM, SE, UF, ETC) SHALL NOT BE USED. TYPE SO SERVICE CORD SHALL ONLY BE UTILIZED WHERE SPECIFICALLY NOTED.	 MAY BE SUBSTITUTED UNDER THE FOLLOWING CONDITIONS: 1. CONNECTORS SHALL COMPLY WITH UL 2459 AND SHALL BE MADE BUILDING WIRE. 2. DEVICES SHALL COMPLY WITH THE REQUIREMENTS IN THIS SECTION
N		CONDUIT SHALL MEET: GALVANIZED RIGID STEEL - UL 6 AND ANSI C80.1; "IMC" - UL 1242 AND ANSI C80.6; "EMT" - UL 797 AND ANSI C80.3; "LFMC" - UL 360; "RNC" - UL 651 POLYVINYL CHLORIDE.	STRAIGHT-BLADE RECEPTACLES
-		MINIMUM SIZE FOR CONDUIT SHALL BE 3/4". EACH LENGTH OF CONDUIT SHALL BE STAMPED WITH NAME AND TRADE MARK OF	TAMPER-RESISTANT CONVENIENCE RECEPTACLES, 125V, 20A: COMPLY WIT NEMA WD 6 CONFIGURATION 5-20R, UL 498 SUPPLEMENT SD, AND FS W- WIRING DEVICES SHALL BE MINIMUM SPECIFICATION GRADE. COMMERCI ALLOWED.
м		MANUFACTURER AND APPROVAL OF NATIONAL BOARD OF FIRE UNDERWRITERS.	
	2	SPECIFICATIONS NOT TO SCALE	
к	\bigcap		
J			-
_	2		-
н	2		EXISTING EXTERIOR DOWNLIGHT WITH BATTERY BACK-UP TO REMAIN -
			- ROUTE TO EXISTING DOWNLIGHT
			AND CONNECT TO EXISTING 277V CIRCUIT FOR EXTERIOR FIXTURES.
G			
-			SURFACE MOUNT ON CANOPY CEILING. PROVIDE KENALL #MR13FDPPXX-50L40K-DV.
F		ROUTE CONDUIT ON TOP OF CANOPY WITH GRS	-
		CONDUIT. PROVIDE JUNCTION BOX ON TOP AND FEED DOWN TO THE LIGHT FIXTURES. SEAL ALL PENETRATIONS THROUGH THE CANOPY. ALL CONNECTIONS TO BE WEATHER TIGHT.	-
			-
Е			-
-			EXISTING EXTERIOR DOWNLIGHT
D			WITH BATTERY BACK-UP TO REMAIN
С			
-			
в			
-			
A	5	CANOPY PLAN - LIGHTING	

1/8" = 1'-0"



			PA	NELBOARD	"LHA"	SCHEDULE				
	VOLTAGE: 208Y120V, 3 PHASE,	, 4 WIRE	Ν	IAIN TYPE/RATING:		MOUNTIN		Surface	FED FROM:	
	BUS SIZE: 250 A			FAULT DUTY:		ENCLOSU	-	Type 1	LOCATION:	
СКТ		Trip	Pole	Α	В	С	Pole	Trip	Comments	СК
	EXIST LOAD	20 A	1	0 kVA / 0 kVA			1	20 A	EXIST LOAD	
	EXIST LOAD	20 A	1		0 kVA / 0 kVA		1	20 A	EXIST LOAD	-
	EXIST LOAD	20 A	1			0 kVA / 0 kVA	1	20 A	EXIST LOAD	6
7	EXIST LOAD	20 A	1	0 kVA / 0 kVA			1	20 A	EXIST LOAD	8
9	EXIST LOAD	20 A	1		0 kVA / 0 kVA		1	20 A	EXIST LOAD	10
11	EXIST LOAD	20 A	1			0 kVA / 0 kVA	1	20 A	EXIST LOAD	12
13	EXIST LOAD	20 A	1	0 kVA / 0 kVA			1	20 A	EXIST LOAD	14
15	EXIST LOAD	20 A	1		0 kVA / 0 kVA		1	20 A	EXIST LOAD	16
17	EXIST LOAD	20 A	1			0 kVA / 0 kVA	1	20 A	EXIST LOAD	18
19	EXIST LOAD	20 A	1	0 kVA / 0 kVA			1	20 A	EXIST LOAD	20
21	SPARE	20 A	1		0 kVA / 0 kVA		1	20 A	EXIST LOAD	22
23	EXIST LOAD	20 A	1			0 kVA / 0 kVA	1	20 A	NEW RECEPT-CAFE	24
25	SPARE	20 A	1	0 kVA / 0 kVA			1	20 A	(GF) NEW RECEPT-CAFE	26
27	SPARE	20 A	1		0 kVA / 0 kVA		1	20 A	NEW RECEPT-CAFE	28
29	SPARE	20 A	1			0 kVA / 0 kVA	1	20 A	SPARE	30
31				0 kVA / 0 kVA			1	20 A	SPARE	32
33	EXIST PANEL "LHB"	200 A	3		0 kVA / 0 kVA		1	20 A	SPARE	34
35						0 kVA / 0 kVA	1	20 A	SPARE	36
37				0 kVA / 0 kVA						38
39	EXIST PANEL "LHC"	200 A	3		0 kVA / 0 kVA		3	30 A	SURGE SUPPRESSION DEVICE	40
41						0 kVA / 0 kVA	1			42
		1	1	I	PHASE TOTALS	1				
	EXISTING PANEL. SEE KEY PLAN	FOR LOCATIO	ON.	Α	В	С		(GF) R	EPLACE EXISTING 20A1P BREAKER WIT	Н
	PROVIDE NEW TYPE DIRECTORY	PER NEC 408	3.6	0.0 kVA	0.0 kVA	0.0 kVA	1	20A1P	GFCI BREAKER 5mA.	



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LIGHT $W-11$ W-11 M-11			
$\begin{bmatrix} A \\ b \end{bmatrix}_{b}$ $\begin{bmatrix} A \\ b \end{bmatrix}_{b}$ $\begin{bmatrix} W-11 \\ A \end{bmatrix}$	LIGHT	W-11 P1	
b b W-11 (A) W-11 (A)		A	A
		W-11 Ab	W-11 A b
$ \begin{array}{c} W-11\\ [A]\\ b \end{array} $		W-11 A b	W-11 A b

NOTES: 1. REFER TO ARCHITECTURAL REFELCTED CEILING PLAN FOR EXACT LOCATION OF LIGHTING FIXTURES. COORDINATE INSTALLATION WITH THE CEILING TYPE AND RATING. IN FIRE RATED CEILINGS PROVIDE FIRE RATED COVER FOR NON-RATED LIGHT FIXTURES WHERE REQUIRED. COVER MAY BE A MANUFACTURED, UL LISTED PRODUCT OR BE SITE FABRICATED AND SHALL BE	
OF LIGHTING FIXTURES. COORDINATE INSTALLATION WITH THE CEILING TYPE AND RATING. IN FIRE RATED CEILINGS PROVIDE FIRE RATED COVER FOR NON-RATED LIGHT FIXTURES WHERE REQUIRED. COVER MAY BE A	
COMPATIBLE WITH THE ASSOCIATED FIXTURE, INCLUDING "IC" RATING. COVERS SHALL MEET OR EXCEED THE FIRE RATING OF THE CEILING AND AHJ REQUIREMENTS.	
2. CONTRACTOR SHALL PROVIDE ALL REQUIRED BRANCH CIRCUIT RACEWAY AND CONDUCTORS FOR CONNECTION OF DEVICES SHOWN. WIRING MAY BE ROUTED OVERHEAD OR BELOW THE CONCRETE SLAB AT THE CONTRACTOR'S OPTION. ALL ABOVE SLAB RACEWAY SHALL BE CONCEALED FROM VIEW IN WALLS OR ABOVE THE CEILINGS EXCEPT WHERE SPECIFICALLY NOTED TO BE SURFACE MOUNTED. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR ALL 120V CIRCUITS. MINIMUM SIZE RACEWAY ROUTED BELOW CONCRETE SLAB SHALL BE 3/4" FOR POWER AND 1" FOR LOW VOLTAGE.	
3. ALL BRANCH CIRCUITS SHALL BE SIZED TO COMPLY WITH IESS C405.9. SPECIFICALLY, ALL 120V, 20AMP CIRCUITS WITH HOMERUNS GREATER THAN 70' SHALL HAVE CIRCUIT CONDUCTORS OF #10AWG AS MINIMUM. ANY 120V, 20AMP CIRCUIT WITH OUTLETS GREATER THAN 100' OF BRANCH CIRCUIT LENGTH SHALL HAVE MINIMUM CIRCUIT CONDUCTOR OF #10AWG TO ALL OUTLETS AND HOMERUNS. ANY 120V, 20AMP CIRCUIT WITH HOMERUN GREATER THAN 140' SHALL HAVE BRANCH CIRCUIT CONDUCTOR OF #8AWG MINIMUM. PROVIDE ADEQUATE BOX FOR SPLICING #12AWG TO TERMINATE TO DEVICE. LARGER CONDUCTORS MAY REQUIRE THE UTILIZATION	

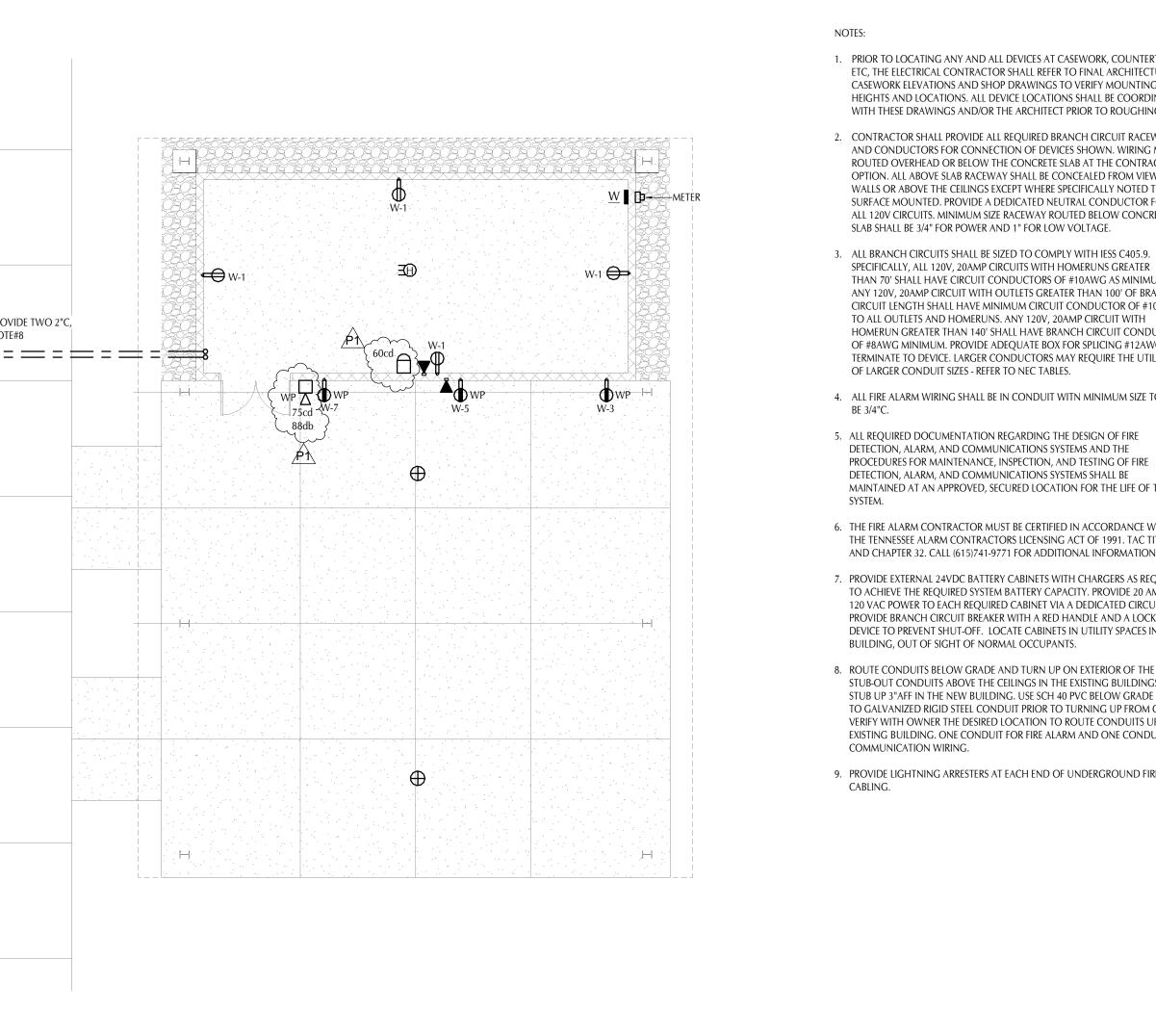
OF LARGER CONDUIT SIZES - REFER TO NEC TABLES.

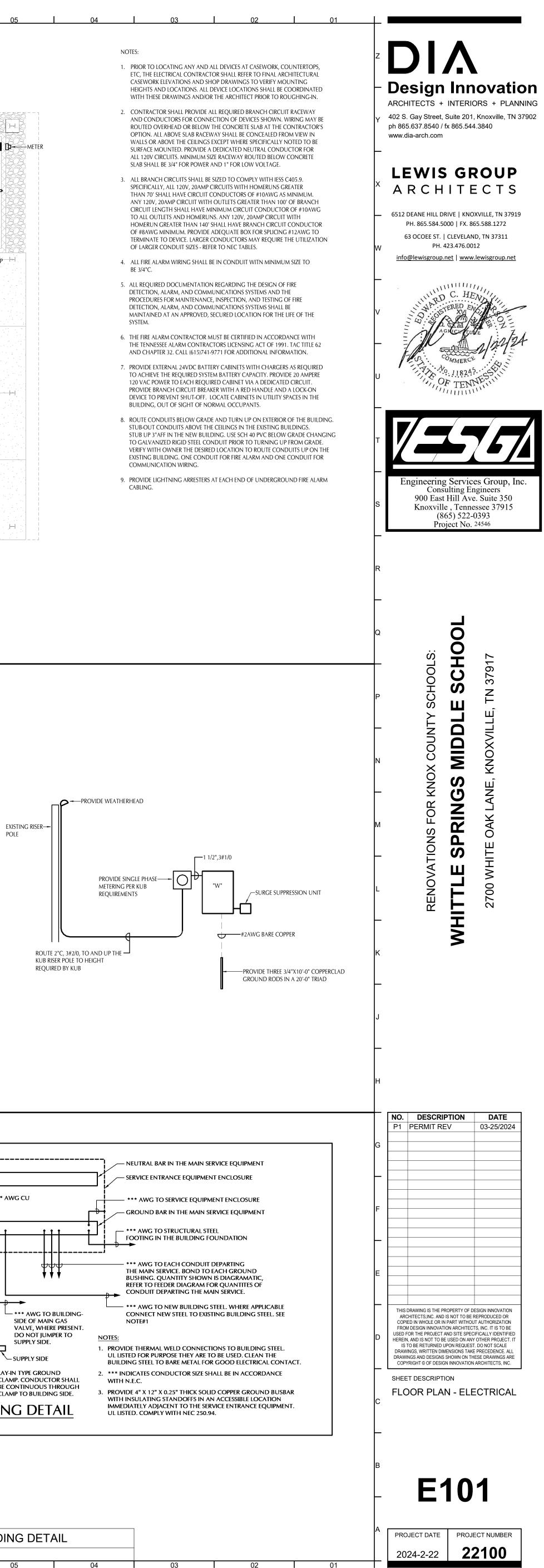
	PROVIDE TWO 2"C, NOTE#8	€ w-1
2	FLOOR PLAN - POV 1/8" = 1'-0"	VER & COMMUNICATIONS

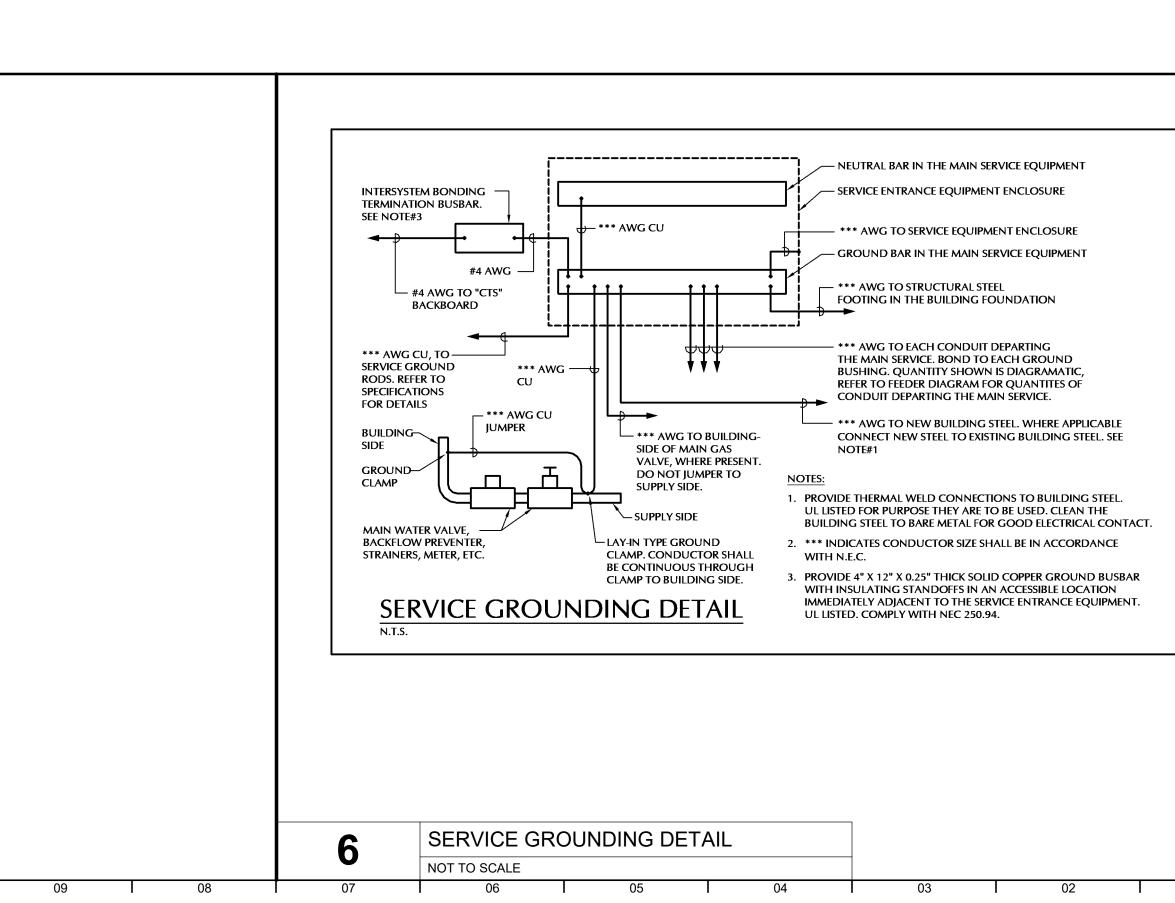
OL	DESCRIPTION	
₽	L.E.D. LIGHTING FIXTURE: "A" REFERS TO DESIGNATION IN THE LIGHTING FIXTURE SCHEDULE. PROVIDE ADDITIONAL CONDUCTORS AS REQUIRED FOR DIMMING CIRCUITS. 0-10V DIMMING WIRING SHALL BE 2#16AWG OR LARGER. ETHERNET OR CATEGORY CABLE IS NOT ACCEPTABLE FOR 0-10V DIMMING. UNLESS NOTED OTHERWISE ON PLANS, WHERE TROFFER TYPES ARE INDICATED IN GYP CEILINGS, PROVIDE MODULAR FLANGE KIT ACCESSORY FOR RECESSED INSTALLATION. "3" REFERS TO CIRCUIT NUMBER "b" REFERS TO SWITCH CONTROL	
S	LIGHT SWITCH: WALL MOUNTED 48" AFF TO TOP OF ROUGH-IN, 20A, SINGLE POLE UNLESS NOTED. PROVIDE WHITE TAPE LABEL WITH 1/4" HIGH TYPED BLACK LETTERING ON COVERPLATE INDICATING PANELBOARD AND CIRCUIT NUMBER. PROVIDE A NEUTRAL CONDUCTOR TO ALL SWITCH BOXES FOR USE BY WALL OCCUPANCY SENSORS. WIRE-NUT CONDUCTOR IF NOT USED.	
-	DUPLEX PLUG RECEPTACLE: 18" AFF TO CENTER OF ROUGH-IN, 20A, 120V, TAMPER RESISTANT TYPE. PROVIDE WHITE TAPE LABEL WITH 1/4" HIGH TYPED BLACK LETTERING ON COVERPLATE OF RECEPTACLE INDICATING PANELBOARD AND CIRCUIT NUMBER.	
-0	18" AFF TO CENTER OF ROUGHIN, 20A, 120V, TAMPER RESISTANT TYPE. COLORED CENTER WITH BUILT-IN GROUND FAULT PROTECTION. "WP" WEATHERPROOF IN-USE 'EXTRA-DUTY' (UL 514D) METAL COVER AND WEATHER-RESISTANT (UL 498) TYPE GFCI DEVICE.	
-	POWER PANELBOARD: NEW SURFACE MOUNTED, TOP 6'-0" AFF. SEE PANELBOARD SCHEDULE FOR SUPPORT INFORMATION.	
•	TELE/DATA OUTLET: 4-11/16" SQUARE BOX WITH SINGLE GANG DEVICE RING AND BLANK TRIM PLATE, 18" AFF TO CENTER OF ROUGH-IN OR 44" AFF TO CENTER OF ROUGH-IN AT CASEWORK. STUB (2) 1" CONDUITS OUT TO ABOVE ACCESSIBLE CEILING SPACE. PROVIDE PULLSTRING.	
\oplus	INTERCOM LOUDSPEAKER: NEW CEILING RECESSED SPEAKER. FURNISH AND INSTALL NEW SPEAKER AND CONNECT TO THE EXISTING SCHOOL INTERCOM SYSTEM. SPEAKER SHALL BE SUITABLE FOR OUTDOOR UNDER COVER USE.	
▼	INTERCOM CALL-IN DEVICE: "E" INDICATES EXISTING INTERCOM CALL-IN SWITCH TO REMAIN AS IS.	
Œ	HEAT DETECTOR: CEILING MOUNTED ON 4" SQUARE BOX. DETECTORS SHALL NOT BE LOCATED IN THE DIRECT AIRFLOW OR CLOSER THAN 3'-0" TO ANY AIR SUPPLY DIFFUSER OR RETURN AIR OPENING. NEW DEVICE SHALL BE FROM THE SAME MANUFACTURER AS THE EXISTING. FIRE ALARM SYSTEM:	
لا	FIRE ALARM ACTIVATION SIGNAL DEVICE, ADA COMPLIANCE LISTED, MOUNT 80" AFF, MEASURED TO THE BOTTOM OF THE APPLIANCE. ANY DEVIATION FROM 80" MOUNTING HEIGHT SHALL BE COORDINATED WITH THE AUTHORITY HAVING JURISDICTION PRIOR TO ROUGHIN. ALL DEVICES SHALL BE MOUNTED AT THE SAME HEIGHT UNLESS DIRECTED OTHERWISE. COORDINATE BOX HEIGHT WITH THE FIRE ALARM SUPPLIER PRIOR TO ROUGHING-IN. REFER TO FIRE ALARM SPECIFICATIONS FOR ALL OTHER INFORMATION IN REGARDS TO FIRE ALARM SYSTEM REQUIREMENTS. "cd" INDICATES THE CANDELA RATING.	
	AUDIBLE/VISUAL SIGNAL: SPEAKER/LIGHT FIRE ALARM SIGNAL ACTIVATION DEVICE, ADA COMPLIANCE LISTED, MOUNT 80" AFF, MEASURED TO THE BOTTOM OF THE APPLIANCE. ANY DEVIATION FROM 80" MOUNTING HEIGHT SHALL BE COORDINATED WITH THE AUTHORITY HAVING JURISDICTION PRIOR TO ROUGH-IN. ALL DEVICES SHALL BE MOUNTED AT THE SAME HEIGHT UNLESS DIRECTED OTHERWISE. COORDINATE BOX HEIGHT WITH THE FIRE ALARM SUPPLIER PRIOR TO ROUGHING-IN. REFER TO FIRE ALARM SPECIFICATIONS FOR ALL OTHER INFORMATION IN REGARDS TO FIRE ALARM SYSTEM REQUIREMENTS. "cd" INDICATES THE CANDELA RATING. "WP" INDICATES WEATHERPROOF SUITABLE FOR OUTDOOR MOUNTING	
NOTES:		
1. DEVICES MINIMU FIRE RAT DEVICES RATING SHALL N	LOCATED ON OPPOSITE SIDES OF FIRE RATED PARTITIONS MUST BE SEPARATED BY A M OF 24" HORIZONTAL DISTANCE. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF ED PARTITIONS. WHERE CONDITIONS PROHIBIT A 24" MINIMUM SEPARATION OF USE FIRESTOP PUTTY PADS, HILTI CP617 SERIES, ON DEVICE BOXES TO MAINTAIN FIRE OF PARTITION. INSTALL PADS PER MANUFACTURER'S SPECIFICATIONS. DEVICE BOXES OT BE MOUNTED BACK TO BACK. PRIOR TO INSTALLATION OF PADS, VERIFY METHOD ICHITECT AND FIRE INSPECTOR.	
CONTRA DRAWIN	D LOCATING ANY AND ALL DEVICES AT CASEWORK, COUNTERTOPS, ETC., THE CTOR SHALL REFER TO FINAL ARCHITECTURAL CASEWORK ELEVATIONS AND SHOP GS TO VERIFY MOUNTING HEIGHTS AND LOCATIONS. ALL DEVICE LOCATIONS SHALL BE NATED WITH THESE DRAWINGS AND/OR THE ARCHITECT PRIOR TO ROUGH-IN.	
OCCUPA AMERICA OPERABI	CCESSIBILITY: DEVICES INTENDED FOR NORMAL USE OR OPERATION BY BUILDING NTS SHALL BE LOCATED AT AN ACCESSIBLE MOUNTING HEIGHT AS DEFINED BY THE NS WITH DISABILITIES ACT (ADA). AT UNOBSTRUCTED APPROACH LOCATIONS, E PARTS SHALL NOT BE GREATER THAN 48" AFF AND NOT LESS THAN 15" AFF. NATE OBSTRUCTED APPROACHES WITH ADA.	
system. Progra	FIRE ALARM DEVICES SHALL BE OF THE SAME MANUFACTURER AS THE EXISTING CONNECT NEW DEVICES TO THE EXISTING SYSTEM. PROVIDE ALL NEW DEVICES AND MMING AT THE FIRE ALARM PANEL AS REQUIRED. ALL FIRE ALARM WIRING TO BE IN T. MINIMUM SIZE 1"C.	

				LOA	AD CENTER	X W S	SCHEDULE			
		240/120V, 1 PHASE, 3	WIRE	Ν	AIN TYPE/RATING		MOUNTIN		Surface	FED FROM:
	BUS SIZE:			Bel-	FAULT DUTY		ENCLOSUR C		IEMA 1	LOCATION:
(T 1 R	RECEPT	Load Name	Trip 20 A	Pole	A 0.7 kVA / 0 kVA	В	C	Pole	Trip 20 A	Comments SPARE
	RECEPT		20 A	1	0.7 KVA70 KVA	0.2 kVA / 0 kVA		1	20 A	SPARE
	RECEPT		20 A	1	0.2 kVA / 0 kVA			1	20 A	SPARE
	RECEPT		20 A	1		0.2 kVA / 0 kVA		1	20 A	SPARE
9 LI	IGHTING-ST	TORAGE	20 A	1	0.6 kVA / 0 kVA			1	20 A	SPARE
	IGHTING-E	XTERIOR	20 A	1		0.2 kVA / 0 kVA		1	20 A	SPARE
	SPARE		20 A	1	0 kVA / 0 kVA			1	20 A	SPARE
	SPARE		20 A	1		0 kVA / 0 kVA		1	20 A	SPARE
			20 A	1	0 kVA / 0 kVA			1	20 A	SPARE
	SPARE		20 A 20 A	1	0 kVA / 0 kVA	0 kVA / 0 kVA		1	20 A	SPARE
	SPARE		20 A	1		0 kVA / 0 kVA		2	30 A	SURGE SUPPRESSION UNIT
				•		PHASE TOTALS				
P	PANEL SHAL	L BE UL LISTED AS SE	ERVICE ENTR	ANCE	Α	В	С			
		. LINE SIDE BARRIERS			1.5 kVA	0.6 kVA	0.0 kVA			
							8.6 A			
5		EEDER DIAG	RAM & S	SCHI	EDULES					
5			RAM & S	SCHI	EDULES					
5			RAM & S	SCHI	EDULES					INTERSYSTEM BONDING TERMINATION BUSBAR. SEE NOTE#3 #4 AWG TO "C BACKBOARD **** AWG CU, TO
5			RAM & S	SCHI	EDULES					TERMINATION BUSBAR. SEE NOTE#3 #4 / #4 AWG TO "C BACKBOARD

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THE CONTRACTOR SHALL BE GOVERNED BY THE PRESENT SPECIFICATIONS TOGETHER WITH THE CURRENT RECOMMENDATIONS AND REGULATIONS OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND ULISTANDARDS OBTAIN ALL PERMITS AND INSPECTIONS REQUIRED FOR THE WORK AND PAY ALL FEES AND COSTS THEREOF. THE OWNER RESERVES THE RIGHT TO RELOCATE ANY FOUIPMENT UP TO 10 FEET IN ANY DIRECTION PRIOR TO ROUGH-IN.

COORDINATE ALL CONSTRUCTION DELIVERIES, DISPOSAL OF CONSTRUCTION TRASH, ETC. WITH OWNER AND GENERAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED BY THEIR WORK. COORDINATE WITH GENERAL CONTRACTOR.

FURNISH SUBMITTALS AND SHOP DRAWINGS FOR ALL PRINCIPAL DEVICES AND PIECES OF EQUIPMENT FOR REVIEW BY THE ENGINEER, OWNER AND ARCHITECT. 1. PANELBOARDS. 2. FIRE ALARM DEVICES

LIGHTING FIXTURES 4. WIRING DEVICES AND PLATES.

SITE VISIT: BEFORE SUBMITTING BID, CONTRACTOR SHALL VISIT THE JOB SITE FOR THE PURPOSE OF EXAMINING THE SITE AND CONDITIONS UNDER WHICH THE WORK MUST BE PERFORMED. NO EXTRA CHARGES WILL BE ALLOWED FOR SITUATIONS ARISING FROM FAILURE OF CONTRACTOR TO THOROUGHLY FAMILIARIZE HIMSELF WITH SITE AND EXISTING BUILDING CONDITIONS, INCLUDING CHARGES AND REQUIREMENTS TO UTILITIES AS SHOWN FOR THE PROJECT. CONTRACTOR SHALL VERIFY THAT CONNECTIONS TO EXISTING EQUIPMENT ARE AS INDICATED ON DRAWINGS AND SPECIFICATIONS. ANY DEVIATIONS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY. ANY DEVIATIONS SHALL BE REPORTED PRIOR TO BIDDING.

RECORD DRAWING CONTRACTOR SHALL MAINTAIN A SET OF RECORD DRAWINGS SHOWING ANY CHANGES AND MODIFICATIONS THAT OCCURRED DURING THE CONSTRUCTION PERIOD. AFTER COMPLETION OF CONSTRUCTION THESE RECORD DRAWINGS SHALL BE TURNED OVER TO THE OWNER

WARRANTY THE CONTRACTOR SHALL WARRANT AND GUARANTEE ALL WORK EXECUTED UNDER THIS

DIVISION TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION. SECTION 16030 BASIC MATERIALS

CONDUCTORS

THE MINIMUM SIZE CONDUCTOR FOR ALL POWER AND LIGHTING SHALL BE NO. 12 AWG, SOLID FOR SIZES NO. 10 AWG AND SMALLER, STRANDED FOR NO. 8 AWG AND LARGER.

UNLESS SPECIFICALLY INDICATED ON DRAWINGS TO BE ALUMINUM, CONDUCTORS SHALL BE 98% CONDUCTIVITY DRAWN COPPER AND MEET OR EXCEED UL STANDARD 83, FEDERAL SPECIFICATION A-A-59544A AND NATIONAL ELECTRICAL CODE.

WHERE PERMITTED, ALUMINUM CONDUCTORS SHALL BE DRAWN ALUMINUM ALLOY AND MEET OR EXCEED UL STANDARD 83, FEDERAL SPECIFICATION A-A-59544A AND NATIONAL ELECTRICAL CODE. MINIMUM SIZE FOR ANY ALUMINUM UNGROUNDED (HOT) OR GROUNDED (NEUTRAL) CONDUCTORS SHALL BE NO. 1 AWG.

ALL CONDUCTORS NO. 6 AWG AND SMALLER SHALL BE 600V INSULATED WITH TYPE "THWN/THHN" DUAL RATED INSULATION. ALL CONDUCTORS LARGER THAN NO. 6 AWG SHALL BE EITHER TYPE "THWN/THHN" DUAL RATED OR "THW" INSULATION.

CURRENT CARRYING CAPACITY OF ALL CONDUCTORS IS TO BE BASED ON 60° C FOR 100 AMP AND LESS ALL OTHERS SHALL BE BASED ON 75° C, REGARDLESS OF THE CONDUCTOR INSULATION TYPE

ALL CONDUITS SHALL CONTAIN A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR WHICH MAY NOT BE ILLUSTRATED ON THE PLANS.

NO LUBRICANT OTHER THAN POWDERED SOAPSTONE OR APPROVED PULLING COMPOUND MAY BE USED TO PULL CONDUCTORS.

CONDUCTORS SHALL NOT BE NICKED DURING INSULATION REMOVAL OR BENT AT SHARP ANGLES DURING DEVICE INSTALLATION OR PANELBOARD MAKE-UP. CONDUCTORS NO. 10 AWG AND SMALLER FOR LIGHTING AND POWER BRANCH CIRCUITS SHALL BE SPLICED WITH SPRING TYPE WIRE CONNECTORS. THE CONNECTOR SHALL BE A UL LISTED PRESSURE TYPE CONNECTOR RATED AT 600V AND 105° C. IN-LINE SPLICING OF NO. 8 AWG AND LARGER CONDUCTORS SHALL RE WITH COMPRESSION TYPE SLEEVES. WHERE

CONDUCTORS ARE TAPPED OFF FEEDER CONDUCTORS NO. 6 AWG AND LARGER THE CONNECTION SHALL BE MADE AT POWER DISTRIBUTION BLOCKS SECURELY MOUNTED IN AN ENCLOSURE, THE POWER DISTRIBUTION BLOCK SHALL BE RATED AT 600V, 75° C AND UL RECOGNIZED. THE POWER DISTRIBUTION BLOCK SHALL BE NSI POLARIS, ILSCO, BURNDY OR APPROVED SUBSTITUTE.

WHERE GROUNDING CONDUCTORS ARE TERMINATED IN JUNCTION OR OUTLET BOXES AN APPROVED GROUNDING SCREW OR CLIP SHALL BE USED. COVER SCREW IS NOT AN ACCEPTABLE MEANS OF TERMINATION. SURFACES SHALL BE FREE OF PAINT, RUST, AND GREASE OR OTHER FOREIGN MATERIAL.

CONDUCTORS SHALL BE INSTALLED IN ACCORDANCE WITH NEC ARTICLE 310. POWER SERVICE AND GROUNDING

ELECTRICAL POWER SERVICE SHALL BE ARRANGED WITH THE LOCAL ELECTRIC POWER DISTRIBUTOR. BID PRICE SHALL INCLUDE ALL CHARGES BY THE POWER COMPANY FOR

INSTALLATION OF SERVICES TO THE BUILDING. PROVIDE GROUNDING IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND AS

SHOWN ON THE DRAWINGS

THE POWER SERVICE SHALL BE 120/208 VOLTS, 1 PHASE, 3 WIRE. PROVIDE METERING AS REQUIRED BY THE POWER COMPANY

GROUNDING ELECTRODE CONDUCTORS SHALL BE COPPER AND OF THE SAME SIZE CONDUCTOR USED TO INTERCONNECT THE GROUND RODS, AND TO THE WATER PIPING SYSTEM AS REQUIRED BY NEC ARTICLE 250.

GROUND RODS SHALL BE 3/4" DIAMETER BY 10 FEET LONG AND OF COPPERCLAD CONSTRUCTION.

UNLESS OTHERWISE CALLED FOR, ALL GROUNDING AND GROUND ROD CONNECTIONS SHALL BE BY BURNDY HYGROUND PROCESS.

CONFIRM WITH THE POWER COMPANY THE POWER SERVICE ARRANGEMENTS. INCLUDE IN THE BID PRICE ALL COSTS RELATIVE TO THE POWER SERVICE WITH THE TYPE OF SERVICE PLANNED.

SERVICE ENTRANCE GROUNDING SHALL BE MADE BY GROUND RODS DRIVEN VERTICALLY INTO THE GROUND WHERE THE TOP OF THE ROD IS APPROXIMATELY 12" BELOW GRADE. THERE SHALL BE 3 DRIVEN GROUND RODS WITH THE RODS SPACED A MINIMUM OF 20 FEET APART IN A TRIANGULAR FORM AND INTERCONNECTED. FROM THE RODS THERE SHALL BE A GROUNDING ELECTRODE CONDUCTOR EXTENDED TO THE MAIN SERVICE SWITCH. CONNECT AS DIRECTED BY THE CODE. EXTEND THE GROUNDING ELECTRODE CONDUCTOR TO THE NEAREST AVAILABLE METAL COLD WATER PIPE OF SIZE NOT LESS THAN 1" AND THE BUILDING STEEL AND MAKE CONNECTION THERETO.

ALL GROUNDING ELECTRODE CONDUCTORS SHALL BE STRANDED BARE COPPER BURIED A MINIMUM OF 30" BELOW FINISHED GRADE CONDUIT

MINIMUM SIZE GROUNDING ELECTRODE CONDUCTOR SHALL BE A.W.G. NO. 2.

USE GALVANIZED RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT UNDERGROUND, IN CONCRETE, OR WHERE MECHANICAL STRENGTH OR EXPOSURE TO PHYSICAL DAMAGE IS REQUIRED. SCHEDULE 40 RIGID NONMETALLIC CONDUIT MAY ALSO BE USED UNDERGROUND OR IN CONCRETE. ELECTRICAL METALLIC TUBING SHALL BE USED ELSEWHERE, UNLESS NOTED OTHERWI

ALL CONDUCTORS SHALL BE INSTALLED IN CONDUIT EXCEPT WHERE METAL-CLAD CABLE MAY BE PERMITTED BY OTHER SECTIONS OF THIS SPECIFICATION. NON-METALLIC SHEATHED CABLES (TYPES NM, SE, UF, ETC) SHALL NOT BE USED. TYPE SO SERVICE CORD SHALL ONLY BE UTILIZED WHERE SPECIFICALLY NOTED.

CONDUIT SHALL MEET: GALVANIZED RIGID STEEL - UL 6 AND ANSI C80.1; "IMC" - UL 1242 AND ANSI C80.6; "EMT" - UL 797 AND ANSI C80.3; "LFMC" - UL 360; "RNC" - UL 651 POLYVINYL CHLORIDE. MINIMUM SIZE FOR CONDUIT SHALL BE 3/4".

POWER AND OTHER UNDERGROUND SERVICE ENTRANCE CONDUITS AND PANELBOARD FEEDER CONDUITS WHERE UNDERGROUND OR CONCRETE ENCASED MAY BE SCHEDULE 40 PVC. TRANSITION TO (SCHEDULE 80 PVC) BEFORE EMERGING ABOVE GRADE OR SLAB WHERI EXPOSED TO PHYSICAL DAMAGE. CHECK LOCAL CODES AND UTILITY REQUIREMENTS. PVC CONDUIT SHALL MEET FEDERAL SPECIFICATIONS WC-1094A, NEMA TC2 AND UL 651.

FACH LENGTH OF CONDUIT SHALL BE STAMPED WITH NAME AND TRADE MARK OF MANUFACTURER AND APPROVAL OF NATIONAL BOARD OF FIRE UNDERWRITERS. PROTECT THREADS OF GALVANIZED RIGID STEEL CONDUIT AND IMC DURING STORAGE. STACK CONDUIT ON BLOCKING OFF GROUND TO PREVENT THE ENTRY OF FOREIGN MATERIAL.

TAKE EVERY PRECAUTION TO PREVENT ENTRY OF WATER AND FOREIGN MATTER IN CONDUIT DURING CONSTRUCTION. INSTALL FACTORY CONDUIT CAPS ON STUB-UPS DURING CONSTRUCTION. SWAB TRAPPED RUNS PRIOR TO PULLING CONDUCTORS.

WITH DOUBLE LOCKNUTS (BONDNUT TYPE) DRAWN TIGHT AND CONDUIT BUSHING. FIELD CUT CONDUIT SHALL BE CUT SOUARE, REAMED SMOOTH AND THREADED PROPERLY AND FULL PAINT FIELD CLIT MALE THREADS WITH CONDUCTIVE AND RUST PREVENTIVE COMPOUND. CUTTING OIL AND DEBRIS SHALL BE REMOVED PRIOR TO INSTALLATION.

GALVANIZED RIGID STEEL CONDUIT OR "IMC" SHALL BE TERMINATED IN THREADED HUBS OR

PVC CONDUIT SHALL BE TERMINATED WITH APPROVED CONNECTORS AND FITTINGS. PVC CONDUIT SHALL BE HEATED AND BENT WITH MANUFACTURER APPROVED EQUIPMENT AND METHODS. OPEN FLAME OR TORCH IS NOT AN ACCEPTABLE MEANS OF HEATING. FIELD CUTS SHALL BE SQUARE AND REAMED SMOOTH. EXIBLE CONDUIT SHALL BE INSTALLED NEATLY, TERMINATED WITH COUPLINGS LISTED FOR

THE APPLICATION. AND SUPPORTED PER NEC. "EMT" CONDUIT SHALL BE TERMINATED WITH STEEL SET-SCREW TYPE COUPLINGS CONNECTORS AND FITTINGS. FIELD-CUT CONDUIT SHALL BE SOUARE AND REAMED SMOOTH. ALL CONDUIT 1-1/4" AND LARGER SHALL HAVE INSULATED GROUNDING BUSHINGS INSTALLED.

CONDUITS SHALL NOT BE ROUTED BELOW THE GRADE OR SLAB LOCATED DIRECTLY OVER A WASTE OR WATER LINE, CONDUITS MAY CROSS OVER A SEWER OR WATER LINE, CONDUITS RUNNING PARALLEL TO A WASTE OR WATER LINE SHALL BE LOCATED AWAY FROM THESE LINES TO ALLOW FUTURE REPAIR OF WASTE OR WATER LINES WITHOUT DAMAGING THE CONDUITS.

CONDUIT SHALL BE INSTALLED AND SUPPORTED PER NATIONAL ELECTRICAL CODE ARTICLE 342 (INTERMEDIATE METAL CONDUIT), ARTICLE 344 (RIGID METAL CONDUIT), ARTICLE 350 (LIQUIDTIGHT FLEXIBLE METAL CONDUIT), ARTICLE 352 (RIGID POLYVINYL CHLORIDE CONDUIT). ARTICLE 358 (ELECTRICAL METALLIC TUBING). ARTICLE 300 (GENERAL REQUIREMENTS FOR WIRING METHODS) AND ARTICLE 110 (REQUIREMENTS FOR ELECTRICAL INSTALLATIONS).

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WHERE EXPOSED: . ORGANIZE THE RUNS INTO GROUPS AND COORDINATE WITH OTHER TRADES TO AVOID NTERFERENCE ARRANGEMENT SHALL BE NEAT AND ORDERLY WITH RUNS PARALLEL TO STRUCTURAL ELEMENTS. NO DIAGONAL RUNS WILL BE ALLOWED. 3. SUPPORTS SHALL BE "UNISTRUT" WITH SUITABLE CLAMPS THE UNISTRUT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURES. PAINT CUT ENDS OF UNISTRUT WITH RUST PROHIBITOR

PRIMARY CONDUITS SHALL BE LOCATED A MINIMUM OF 42" BELOW FINISHED GRADE. LOCATE A MARKER TAPE 12" BELOW GRADE DIRECTLY ABOVE THE PRIMARY CONDUIT SECONDARY CONDUITS FROM THE TRANSFORMER TO THE SERVICE ENTRANCE SHALL BE A MINIMUM OF 24" BELOW GRADE

ALL CONDUITS ARE TO CONTAIN A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR WHICH MAY NOT BE ILLUSTRATED. ALL CONDUIT SHALL BE IDENTIFIED BY A COLOR CODED BAND EVERY 10 FEET. BAND SHALL BE PAINTED OR COLOR CODE TAPE, (DO NOT DIP FITTINGS IN PAINT) ONE INCH WIDE AND IDENTIFIED ACCORDING TO SYSTEMS AS FOLLOWS:

1. 120/208 VOLT NONE INTERCOM ORANGE 3. FIRE ALARM RED 4. TELE/DATA YELLOW

ALL JUNCTION BOXES SHALL BE PAINTED TO CORRESPOND TO THE ABOVE COLOR CODES. CIRCUIT NUMBERS CONTAINED WITH IN A JUNCTION BOX SHALL BE MARKED ON INSIDE AND OUTSIDE OF IUNCTION BOX COVER WITH A PERMANENT MARKING.

JUNCTION AND/OR PULL BOXES, AND WIREWAYS, SHALL NOT CONTAIN CONDUCTORS FROM MORE THAN SIX LINE-TO-NEUTRAL BRANCH CIRCUITS (OR AN EQUIVALENT NUMBER OF LINE-TO-LINE CIRCUITS) UNLESS INDICATED ON THE PLANS OR APPROVED IN WRITING BY THE ENGINEER.

JUNCTION AND/OR PULL BOXES, WIREWAYS, AND AUXILIARY GUTTERS, SHALL NOT CONTAIN CONDUCTORS ORIGINATING FROM MORE THAN ONE PANELBOARD. METAL-CLAD CABLE

METAL CLAD CABLE SHALL NOT BE LITUIZED OR PERMITTED WHERE ELEVIRLE WIRING METHODS ARE REQUIRED, PROVIDE FLEXIBLE CONDUIT WITH INDIVIDUAL CONDUCTORS.

"MASONRY" TYPE BOXES

WIRING BOXES FLUSH SWITCH AND RECEPTACLE BOXES: IN STUD AND PLASTERED MASONRY USE MINIMUM BOX SIZES OF 4"SQUARE X 1-1/2" DEEP WITH DEVICE EXTENSION RING AS REQUIRED TO FLUSH WITH WALL IN EXPOSED MASONRY AND CONCRETE WALLS USE RACO CO 2-1/2" DEEP

PROPERLY SECURE AND ATTACH ALL BOXES DIRECTLY TO THE BUILDING CONSTRUCTION, SUPPORT BY CONDUIT IS NOT ACCEPTABLE. ALL BOXES INSTALLED ON OPPOSITE SIDES OF ONE-HOUR AND TWO-HOUR WALLS MUST BE

SEPARATED BY A HORIZONTAL DISTANCE OF 24 INCHES BOXES INSTALLED ON OPPOSITE SIDES OF A NON-RATED WALL SHALL NOT BE INSTALLED BACK TO BACK. WIRING DEVICES

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: EATON (ARROW HART) HUBBELL INCORPORATED: WIRING DEVICE-KELLEMS

PASS & SEYMOUR/LEGRAND (PASS & SEYMOUR)

SOURCE LIMITATIONS: OBTAIN EACH TYPE OF WIRING DEVICE AND ASSOCIATED WALL PLATE FROM SINGLE SOURCE FROM SINGLE MANUFACTURER. GENERAL WIRING-DEVICE REQUIREMENTS

WIRING DEVICES, COMPONENTS, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION. ALL WIRING DEVICES SHALL BE MINIMUM SPECIFICATION GRADE. COMMERCIAL GRADE NOT ALLOWED.

DEVICES SHALL COMPLY WITH NFPA 70. DEVICES THAT ARE MANUFACTURED FOR USE WITH MODULAR PLUG-IN CONNECTORS MAY BE SUBSTITUTED UNDER THE FOLLOWING CONDITIONS: 1. CONNECTORS SHALL COMPLY WITH UL 2459 AND SHALL BE MADE WITH STRANDED BUILDING WIRE. 2. DEVICES SHALL COMPLY WITH THE REQUIREMENTS IN THIS SECTION.

STRAIGHT-BLADE RECEPTACLES

TAMPER-RESISTANT CONVENIENCE RECEPTACLES, 125V, 20A: COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498 SUPPLEMENT SD, AND FS W-C-596. ALL WIRING DEVICES SHALL BE MINIMUM SPECIFICATION GRADE, COMMERCIAL GRADE NOT ALLOWED.

GFCI RECEPTACLES

GENERAL DESCRIPTION:

STRAIGHT BLADE, NON-FEED-THROUGH TYPE. COMPLY WITH NEMA WD 1, NEMA WD 6, UL 498, UL 943 CLASS A, AND FS W-C-596. ALL WIRING DEVICES SHALL BE MINIMUM SPECIFICATION GRADE. COMMERCIAL GRADE NOT ALLOWED.

INCLUDE INDICATOR LIGHT THAT SHOWS WHEN THE GFCI HAS MALFUNCTIONED AND NO LONGER PROVIDES PROPER GFCI PROTECTION.

RECEPTACLES IN DAMP AND WET LOCATIONS SHALL BE UL 498SE WEATHER RESISTANT COMPLIANT.

TAMPER-RESISTANT GECI CONVENIENCE RECEPTACLES, 125V, 20A. RECEPTACLES IN DAMP AND WET LOCATIONS SHALL BE UL 498SE WEATHER RESISTANT COMPLIANT TOGGLE SWITCHES

SWITCHES SHALL COMPLY WITH NEMA WD 1, UL 20, AND FS W-S-896. ALL WIRING DEVICES SHALL BE MINIMUM SPECIFICATION GRADE. COMMERCIAL GRADE NOT ALLOWED.

SWITCHES, 120/277V, 20A: 1. SINGLE POLE . TWO POLE

3. THREE WAY 4. FOUR WAY

WALL PLATES

1. PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH. MATERIAL FOR FINISHED SPACES: MATCH EXISTING MATERIAL FOR UNFINISHED SPACES: GALVANIZED STEEL 4. MATERIAL FOR DAMP, WET, OR OUTDOOR LOCATIONS: DIE-CAST ALUMINUM WITH LOCKABLE LIFT COVER, AND LISTED AND LABELED FOR USE IN WET AND DAMP LOCATIONS. NEMA 250, COMPLYING WITH UL 514D-2000 EXTRA-DUTY, " WEATHERPROOF IN-USE", TYPE 3R, WEATHER-RESISTANT, PLASTIC HOOD COVERS ARE

FINISHES DEVICE

NOT ACCEPTABLE.

COLOR: 1. WIRING DEVICES CONNECTED TO NORMAL POWER SYSTEM: AS SELECTED BY

WIRING DEVICES CONNECTED TO EMERGENCY POWER SYSTEM: RED.

3. TVSS DEVICES: BLUE. 4. ISOLATED-GROUND RECEPTACLES: AS SPECIFIED ABOVE, WITH ORANGE TRIANGLE ON

WALL PLATE COLOR: FOR THERMOPLASTIC COVERS, MATCH DEVICE COLOR.

PANELBOARDS

BRANCH CIRCUIT PANELBOARDS SHALL BE OF THE CIRCUIT BREAKER. DEAD-FRONT SAFETY TYPE. DOUBLE-HINGED DOOR-IN-DOOR CONSTRUCTION. EOUAL TO CUTTLER-HAMMER WITH BOLT-ON DEVICES. WITH CONTENTS AS INDICATED ON PANEL SCHEDULE. SHALL BEAR LISTING DEVICE LABEL OF UL, AND SHALL MEET ALL APPLICABLE REOUIREMENTS OF NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

ALL BREAKERS 800A AND LARGER SHALL HAVE AN ENERGY REDUCING SWITCH AS REQUIRED BY NEC 240.87. SERVICE ENTRANCE PANELS SHALL BE ULLISTED AS SERVICE ENTRANCE EQUIPMENT AND SHALL BE EQUIPPED WITH LINE-SIDE TERMINAL GUARDS AND BARRIERS INSTALLED PER NEC

408.3(A)(2) BALANCE ALL CIRCUITS IN A PANEL TO ACHIEVE NOT MORE THAN 10 PERCENT UNBALANCED NEUTRAL CURRENT IN PANEL FEEDER.

PROVIDE TYPED DIRECTORY CARDS UNDER PLASTIC ON DOORS. MINIMUM SHORT CIRCUIT INTERRUPTING CAPACITY SHALL BE AS INDICATED ON PANEL SCHEDULES. ALL PANELS SHALL BE FULLY RATED. SERIES RATINGS SHALL NOT BE APPLIED OR UTILIZED

SPECIFICATIONS NOT TO SCALE

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SINGLE AND COMBINATION TYPES SHALL MATCH CORRESPONDING WIRING DEVICES.

ARCHITECT UNLESS OTHERWISE INDICATED OR REQUIRED BY NFPA 70 OR DEVICE

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EACH UNGROUNDED SYSTEM CONDUCTOR SHALL BE IDENTIFIED BY PHASE AND SYSTEM. AND PERMANENTI Y POSTED AT FACH BRANCH-CIRCUIT PANELBOARD, CONDUCTORS SHALL BE MARKED AT ALL LOCATIONS WHERE ACCESSIBLE. REFER TO NEC-210.4(D).

SECURE SURFACE MOUNTED PANELBOARDS TO WALL USING 1/4" TOGGLE BOLTS, BOLTED TO MASONRY WALL. WHERE HOLLOW BLOCK WALLS DO NOT OCCUR, SUITABLE EXPANSION SHIFLDS AND ANCHOR BOLTS SHALL BE UTILIZED.

PRIOR TO PROJECT COMPLETION, PROVIDE A NEW TYPED DIRECTORY CARD UNDER PLASTIC AFFIXED TO THE INTERIOR OF EACH PANELBOARD DOOR FOR IDENTIFICATION OF THE PANELBOARD AND ALL CIRCUITS CONTAINED WITHIN. THIS NEW TYPED DIRECTORY SHALL AT A MINIMUM PROVIDE THE FOLLOWING INFORMATION:

1. PANELBOARD IDENTIFICATION MARK NUMBER. 2. PANELBOARD VOLTAGE AND PHASE.

- 3. PANELBOARD AMPERAGE. 4. INSTALLING CONTRACTOR'S COMPANY NAME, SERVICE DEPARTMENT CONTACT
- INFORMATION, AND THE CONTRACTOR'S PROJECT IDENTIFYING NUMBER 5. CIRCUIT BREAKERS:
- FOR EACH CIRCUIT BREAKER. PROVIDE THE FOLLOWING INFORMATION: BREAKER AMPERAGE AND NUMBER OF POLES. IDENTIFY EQUIPMENT SERVED FOR LIGHTING AND RECEPTACLE CIRCUITS, IDENTIFY ROOM OR ROOMS (BY ROOM NAME, OR ROOM NUMBER AS DESIGNATED ON THE PROJECT DRAWINGS) SERVED BY INDIVIDUAL CIRCUITS.
- FOR EQUIPMENT SERVED BY CIRCUIT BREAKERS, PROVIDE DRAWING MARK NUMBER OF THE EQUIPMENT SERVED

LIGHTING LIGHTING FIXTURES

LIGHTING FIXTURES: SPECIFIED UNITS INDICATE OUALITY. CONFIGURATION AND PERFORMANCE REQUIRED. FIXTURE NUMBERS GIVEN INDICATE MINIMUM STANDARDS FOR FIXTURE PHYSICAL DEPTH, DIAMETER AND CONSTRUCTION MATERIALS, EVEN WHEN SUCH DETAILS ARE NOT SPECIFICALLY MENTIONED IN THE LIGHTING FIXTURE SCHEDULE. FIXTURES WHICH DO NOT MEET THESE MINIMUM REQUIREMENTS WILL BE REJECTED. ALTERNATES WILL BE CONSIDERED ONLY UPON RECEIPT OF COMPLETE AND ADEQUATE INFORMATION, INCLUDING PROJECT-SPECIFIC PHOTOMETRIC CALCULATIONS, TO ALLOW EVALUATION AND DETERMINATION REGARDING APPROVAL

DRIVER: LED DRIVER SHALL COMPLY WITH UL 8750, NEMA 410, AND ANSI C82.15, DRIVER SHALL BE CONFIGURED FOR 0-10VDC (SOURCE) DIMMING, UNLESS NOTED TO BE PROVIDED WITHOUT DIMMING OR WITH A DIFFERENT DIMMING PROTOCOL. ALL DRIVERS LOCATED OUTDOORS SHALL BE RATED FOR OPERATION AT 0 DEG E

CONNECT RECESSED FIXTURES USING MANUFACTURER FURNISHED OR CONTRACTOR FABRICATED FLEXIBLE FIXTURE WHIPS, CONTRACTOR FABRICATED WHIPS SHALL CONSIST OF NOT MORE THAN 6-FEFT OF FLEXIBLE METAL CONDUIT AND #12 AWG INSULATED CONDUCTORS, INCLUDING #12 AWG GREEN INSULATED GROUNDING CONDUCTOR. FACTORY FURNISHED WHIPS SHALL INCLUDE A GREEN INSULATED GROUNDING CONDUCTOR. FACTORY FURNISHED WHIPS OF A SMALLER CONDUCTOR GAUGE ARE ACCEPTABLE.

THE MOUNTING OF LIGHTING FIXTURES SHALL BE CAREFULLY AND SECURELY MADE. ATTACHMENT SHALL BE MADE TO THE BUILDING STRUCTURAL SYSTEM.

LAY-IN FIXTURES SHALL BE SUPPORTED INDEPENDENT OF THE CEILING GRID SYSTEM. FIXTURE SUPPORT SHALL MEET THE INTENT OF NEC 410.16 (B) AND OTHER BUILDING CODES. CONTRACTOR SHALL COORDINATE WITH CEILING INSTALLATION TRADE TO PROVIDE REQUIRED SUPPORT. IT IS THE RESPONSIBILITY OF THE FLECTRICAL CONTRACTOR TO SUPPLY HANGER WIRE SUPPORT, EOUAL TO THE CEILING SUSPENSION SUPPORT WIRE, AT EACH CORNER OF THE FIXTURE.

FIXTURES WHICH ARE SURFACE MOUNTED SHALL BE ATTACHED TO THE CEILING FRAMING, EITHER BY BRIDGING THE FRAMING AND THE USE OF THREADED BOLTS, OR BY SUITABLE CLAMPS ATTACHED TO THE FRAME. ATTACHMENT TO STEEL FRAMING SHALL BE BOLTED CONNECTORS MANUFACTURED ESPECIALLY FOR THE PURPOSE. EXPANSION ANCHORS MAY BE USED PROVIDED THEY HAVE A METAL SHEATH. PLASTIC SHEATH EXPANSION ANCHORS OR SIMILAR DEVICES ARE NOT ACCEPTABLE.

DIMMING FUNCTIONS SHALL BE PROVIDED FOR ALL FIXTURE EXCEPT WHERE INDICATED TO BE PROVIDED WITHOUT DIMMING. EXCEPT WHERE A DIFFERENT PROTOCOL IS INDICATED ON THE DRAWINGS, PROVIDE 0-10VDC DIMMING PROTOCOL WITH MINIMUM OUTPUT OF NOT GREATER THAN 10% BY INPUT WATTAGE. PROVIDE 2#16AWG (VIOLET = + & PINK = -) FOR 0-10VDC DIMMING. ETHERNET OR CATEGORY CABLE SHALL NOT BE USED FOR 0-10V DIMMING.

COMMUNICATIONS COMPUTER WIRING ROUGHIN

FURNISH AND INSTALL A COMPLETE SYSTEM OF ROUGH-IN INCLUDING CONDUIT, BOXES AND TRIMPLATES FOR USE BY OTHERS TO INSTALL THEIR CABLES. INSTALLATION AND FINAL CONNECTIONS OF CABLES SHALL BE BY OTHERS ALL MATERIAL SHALL BE NEW AND UNUSED, DELIVERED TO THE SITE IN THEIR ORIGINAL

CONTAINERS. ALL MATERIAL SHALL BEAR THE UL LABEL WHERE ONE IS AVAILABLE.

COVER PLATE. FURNISH AND INSTALL ALL ROUGH-IN REQUIRED FOR OTHERS TO INSTALL COMPUTER WIRING. PROVIDE CONDUIT FROM OUTLET TO ACCESSIBLE CEILINGS, DO NOT TERMINATE ROUGH-IN ABOVE HARD OR INACCESSIBLE CEILINGS.

BOXES SHALL BE 4 11/16"SQ. X 2½"D WITH SINGLE GANG DEVICE RING AND TELEPHONE TYPE

PROVIDE A PULL WIRE IN ALL CONDUITS LEFT EMPTY. CONDUIT STUB OUT ENDS SHALL BE EQUIPPED WITH BUSHING.

INTERCOM WIRING ROUGH-IN FURNISH AND INSTALL A COMPLETE SYSTEM OF ROUGH-IN INCLUDING CONDUIT, BOXES AND TRIMPLATES FOR USE BY OTHERS TO INSTALL THEIR CABLES. INSTALLATION AND FINAL CONNECTIONS OF CABLES SHALL BE BY OTHERS. ALL MATERIAL SHALL BE NEW AND UNUSED, DELIVERED TO THE SITE IN THEIR ORIGINAL

CONTAINERS. ALL MATERIAL SHALL BEAR THE UL LABEL WHERE ONE IS AVAILABLE.

BOXES SHALL BE 4 11/16"SQ. X 21/2 "D WITH SINGLE GANG DEVICE RING AND TELEPHONE TYPE COVER PLATE. ROUTE 3/4" CONDUIT FROM DEVICE INTO THE STORAGE ROOM. FURNISH AND INSTALL ALL ROUGH-IN REQUIRED FOR OTHERS TO INSTALL COMPUTER

WIRING. PROVIDE CONDUIT FROM OUTLET TO ACCESSIBLE CEILINGS, DO NOT TERMINATE ROUGH-IN ABOVE HARD OR INACCESSIBLE CEILINGS. PROVIDE A PULL WIRE IN ALL CONDUITS LEFT EMPTY.

CONDUIT STUB OUT ENDS SHALL BE EQUIPPED WITH BUSHING.

TRANSIENT VOLTAGE SURGE PROTECTIVE DEVICE

A PANELBOARD LEVEL TRANSIENT VOLTAGE SURGE PROTECTIVE DEVICE (SPD) SHALL CONNECTED TO EACH PANELBOARD INDICATED ON THE ONE-LINE DIAGRAM. THE DEVICE SHALL BE UL LISTED AND COMPLY WITH UL 1449, FOURTH EDITION.

WHERE THE ASSOCIATED PANELBOARD IS SURFACE MOUNTED INDOORS AND IS OF NEMA 1 CONSTRUCTION, THE SPD SHALL BE SURFACE MOUNTED ADJACENT TO THE PANELBOARD. WHERE THE ASSOCIATED PANELBOARD IS RECESSED IN A WALL OR IS OF ANY OTHER TYPE THAN NEMA 1, THE SPD SHALL BE INTEGRAL TO THE PANELBOARD.

PROVIDE AN APPROPRIATE PANELBOARD CIRCUIT BREAKER FOR CONNECTION OF THE SPD TO THE PANEL PHASE BUSES. THE SPD SHALL NOT BE DIRECTLY CONNECTED TO THE PANEL BUS. VERIFY THE BREAKER AMP RATING WITH THE SPD MANUFACTURER. BREAKER SHALL BE MULTI-POLE, ONE POLE PER PHASE, WITH A COMMON TRIP HANDLE.

SUPPRESSOR RATINGS: SPD CONNECTED TO SERVICE ENTRANCE EQUIPMENT: TYPE 2 SPD 1. PEAK SURGE CURRENT

A. 200kA FOR CONNECTED SERVICE ENTRANCE EQUIPMENT, B. 100kA FOR NON-SERVICE ENTRANCE EQUIPMENT.

2. SCCR: NOT LESS THAN 100kA. 3. I-NOMINAL: NOT LESS THAN 20kA 4. PROTECTION MODES:

- A. LINE TO NEUTRAL: 1200V FOR 480Y/277V AND 700V FOR 208Y/120V. B. LINE TO GROUND: 1200V FOR 480Y/277V AND 700V FOR 208Y/120V. C. NEUTRAL TO GROUND: 1200V FOR 480Y/277V AND 700V FOR 208Y/120V.
- D. LINE TO LINE: 2000V FOR 480Y/277V AND 1200V FOR 208Y/120V. 5. PROTECTION MODES AND U.L. 1449 VRP FOR 240/120V SINGLE PHASE, THREE-WIRE CIRCUIT SHALL NOT EXCEED THE FOLLORINW: A. LINE TO NEUTRAL: 700V

B. LINE TO GROUND: 700V NEUTRAL TO GROUND: 700V D. LINE TO LINE: 1200V

WIRING BETWEEN THE SPD AND THE BREAKER SHALL BE AS SHORT AND STRAIGHT AS POSSIBLE. THE WIRING LEADS PROVIDED WITH THE SPD SHALL NOT BE SPLICED OR EXTENDED UNLESS SPECIFICALLY ALLOWED BY THE SPD INSTALLATION INSTRUCTIONS. ANY ALLOWED SPLICES OR EXTENSIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SHALL NOT EXCEED MANUFACTURER'S STATED MAXIMUM LEAD LENGTH.

DO NOT ENERGIZE THE SPD UNTIL THE ELECTRICAL POWER SYSTEM HAS BEEN FULLY TESTED, INSPECTED, ENERGIZED, AND STABILIZED. PERFORM NO CONDUCTOR INSULATION RESISTANCE TESTS WHILE THE SPD IS CONNECTED.

SURGE PROTECTIVE DEVICES SHALL BE WARRANTED FOR 10 YEARS FROM THE DATE OF SUBSTANTIAL COMPLETION.

FIRE ALARM SYSTEM $\bigvee \bigvee \bigvee \bigvee \bigvee$ THE SCOPE OF THIS WORK SHALL INCLUDES FURNISHING NEW DEVICES WHERE SHOWN, EXPANDING OR REPLACING THE EXISTING FIRE ALARM CONTROL TO ACCOMMODATE THE CONNECTION OF NEW DEVICES ALL NECESSARY 120VOLT POWER AND ALL REQUIRED RACEWAYS, BOXES AND CABLING. SYSTEM WORK SHALL CONSIST OF BUT NOT LIMITED TO DEVICES AS -SHOWN-ON THE-DRAWINGS, ADDITIONAL ROWER SUPPLIES, RACEWAY, WIRING, ETC. ALL NOTIFICATION AND ANNUNCIATION DEVICES SHALL BE OF THE SAME MANUFACTURER AS THE EXISTING SYSTEM. DEVICES SHALL BE ADA COMPATIBLE. OUTDOOR SPEAKER/LIGHT UNIT TO BE WEATHERPROOF RATED. CONTRACTOR MAINTAIN OPERATION OF THE EXISTING FIRE ALARM SYSTEM DURING THE CONSTRUCTION OF THE RENOVATIONS AND NEW ADDITION. FURNISH AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS ALL WIRING, CONDUIT AND OUTLET BOXES REQUIRED FOR THE INSTALLATION OF

A COMPLETE SYSTEM AS DESCRIBED HEREIN AND AS SHOWN ON THE PLANS. THE ESCAC SHALL HAVE BEEN ENGAGED IN THE INSTALLATION OF FIRE ALARM SYSTEMS FOR A MINIMUM OF FIVE YEARS PRIOR TO THE AWARD OF THIS CONTRACT HAVE IN HIS POSSESSION MORE THAN ONE EMPLOYEE WHO IS A OUALIFIED FACTORY TRAINED INSTALLER, AND MAINTAIN AN INVENTORY OF SUFFICIENT OUANTITIES OF SPARE EOUIPMENT TO REPLACE THE ENTIRE INSTALLATION ON A PART BY PART BASIS WITHOUT DEPENDING ON OUTSIDE SOURCE, SHOULD THE NEED ARISE. ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 760, "FIRE PROTECTIVE SIGNALING SYSTEMS", OF THE NATIONAL ELECTRICAL CODE AND SHALL BE COLOR CODED USING AS MANY DIFFERENT INSULATION COLORS AS ARE READILY AVAILABLE TO DIFFERENTIATE BETWEEN CIRCUITS. CLASS AND STYLE OF FIRE ALARM WIRING SHALL BE PER NFPA 72.

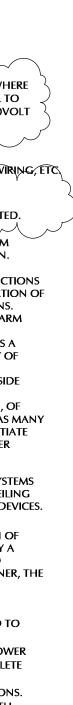
INSTALL ALL ITEMS AS INDICATED ON THE PLANS AND COVERED IN THE SYSTEMS SPECIFICATIONS INCLUDING THE CPU, MANUAL FIRE ALARM STATIONS, CEILING MOUNTED ANALOG SMOKE DETECTORS AND AUDIO/VISUAL SIGNALING DEVICES. THE ENTIRE INSTALLATION INCLUDING WIRING SUPERVISION INITIATION OF DEVICES, AD PROPER OPERATION OF ALARM SIGNALS, SHALL BE TESTED BY A FACTORY TRAINED REPRESENTATIVE OF THE MANUFACTURER. A DETAILED

REPORT OF THE TESTING AND RESULTS SHALL BE FURNISHED TO THE OWNER, THE ENGINEER AND THE STATE FIRE MARSHALL'S OFFICE. SHOP DRAWINGS SHALL CONTAIN THE FOLLOWING: 1. SUFFICIENT INFORMATION, CLEARLY PRESENTED SHALL BE INCLUDED TO

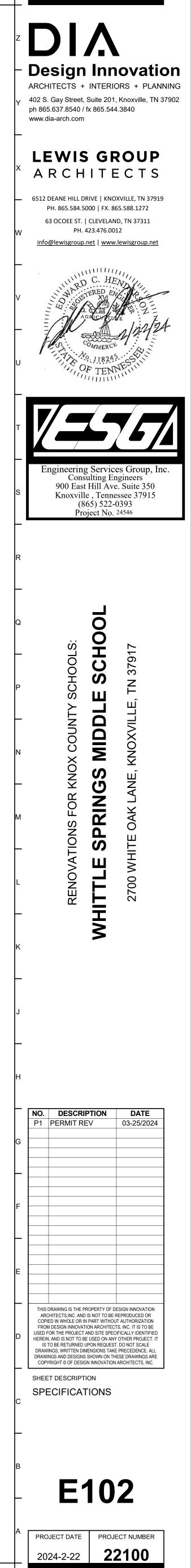
DETERMINE COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS. 2. INCLUDE MANUFACTURER'S NAME(S), MODEL NUMBERS, RATINGS, POWER REQUIREMENTS, EQUIPMENT LAYOUT, DEVICE ARRANGEMENT, COMPLETE WIRING POINT-TO-POINT DIAGRAMS, AND CONDUIT LAYOUTS.

3. SHOW ANNUNCIATOR LAYOUT, CONFIGURATIONS, AND TERMINATIONS. 4. PROVIDE 1/8" SCALE DRAWING OF COMPLETE FIRE ALARM SYSTEM WITH SUBMITTALS. 5. PROVIDE BATTERY CALCULATIONS BASED ON NFPA CALCULATIONS.

THE FIRE ALARM SYSTEM SHALL HAVE A 1-YEAR PARTS AND LABOR FACTORY WARRANTY. THIS WARRANTY SHALL ALLOW SERVICE ON ALL ASPECTS OF THE SYSTEM BY THE AUTHORIZED INSTALLER.







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