ALL CIRCUIT BR

	LUMINAIRE SCHEDULE													
TYPE	DESCRIPTION	MOUNTING, LOCATION	MANUFACTURER	SERIES VERSION	LAMP	VOLTS	LOAD	NOTES						
A1	6", RECESSED, DOWNLIGHT, WHITE, 2000LM - DIMMABLE	RECESSED - CORRIDOR	SPECTRUM LIGHTING	SP6ES SERIES	LED, 3500K	MVOLT	20 VA							
B1	6", RECESSED,WALL WASHER, WHITE, 2000LM- DIMMABLE	RECESSED - ELEVATOR LOBBY	SPECTRUM LIGHTING	SP6ES SERIES	LED, 3500K	MVOLT	20 VA	PROVIDE FIXTURE WITH BEAM ANGLE CAPABLE TO WASH THE ENTIRE HEIGHT OF THE WALL						
C1	4", RECESSED, DOWNLIGHT, WHITE, 2000LM-DIMMABLE	RECESSED - ELEVATOR LOBBY	SPECTRUM LIGHTING	SP4ES SERIES	LED, 3500K	MVOLT	20 VA							
F1	1" RECESSED CONTINUOUS RUN LIGHT-DIMMABLE	RECESSED IN WALL- LOBBY F17	ALW LIGHTING	LIGHTPLATE 1 SERIES	LED, 3500K	MVOLT	26 VA	26 VA PER 4FT. TYPICAL						
G1	1" SURFACE MOUNT CONTINUOUS RUN STRIPLIGHT-DIMMABLE	SURFACE-MOUNT - LOBBY F17	ALW LIGHTING	LIGHTPLATE 1 SERIES	LED, 3500K	MVOLT	26 VA	INSET LED "SLIM" LIGHTS AS GUITAR STRINGS						
1 H1	1" SUSPENDED CONTINUOUS RUN LIGHT-DIMMABLE	SUSPENDED - LOBBY F17	ALW LIGHTING	LIGHTPLATE 1 SERIES	LED, 3500K	MVOLT	26 VA	SAME HUNG LED "SLIM" LIGHTS EXTEND GUITAR STRINGS BELOW COFFERS						
					$\neg \neg \neg \neg \neg \neg$	$\sim$	$\sim \sim \sim \sim \sim$	ANDAGRYLIC PANELS						
{ J1 {	LED COLOR CHANGING TAPELIGHT BEHIND CEILING DECORATIVE PANELS-DIMMABLE	CHANNEL/COVE MOUNT - LOBBY F17	KLUS INSPIRING SOLUTIONS	K-1920-24 SERIES	LED, RGBW	MVOLT	19 VA	REFER TO SHEET E6.2 KEYNOTE 1 FOR DMX CONTROLLER SPECIFICATION.						
A KAN	LED WHITE TAPELIGHT BEHIND CEILING DECORATIVE	CHANNEL/COVE MOUNT - LOBBY F17	LUMINILIGHTING	LL9 SERIES	LED, 3500K	MVOLT	26 VA	BACK-LIT, SEMI-TRANSPARENT OR OPAQUE LAMINATE COLOR-PRINTED						
P1	3' LARGE ROUND SUSPENDED RING FIXTURE-DIMMABLE	SUSPENDED - LOBBY F17	ALW LIGHTING	MR1.5 SERIES	LED, 3500K	MVOLT	120 VA	LIGHT FIXTURE ECHOES CIRCLE OF GUITAR SOUND HOLE. VERIFY FINAL DIAMETER AND COLOR WITH ARCHITECT PRIOR TO PURCHASE.						
R1	READING LIGHT, BLACK	WALL MOUNT - SUITES	TRINITY LIGHTING	MIX SERIES	LED, 3500K	MVOLT	10 VA	READING LIGHT TO BE MOUNTED ON WALL. CONTRACTOR SHALL PROVIDE AND INSTALL POWER AS REQUIRED.						
<u>1</u> S1	EXISTING CORRIDOR WALL SCONCE	WALL MOUNT - CORRIDORS	EXISTING	EXISTING	EXISTING	MVOLT	50 VA	EXISTING FIXTURES SHALL REMAIN. REFER TO DRAWINGS FOR ADDITIONAL						
					$\frown \frown \frown \frown \frown \frown$			REQUIREMENTS ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						
$\begin{cases} T1 \\ T1 $	TAPE LIGHT FOR HEADBOARD, 125LM PER FOOT	COORDINATE WITH ARCHETECTURAL DETAILS - SUITES			LED, 3500K	MVOLT	30 VA	PROVIDE LENGTHS AND MOUNTING AS REQUIRED. VERIFY FINAL MOUNTING						
Ul	LED UNDERCABINET, 780LM PER FOOT	SURFACE MOUNT - SUITES	LSI LIGHTING	LXC2 SERIES	LED, 3500K	MVOLT		PROVIDE REMOTE DRIVER MOUNTING AS REQUIRED PER ARCHITECTS DIRECTION. PROVIDE SWITCH AT BAR COUNTER TOP TO CONTROL LIGHTS.						
W1	BEDROOM DECORATIVE WALL SCONCE, 763LM, DIMMABLE, GOLD FINISH	WALL MOUNT	OXYGEN LIGHTING	EPOCH SERIES	LED, 3500K	MVOLT	15 VA	VERIFY FINAL FINISH WITH ARCHITECT PRIOR TO PURCHASE.						

XISTING ELECTRICAL AND DEMOLITION
NOTES
PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE FACILITY AND RELATED SITE. REVIEW THE GENERAL NOTES AND ALL OTHER TRADE DRAWINGS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER OR OWNER, AS SPECIFIED, OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMITTING BID.
ANY EXISTING CONDITIONS REFLECTED WERE TAKEN FROM ORIGINAL DRAWINGS AND SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. FIELD VERIFY ALL EXISTING CONDITIONS AND CAREFULLY COORDINATE NEW WORK AND DEMOLITION WITH ALL OTHER DISCIPLINES AND EXISTING CONDITIONS.
PROVIDE ALL DEMOLITION OF EXISTING ELECTRICAL SYSTEMS AND NEW ELECTRICAL SYSTEM MODIFICATIONS REQUIRED BECAUSE OF BUILDING REMODELING, AS NOTED ON THE DRAWINGS, OR NECESSARY FOR PROPER OPERATION AND NEW CONSTRUCTION. REMOVE ALL ABANDONED CABLES AND WIRING ABOVE ACCESSIBLE CEILINGS AND VENTILATION SHAFTS.
COORDINATE INTERUPTION OF ALL BUILDING SERVICES INCLUDING BUT NO LIMITED TO BRANCH CIRCUITS, DATA, TELEPHONE, ETC WITH BUILDING OWNER PRIOR TO INTERUPTION. PROVIDE LABOR AND MATERIALS AS REQUIRED TO REDUCE INTERUPTIONS IN ORDER TO MAINTAIN EXISTING OPERATION.
PAY SPECIAL ATTENTION NOT TO DAMAGE THE FINISH OF EXISTING WALLS AND CEILINGS THAT ARE TO REMAIN WHEN REMOVING OR REPLACING LIGH FIXTURES AND OTHER ELECTRICAL DEVICES. REPAIR ANY DAMAGE CAUSE DURING WORK AT NO EXTRA COST TO THE OWNER. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
RELOCATE ALL EXISTING ELECTRICAL, FIRE ALARM, AND OTHER LOW-VOLTAGE SYSTEMS REQUIRED TO BE IN OPERATION AT SUBSTANTIAL COMPLETION OF THE CONTRACT, IF REQUIRED, AS A RESULT OF WORK INCLUDED UNDER THIS CONTRACT, EVEN IF NOT SPECIFICALLY INDICATED IN THE DRAWINGS OR SPECIFICATIONS.
SEAL ALL PENETRATIONS THROUGH FLOORS, WALLS, CEILINGS, AND ROOF WHERE ELECTRICAL COMPONENTS ARE REMOVED AND WHERE THE EXISTING PENETRATION IS NOT USED FOR THE NEW INSTALLATION. REPAIL DAMAGED SURFACES TO MATCH ADJACENT AREAS OR AS DIRECTED BY TH OWNER.
UNLESS NOTED OTHERWISE, ABANDONED CONDUIT ASSEMBLIES SERVING DEMOLISHED DEVICES SHALL BE REMOVED BACK TO NEAREST JUNCTION BOX OUTSIDE OF AREA OF DEMOLITION AND LABLED AS REQUIRED FOR FUTURE USE. ASSOCIATED WIRING SHALL BE REMOVED BACK TO SERVING PANELBOARD, UPDATE PANELBOARD CIRCUIT DIRECTORY AS REQUIRED TO INDICATE RELATED CIRCUIT(S) AS "SPARE".
ANY PANELBOARD CIRCUIT DISCRIPTIONS SHOWN AS "existing" OR IN OTHER LOWER CASE LETTERING IS INTENDED TO REFLECT AN EXISTING CIRCUIT T REMAIN UNLESS OTHERWISE IDENTIFIED DIFFERENTLY THRU THE COURSE OF CONSTRUCTION.
ALL CIRCUIT BREAKERS SERVING BRANCH CIRCUITS TO BE REMOVED SHAL REMAIN IN RESPECTIVE PANELBOARD FOR FUTURE USE UNLESS NOTED OTHERWISE.



GENERAL LUMINAIRE SCHEDULE NOTES
A) CONFIRM ALL FINISH OPTIONS WITH ARCHITECT PRIOR TO ORDERING.
B) COORDINATE FINAL MOUNTING HEIGHTS AND MOUNTING OPTIONS WITH ARCHITECT.
C) VERIFY THE MOUNTING TYPE OF EACH FIXTURE IS COMPATIBLE WITH ITS FINAL INSTALLATION SURFACE PRIOR TO ORDERING FIXTURES.
D) PROVIDE ALL ACCESSORIES REQUIRED FOR A COMPLETE ASSEMBLY, INCLUDING MOUNTING HARDWARE.
E) COORDINATE COLOR TEMPERATURE OF ALL FIXTURES WITH ARCHITECT PRIOR TO ORDERING.
F) PROVIDE A SUBMITTAL PACKAGE INCLUDING CUTSSHEETS FOR EACH FIXTURES.
G) SUBSTITUTION REQUESTS MUST BE MADE AT LEAST (5) FULL BUSINESS DAYS PRIOR TO THE CLOSE OF BID.

#### **GENERAL ELECTRICAL NOTES** DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF THE WORK. REVIEW ALL GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. SPECIAL ATTENTION SHALL BE GIVEN TO ALL RACEWAYS WITHIN FINISHED AREAS WITHOUT CEILINGS AND EXPOSED TO STRUCTURE. IN GENERAL, ALL RACEWAYS SHALL BE CONCEALED WITHIN WALLS, ABOVE STRUCTURE FINISH, OR BELOW FLOOR SLABS WHEN SPECIFIED. WHERE EXPOSED CONDITIONS ARE NECESSARY OR UNAVOIDABLE DUE TO OTHER CONDITIONS, THE BID SHALL INCLUDE ANY REASONABLE MEANS TO MINIMIZE THE AMOUNT OF SURFACE MOUNTED EQUIPMENT. PRIOR TO ROUGH-IN, COORDINATE ALL EXPOSED RACEWAY AND BOX CONDITIONS WITH ARCHITECT PRIOR TO CONSTRUCTION OF WALLS, ROOF DECK, OR FLOOR SLABS. ATTACHMENT TO ROOF DECK OR JOIST WEBBINGS IS NOT ALLOWED, MAINTAIN A MINIMUM SPACING OF 1-1/2" FROM CONDUIT TO ROOF DECK. IN AREAS WHERE EXPOSED RACEWAYS ARE REQUIRED, INSTALL SYSTEMS SQUARE AND TIGHT TO STRUCTURE AND PAINT TO MATCH THE STRUCTURE PER ARCHITECT AND/OR OWNER SPECIFICATIONS. FAILURE TO PROPERLY COORDINATE THE ROUTING OF EXPOSED RACEWAYS MAY RESULT IN RELOCATION OF SUCH RACEWAYS AT NO ADDITIONAL COST TO THE OWNER. OPENINGS AROUND ELECTRICAL PENETRATIONS THROUGH FIRE-RESISTANT-RATED WALLS, PARTITIONS, FLOORS OR CEILINGS SHALL BE FIRESTOPPED USING APPROVED METHODS TO MAINTAIN THE FIRE RESISTANCE RATING. PROVIDE PENETRATION FIRE STOPPING WITH RATINGS DETERMINED PER ASTM E 814 OR UL 1479. FIRE STOPPING SHALL NOT BE LESS THAN FIRE RESISTANCE RATING OF CONSTRUCTED FIELD MOUNTED DEVICES SUCH AS SWITCHES, MOTOR STARTERS, RECEPTACLES, ETC., ARE SHOWN IN THEIR APPROXIMATE LOCATION. SWITCH MOUNTING HEIGHT SHALL BE 48" ABOVE FINISHED FLOOR AND RECEPTACLE MOUNTING HEIGHT SHALL BE 18" ABOVE FINISHED FLOOR UON. REFER TO THE TYPICAL MOUNTING HEIGHT DETAIL. INSTALL EQUIPMENT IN A MANNER TO REMAIN ACCESSIBLE WITH REASONABLE MEANS BY THE OWNER FOLLOWING COMPLETION OF WORK. SPECIAL ATTENTION AND ADDITIONAL COORDINATION IS EXPECTED IN AREAS OF THE BUILDING WHERE THE CEILING AND STRUCTURE HEIGHTS HAVE SIGNIFICANT DIFFERENT ELEVATIONS. EQUIPMENT REQUIRING POSSIBLE FUTURE ACCESS SHALL BE INSTALLED SUCH THAT IT MAY BE SAFELY ACCESSED FROM A STANDARD STEP LADDER OR PERSONNEL LIFT SUITABLE FOR THE LOCATION AND CEILING HEIGHT, WITHOUT REMOVING OR DAMAGING THE CEILING GRID STRUCTURE ALL WIRING DEVICE COVERPLATES SHALL INDICATE PANELBOARD AND CIRCUIT SERVING THE DEVICE. UTILIZE CLEAR VINYL (BLACK LETTERING) IDENTIFICATION LABLES MANUFACTURED BY 3M COMPANY (OR APPROVED EQUIVALENT). JUNCTION BOXES LOCATED ABOVE GRID CEILINGS SHALL BE LOCATED NO GREATER THAN 4-FEET ABOVE THE CEILING IN A LOCATION ACCESSIBLE VIA A LADDER FROM THE ROOM BELOW. ROOM NAMES/NUMBERS SHOWN IN PANELBOARD SCHEDULES ARE PER ARCHITECTURAL FLOOR PLANS. CONTRACTOR SHALL PROVIDE FINALIZED PANELBOARD SCHEDULES AT COMPLETION OF PROJECT WITH OWNER PROVIDED ROOM NAMES/NUMBERS. ALL WORK IS TO BE PERFORMED IN STRICT COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE, STATE LAWS, AND ALL OTHER REGULATIONS GOVERNING WORK THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK, MATERIAL, AND LABOR TO SATISFY A COMPLETE AND WORKING SYSTEM WHETHER SPECIFIED OR IMPLIED. CONTRACTOR TO CONFIRM EXACT LOCATION OF EXISTING AND NEW EQUIPMENT. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING SYSTEMS (AS REQUIRED) IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE. ALL ELECTRIC MATERIALS AND EQUIPMENT FOR THE PROJECT SHALL BE NEW AND U.L. OR EQUALLY LISTED. SUBMIT TO THE OWNER CERTIFICATES OF INSPECTIONS IN DUPLICATE FROM AN APPROVED INSPECTION AGENCY UPON COMPLETION. THE CONTRACTOR SHALL SECURE ALL PERMITS OR APPLICATIONS AND PAY ANY AND ALL FEES AS REQUIRED, THE CONTRACTOR SHALL FURNISH ALL INSTRUMENTS AND QUALIFIED PERSONNEL OR FIRM TO PERFORM ALL REQUIRED TESTS. NO EQUIPMENT SHALL BE ENERGIZED UNTIL ALL TEST AND ADJUSTMENTS HAVE BEEN MADE. THREE COPIES OF ALL TEST RESULTS SHALL BE DELIVERED TO THE OWNER ALL ELECTRICAL WORK SHALL BE COORDINATED WITH THE MECHANICAL WORK AS CALLED FOR IN MECHANICAL SPECIFICATIONS AND PLANS. COORDINATE ALL CEILING MOUNTED ELECTRICAL ITEMS WITH OTHER DISCIPLINES, WITH CEILING, AND STRUCTURE. REFER TO ARCHITECTURAL REFLECTED CEILING FIELD VERIFY LOCATIONS OF EXISTING ELECTRICAL EQUIPMENT, INCLUDING POWER POLES, TELEPHONE PEDESTALS, OVERHEAD AND UNDERGROUND FEEDERS, METERS, PANELS, DEVICES, ETC. PROVIDE FOR COORDINATION WITH EXISTING EQUIPMENT. CONDUCTORS FOR BRANCH CIRCUITS AS DEFINED IN ARTICLE 100, SHALL BE SIZED TO PREVENT A VOLTAGE DROP EXCEEDING 3% AT THE FARTHEST LOAD, AND WHERE THE MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST LOAD DOES NOT EXCCED 5%. THE TYPE OF CONDUIT SHALL BE AS FOLLOWS FOR ALL FEEDERS AND DISTRIBUTION CIRCUITS, UNLESS OTHERWISE SPECIFIED. APPLICATION - TYPE OF CONDUIT BURIED IN CONCRETE OR OUTDOORS - PVC WITH RIGID GALVANIZED STEEL ELBOWS SERVICE ENTRANCE - GALVANIZED RIGID STEEL OR SERVICE UTILITY SPECIFICATIONS. SEISMIC PROTECTION FOR SEISMIC CONCERNS OF ALL BUILDING SYSTEMS INCLUDING BUT NOT LIMITED TO MECHANICAL. PLUMBING, AND ELECTRICAL MUST MEET MINIMUM REQUIREMENTS OF ALL APPLICABLE CODES FOR BUILDINGS' CLASSIFIED SEISMIC USE GROUP AND SEISMIC DESIGN CATEGORY. ANY REQUIREMENTS FOR SEISMIC PROTECTION MEASURES TO BE APPLIED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND/OR FEDERAL CODES AND WITH MANUFACTURER'S REQUIREMENTS, THE MOST STRINGENT SHALL APPLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE TYPE AND LOCATION OF SEISMIC RESTRAINTS REQUIRED FOR THE VARIOUS SYSTEM'S ELEMENTS CONTAINED IN THE CONSTRUCTION DOCUMENTS BASED ON THE RELATED SEISMIC CODE CRITERIA, THE SIZE AND WEIGHT OF THE SUPPORTED ELEMENT AND THE DISTANCE FROM STRUCTURE THAT THE ELEMENT WILL BE INSTALLED. IF REQUIRED BY LOCAL, STATE, FEDERAL CODES AND/OR OTHER AUTHORITY HAVING JURISDICTION (AHJ) THE CONTRACTOR SHALL SUBMIT DESCRIPTIVE CATALOG DATA OF SEISMIC RESTRAINTS, SHOP DRAWINGS SHOWING THE TYPES, LOCATIONS AND INSTALLATION DETAILS OF SEISMIC RESTRAINTS AND CALCULATIONS SHOWING THAT THE SEISMIC RESTRAINTS MEET THE SEISMIC REQUIREMENTS TO THE LOCAL AHJ FOR REVIEW AND APPROVAL. CALCULATIONS SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF THE PROJECT LOCATION AND EMPLOYED BY THE MANUFACTURER OF THE SEISMIC RESTRAINT

PRODUCTS. CALCULATIONS SHALL INCLUDE DEAD LOADS, STATIC SEISMIC LOADS AND

ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING COVER PLATES AT ANY UNUSED OPENINGS OR JUNCTION BOXES FOR ELECTRICAL AND LOW VOLTAGE

CAPACITY OF MATERIALS UTILIZED FOR CONNECTIONS TO EQUIPMENT AND

STRUCTURE.

BACK BOXES.

	ABBREVIA		S											
AC AFF CB E EC EP GR HP IG	ABOVE COUNTER ARC FAULT CIRCUIT INTERRUPTER ABOVE FINISHED FLOOR CIRCUIT BREAKER EXISTING ELECTRICAL CONTRACTOR EXPLOSION PROOF GROUND FAULT CIRCUIT INTERRUPTER GROUND HORSE POWER ISOLATED GROUND	MCC NEC NEMA NIC NL TR UG UON WP WR	MOTOR CONTROL CENTER NATIONAL ELECTRICAL CODE NATIONAL ELECTRICAL MANUFACTURERS ASSOC. NOT IN CONTRACT NIGHT LIGHT TAMPER RESISTANT UNDERGROUND UNLESS OTHERWISE NOTED WEATHERPROOF WEATHER RESISTANT											
	WIRIN	G												
	WIRING CONCEALED IN CEILING OR WALLS UON. ALL WIRE IS NUMBER #12 AWG MINIMUM.													
	<ul> <li>EXPOSED RACEWAY.</li> <li>UNDERGROUND RACEWAY; TYPE, SIZE, CONDUCTORS, AND</li> </ul>													
	→ UNDERGROUND RACEWAY; TYPE, SIZE, CONDUCTORS, AND ARRANGEMENT BY NOTATION OR SCHEDULE.													
SWITCHES														
\$*	SWITCH MOUNTED AT +48"; SINGLE POLE LOWER CASE LETTER, WHEN PRESENT, IN <u>* ABBREVIATIONS FOR SWITCH</u> 2 DOUBLE POLE SWITCH 3 3-WAY SWITCH 4 4-WAY SWITCH D DIMMER SWITCH (SHALL BE COMPAT, F FAN SWITCH: DUAL OPERATION WITH K KEYED SWITCH M MOTOR RATED SWITCH OS DUAL TECHNOLOGY OCCUPANCY SEI V VOLUME CONTROL SWITCH	UON. NDICATES ABLE WIT I DIMMER NSOR	S FIXTURES CONTROLLED.											
$\diamond_{\sf OS}$	CEILING MOUNTED DUAL TECHNOLOGY O DRY CONTACTS. HUBBELL OMNIDIARP SEI	CCUPANO	CY SENSOR WITH SPARE											
	DRY CONTACTS. HUBBELL OMNIDIARP SERIES													
•	DUPLEX RECEPTACLE (NEMA 5-20R)													
Φ	DUPLEX RECEPTACLE (NEMA 5-20R); MOU	NTED												
 •	8" ABOVE COUNTERTOP.	rging Po	DRTS											
по Ф	GFI DUPLEX RECEPTACLE (NEMA 5-20R)													
₫	GFI DUPLEX RECEPTACLE (NEMA 5-20R); N	IOUNTED	) 8" ABOVE											
<b>\</b>	QUADRUPLEX RECEPTACLE (TWO NEMA 5	5-20R)												
¶	SPECIAL RECEPTACLE: VERIFY NEMA TYP	E WITH N	IANUFACTURER											
$\overline{\mathbb{Q}}$	FLOOR BOX WITH DATA: LEGRAND WIREM OG WITH EVOLUTION COVER. ROUTE (2)1" NEAREST ACCESSIBLE CEILING SPACE. OI SPACE BELOW, USE POKE-THRU STYLE FL SEE ARCHITECTURAL PLANS FOR LOCATION	OLD SER FOR DA N FLOOR LOOR BO ON UON.	TIES RFB4E-OG OR RFB6E- TA FROM FLOOR BOX TO LEVELS WITH ACCESSIBLE XES: LEGRAND 6AT SERIES.											
φ	SINGLE RECEPTACLE (NEMA 5-20R)													
₽ ●	SPLIT WIRED DUPLEX RECEPTACLE (NEM/	A 5-20R) Y CONNE	CTION DETAILS WITH											
e	MANUFACTURER													
Ø	FLOOR BOX: HUBBEL 3SFBSS WITH 3SFBC FLOOR BOX TO NEAREST ACCESSIBLE CE WITH ACCESSIBLE SPACE BELOW, USE PC HUBBELL PT2X2 SERIES. SEE ARCHITECTU	COVER. ILING SP/ DKE-THRU JRAL PLA	EC SHALL ROUTE A 1"C FOR ACE. ON FLOOR LEVELS J STYLE FLOOR BOXES: NS FOR LOCATION UON.											
$\Psi$	GEILING WOUNTED RECEPTAGLE(NEMA 5-	2013)												
	PANELS AND	D MIS	SC.											
	LIGHT OR POWER PANEL													
J	4x4 JUNCTION BOX.													
CS	CONTROL STATION TO BE LOCATED AT TH SHALL CONSIST OF 2 USB OUTLETS, A DUI SWITCH FOR THE WALL SCONCES IN THE CONTRACTOR SHALL COORDINATE FINAL ROUGH-IN AND PURCHASE.	HS LOCA <sup>-</sup> PLEX REC SAME BC TYPE WI	TION. CONTROL STATION CEPTACLE, AND A DIMMER DX AND FACEPLATE. TH ARCHITECT PRIOR TO											





E7.1

 1/16"=1'-0"
 0
 8'
 16'
 32'
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 4'
 8'
 16'
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 2'
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 1/16"=1'-0"
 1/8"=1'-0"
 1/8"=1'-0"
 1/4"=1'-0"
 1/4"=1'-0"
 1/2"=1'-0"
 1/2"=1'-0"

			3						
0	1'	2'	0	6"	1'	2'	0	3"	6"
3/4"=1'-0"			1 = 1 - 0				1 1/2"=1'-0"		

6" 1' 0 3" 6" 3"=1'-0"

## 3 LEVEL 5-12 NEW FLOOR PLAN 1/8" = 1'-0"



2 LEVEL 5-12 OVERALL LIGHTING PLAN 1/8" = 1'-0"

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1) CONTRACTOR SHALL CAREFULLY REMOVE EXISTING WALL SCONCES LOCATED IN THIS AREA. WHILE FIXTURES ARE REMOVED THE CONTRACTOR SHALL REMOVE WOOD TRIM ON THE BACK OF THE FIXTURES. EXISTING FIXTURES SHALL BE REINSTALLED IN THE SAME LOCATION. CONTRACTOR SHALL VERIFY QUANTITY OF FIXTURES IN FIELD PRIOR TO BID AND INCLUDE ALL COSTS IN BASE BID. APPROXIMANTLY 20 FIXTURES IN EACH CORRIDOR.

2) CONTRACTOR SHALL REMOVE BOWL FIXTURES LOCATED IN THIS AREA AS REQUIRED. BOWL FIXTURES WILL BE REPLACED WITH CAN LIGHTS AS INDICATED ON THE LIGHTING PLANS. INCLUDE ALL COSTS IN BASE BID.

## **GENERAL NOTES**

6

A) CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.



															l
			1								2				
1/16"-1' 0"	8'	16'	32'	0	4'	8'	16'	0	2'	4'	8'	0	1'	2'	
1/10 - 1 -0				1/8"=1'-0"				1/4"=1'-0"				1/2"=1'-0"			1

1 <u>LEVEL 5-12 LIGHTING PLAN - LOBBY</u> 1/4" = 1'-0"



2 ELEVATOR LOBBY - WALL MURAL DETAIL 1" = 1'-0"





3 LEVEL 5-12 LIGHTING PLAN - CORRIDOR 1 1/4" = 1'-0"



4 LEVEL 5-12 LIGHTING PLAN - CORRIDOR 2 1/4" = 1'-0"

3												4				
4'	0	1'	2'	1"-1' 0" 0	6"	1'	2'	0	3"	6"	1'	0	3"	6"		
	3/4"=1'-0"			1 - 1 -0				1 1/2"=1'-0"				3"=1'-0"				

## 

1) LIGHT FIXTURES SHOWN SHALL BE CIRCUITED TO NEAREST AVAILABLE CORRIDOR LIGHTING CIRCUIT WITH SPARE AMPACITY. MAINTAIN EXISTING CORRIDOR LIGHTING CONTROLS. CONTRACTOR SHALL VERIFY FINAL ROUTING AND REQUIREMENTS IN FIELD. CONTRACTOR SHALL PROVIDE AND INSTALL BOXES, CONDUIT, CONDUCTORS, AND OTHER NECESSARY APPURTENANCES REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. INCLUDE ALL COSTS IN BASE BID.

2) PROVIDE DIMMER SWITCH FOR CONTROL OF WALL WASHER FIXTURES(TYPE 'B1') AT WALL MURAL IN ELEVATOR LOBBY, CIRCUIT TO NEAREST AVAILABLE CORRIDOR LIGHTING CIRCUIT WITH SPARE AMPACITY.

## **GENERAL NOTES**

A) CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

6





 1/16"=1'-0"
 0
 8'
 16'
 32'
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 4'
 8'
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 2'
 4'
 8'
 16'

 1/16"=1'-0"
 1/8"=1'-0"
 1/4"=1'-0"
 1/4"=1'-0"
 1/2"=1'-0"
 1/2"=1'-0"
 1/2"=1'-0"

			3								4		
0	1'	2'	1"-1' 0" 0	6"	1'	2'	0	3"	6"	1'	0	3"	6"
3/4"=1'-0"			1 - 1 -0				1 1/2"=1'-0"				3"=1'-0"		

1 <u>LEVEL 14 NEW FLOOR PLAN</u> 1/8" = 1'-0"





5

## 

1) CONTRACTOR SHALL CAREFULLY REMOVE EXISTING WALL SCONCES LOCATED IN THIS AREA. WHILE FIXTURES ARE REMOVED THE CONTRACTOR SHALL REMOVE WOOD TRIM ON THE BACK OF THE FIXTURES. EXISTING FIXTURES SHALL BE REINSTALLED IN THE SAME LOCATION. CONTRACTOR SHALL VERIFY QUANTITY OF FIXTURES IN FIELD PRIOR TO BID AND INCLUDE ALL COSTS IN BASE BID. APPROXIMANTLY 20 FIXTURES IN EACH CORRIDOR.

2) CONTRACTOR SHALL REMOVE BOWL FIXTURES LOCATED IN THIS AREA AS REQUIRED. BOWL FIXTURES WILL BE REPLACED WITH CAN LIGHTS AS INDICATED ON THE LIGHTING PLANS. INCLUDE ALL COSTS IN BASE BID.

GENERAL NOTES

A) CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

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3 LEVEL 14 OVERALL LIGHTING PLAN 1/8" = 1'-0"





2 ELEVATOR LOBBY - WALL MURAL DETAIL 1" = 1'-0"



2 LEVEL 14 LIGHTING PLAN - CORRIDOR 1 1/4" = 1'-0"











## **KEYNOTES**

1) LIGHT FIXTURES SHOWN SHALL BE CIRCUITED TO NEAREST AVAILABLE CORRIDOR LIGHTING CIRCUIT WITH SPARE AMPACITY. MAINTAIN EXISTING CORRIDOR LIGHTING CONTROLS. CONTRACTOR SHALL VERIFY FINAL ROUTING AND REQUIREMENTS IN FIELD. CONTRACTOR SHALL PROVIDE AND INSTALL BOXES, CONDUIT, CONDUCTORS, AND OTHER NECESSARY APPURTENANCES REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. INCLUDE ALL COSTS IN BASE BID.

2) PROVIDE DIMMER SWITCH FOR CONTROL OF WALL WASHER FIXTURES(TYPE 'B1') AT WALL MURAL IN ELEVATOR LOBBY, CIRCUIT TO NEAREST AVAILABLE CORRIDOR LIGHTING CIRCUIT WITH SPARE AMPACITY.

**GENERAL NOTES** 

A) CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

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1 <u>LEVEL 15 DEMOLITION PLAN</u> 1/8" = 1'-0"

 Image: Normal State of Sta



# 2 LEVEL 15 NEW FLOOR PLAN 1/8" = 1'-0"





5











2 LEVEL 15 LIGHTING PLAN - CORRIDOR 1 1/4" = 1'-0"

![](_page_6_Figure_8.jpeg)

![](_page_6_Figure_9.jpeg)

## **KEYNOTES**

1) LIGHT FIXTURES SHOWN SHALL BE CIRCUITED TO NEAREST AVAILABLE CORRIDOR LIGHTING CIRCUIT WITH SPARE AMPACITY. MAINTAIN EXISTING CORRIDOR LIGHTING CONTROLS. CONTRACTOR SHALL VERIFY FINAL ROUTING AND REQUIREMENTS IN FIELD. CONTRACTOR SHALL PROVIDE AND INSTALL BOXES, CONDUIT, CONDUCTORS, AND OTHER NECESSARY APPURTENANCES REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. INCLUDE ALL COSTS IN BASE BID.

2) PROVIDE DIMMER SWITCH FOR CONTROL OF WALL WASHER FIXTURES(TYPE 'B1') AT WALL MURAL IN ELEVATOR LOBBY, CIRCUIT TO NEAREST AVAILABLE CORRIDOR LIGHTING CIRCUIT WITH SPARE AMPACITY.

## GENERAL NOTES

A) CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

5

![](_page_6_Figure_19.jpeg)

![](_page_7_Figure_0.jpeg)

![](_page_7_Figure_4.jpeg)

![](_page_7_Figure_7.jpeg)

![](_page_7_Figure_8.jpeg)

![](_page_7_Figure_9.jpeg)

5

![](_page_7_Figure_15.jpeg)

![](_page_8_Figure_2.jpeg)

2 ELEVATOR LOBBY - WALL MURAL DETAIL 1" = 1'-0"

![](_page_8_Picture_4.jpeg)

![](_page_8_Figure_6.jpeg)

![](_page_8_Figure_7.jpeg)

![](_page_8_Figure_8.jpeg)

5

![](_page_8_Picture_13.jpeg)

A) CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

![](_page_8_Figure_15.jpeg)

![](_page_9_Figure_0.jpeg)

![](_page_9_Figure_1.jpeg)

![](_page_9_Figure_2.jpeg)

![](_page_9_Figure_6.jpeg)

![](_page_9_Figure_7.jpeg)

## 3 LEVEL 17 OVERALL LIGHTING PLAN 1/8" = 1'-0"

![](_page_9_Figure_13.jpeg)

![](_page_9_Figure_14.jpeg)

![](_page_9_Figure_15.jpeg)

## 

1) CONTRACTOR SHALL CAREFULLY REMOVE EXISTING WALL SCONCES LOCATED IN THIS AREA. WHILE FIXTURES ARE REMOVED THE CONTRACTOR SHALL REMOVE WOOD TRIM ON THE BACK OF THE FIXTURES. EXISTING FIXTURES SHALL BE REINSTALLED IN THE SAME LOCATION. CONTRACTOR SHALL VERIFY QUANTITY OF FIXTURES IN FIELD PRIOR TO BID AND INCLUDE ALL COSTS IN BASE BID. APPROXIMANTLY 20 FIXTURES IN EACH CORRIDOR.

2) CONTRACTOR SHALL REMOVE BOWL FIXTURES LOCATED IN THIS AREA AS REQUIRED. BOWL FIXTURES WILL BE REPLACED WITH CAN LIGHTS AS INDICATED ON THE LIGHTING PLANS. INCLUDE ALL COSTS IN BASE BID.

**GENERAL NOTES** 

A) CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

6

![](_page_9_Figure_23.jpeg)

![](_page_10_Picture_0.jpeg)

![](_page_10_Figure_1.jpeg)

2 LEVEL 17 LIGHTING PLAN - CORRIDOR 1 1/4" = 1'-0"

![](_page_10_Figure_3.jpeg)

3 LEVEL 17 LIGHTING PLAN - CORRIDOR 2 1/4" = 1'-0"

## 

1) LIGHT FIXTURES SHOWN SHALL BE CIRCUITED TO NEAREST ÁVAILABLE CORRIDOR LIGHTING CIRCUIT WITH SPARE AMPACITY. MAINTAIN EXISTING CORRIDOR LIGHTING CONTROLS. CONTRACTOR SHALL VERIFY FINAL ROUTING AND REQUIREMENTS IN FIELD. CONTRACTOR SHALL PROVIDE AND INSTALL BOXES, CONDUIT, CONDUCTORS, AND OTHER NECESSARY APPURTENANCES REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. INCLUDE ALL COSTS IN BASE BID.

2) CONTRACTOR SHALL REMOVE EXISTING BLACK CHANDELIERS AND REPLACE WITH CAN LIGHTS AS INDICATED ON THE LIGHTING PLANS. VERIFY EXACT LOCATION ONSITE. LIGHT FIXTURES SHOWN SHALL BE CIRCUITED TO NEAREST AVAILABLE CORRIDOR LIGHTING CIRCUIT WITH SPARE AMPACITY. MAINTAIN EXISTING CORRIDOR LIGHTING CONTROLS. CONTRACTOR SHALL VERIFY FINAL ROUTING AND REQUIREMENTS IN FIELD. CONTRACTOR SHALL PROVIDE AND INSTALL BOXES, CONDUIT, CONDUCTORS, AND OTHER NECESSARY APPURTENANCES REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. INCLUDE ALL COSTS IN BASE BID.

### **GENERAL NOTES**

A) CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

5

![](_page_10_Figure_14.jpeg)

![](_page_11_Picture_0.jpeg)

CONTRACTOR SHALL PROVIDE RGBW TAPE LIGHT

CONTRACTOR SHALL VERIFY FINAL ROUTING AND

MOUNTING REQUIREMENTS IN FIELD. INCLUDE ALL

ALONG THE BACK SIDE OF THE GUITAR HEAD.

COSTS IN BASE BID.

GUITAR HEAD ELEVATOR FOCAL WALL

![](_page_11_Figure_2.jpeg)

4 LEVEL 17 - LOBBY DECORATIVE LIGHTING DETAILS 12" = 1'-0"

LED LINEAR FIXTURE TO BE RECESSED AT THIS LOCATION. FIXTURES SHALL HAVE A CONTINUOUS APPEARANCE FROM THE RECESSED TO THE SURFACE MOUNTED FIXTURES. CONTRACTOR SHALL VERIFY FINAL MOUNTING HEIGHT AND LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN AND PURCHASE OF EQUIPMENT. INCLUDE ALL COSTS IN BASE BID.

LED LINEAR FIXTURE TO BE RECESSED AT THIS -----LOCATION. FIXTURES SHALL HAVE A CONTINUOUS APPEARANCE FROM THE RECESSED TO THE SURFACE MOUNTED FIXTURES. CONTRACTOR SHALL VERIFY FINAL MOUNTING HEIGHT AND LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN AND PURCHASE OF EQUIPMENT. INCLUDE ALL

COSTS IN BASE BID.

![](_page_11_Picture_9.jpeg)

#### -LED SURFACE MOUNTED LINEAR FIXTURE SHALL NOT CONTINUE BEYOND THIS LOCATION. PENDANT MOUNTED VERSION OF THE SAME FIXTURE SHALL CONTINUE BEYOND THIS LOCATION.

-LED LINEAR FIXTURE TO BE SURFACE MOUNTED AT THIS LOCATION. FIXTURES SHALL HAVE A CONTINUOUS APPEARANCE FROM THE RECESSED TO THE SURFACE MOUNTED FIXTURES. CONTRACTOR SHALL VERIFY FINAL MOUNTING HEIGHT AND LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN AND PURCHASE OF EQUIPMENT. INCLUDE ALL COSTS IN BASE BID.

-SUSPENDED RING FIXTURE TO BE MOUNTED ABOVE THE LINEAR PENDANT FIXTURES. CONTRACTOR SHALL VERIFY FINAL MOUNTING HEIGHT, DIAMETER AND LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN AND PURCHASE OF EQUIPMENT. INCLUDE ALL COSTS IN BASE BID.

![](_page_11_Figure_14.jpeg)

1 LEVEL 17 LIGHTING PLAN - LOBBY 3/8" = 1'-0"

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![](_page_11_Picture_17.jpeg)

![](_page_11_Figure_18.jpeg)

E		
		(1) W1
D	1       ENLARGED DOUBLE QUEEN ROOM (TYPICAL)         3/8" = 1'-0"	
J		
_	- ;HER	OKEE SUITE
B		
_		
А	T T T T T T T T T T T T T T	
9 11:26:25 AM	0 11:26:25 AM	

 Image: Normal State of Sta

![](_page_12_Figure_3.jpeg)

![](_page_12_Figure_4.jpeg)

![](_page_12_Figure_5.jpeg)

![](_page_12_Figure_6.jpeg)

![](_page_12_Figure_7.jpeg)

6 ENLARGED JUNIOR SUITE (TYPICAL) 3/8" = 1'-0"

5 KING(S) (TYPICAL) 1/2" = 1'-0"

![](_page_12_Figure_11.jpeg)

TAPE LIGHT TO BE RECESSED IN THE TOP OF THE HEADBOARD. VERIFY FINAL MOUNTING LOCATION

AND LENGTHS REQUIRED WITH ARCHITECT. TYPICAL "T1" FIXTURES.

R1

- READING LIGHT TO BE MOUNTED AT APPROXIMATELY THIS LOCATION. COORDINATE FINAL LOCATION WITH ARCHITECT. TYPICAL "R1" FIXTURES

![](_page_12_Figure_13.jpeg)

![](_page_13_Figure_0.jpeg)

 1/16"=1'-0"
 2

 1/16"=1'-0"
 0

 1/8"=1'-0"
 0

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

	3											4				
4'	0	1'	2'	1"-1' 0" <sup>0</sup>	6"	1'	2'	0	3"	6"	1'	0	3"	6"		
	3/4"=1'-0"			1 - 1 -0				1 1/2"=1'-0"				3"=1'-0"				

![](_page_13_Figure_4.jpeg)

![](_page_13_Figure_5.jpeg)

![](_page_13_Figure_6.jpeg)

![](_page_13_Figure_7.jpeg)

## 

1) ALL NEW LIGHT FIXTURES SHOWN SHALL BE CIRCUITED TO NEAREST AVAILABLE LIGHTING CIRCUIT WITH SPARE AMPACITY FOR THE SAME SUITE. MAINTAIN EXISTING LIGHTING CONTROLS UNLESS OTHERWISE NOTED. CONTRACTOR SHALL VERIFY FINAL ROUTING AND REQUIREMENTS IN FIELD. CONTRACTOR SHALL PROVIDE AND INSTALL BOXES, CONDUIT, CONDUCTORS, AND OTHER NECESSARY APPURTENANCES REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. INCLUDE ALL COSTS IN BASE BID.

2) REFER TO DETAIL 1 ON SHEET E7.2 FOR NEW HEAD BOARD DETAIL INDICATING POWER AND LIGHTING RECEPTACLES FOR THIS LOCATION. CONTRACTOR SHALL PROVIDE AND INSTALL BOXES, CONDUIT, CONDUCTORS, CONNECTIONS, AND OTHER NECESSARY APPURTENANCES REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. INCLUDE ALL COSTS IN BASE BID.

3) REFER TO DETAIL 5 ON SHEET E7.1 FOR NEW HEAD BOARD DETAIL INDICATING POWER AND LIGHTING RECEPTACLES FOR THIS LOCATION. CONTRACTOR SHALL PROVIDE AND INSTALL BOXES, CONDUIT, CONDUCTORS, CONNECTIONS, AND OTHER NECESSARY APPURTENANCES REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. INCLUDE ALL COSTS IN BASE BID.

6

# -REPLACE TWO EXISTING PENDANTS IN THE

-LED COVELIGHT(TYPE 'K1') INSET IN ACRYLIC PANELS AT HEADBOARD FOR ILLUMINATING SHELF

-HEADBOARD

W1 3  $\bigvee_{W1}$ FULL SUITE

![](_page_13_Figure_17.jpeg)

#### 26A 1 GENERAL INSTRUCTIONS

26A 1-1 GENERAL REQUIREMENTS

Requirements under Division 1 and the general and supplementary conditions of these specifications apply to this section and division. Where the requirements of this section and division exceed those of Division 1, this section and division take precedence. Become thoroughly familiar with all their contents as to requirements that affect this division, section or both. The work required under this section includes material, equipment, appliances, transportation, services, and labor required to complete the entire system as required by the drawings and specifications, or reasonably inferred to be necessary to facilitate each system's functioning as implied by the design and the equipment specified.

The specifications and drawings for the project are complementary, and portions of the work described in one, shall be provided as if described in both. In the event of discrepancies, notify the engineer and request clarification prior to proceeding with the work involved.

Drawings are graphic representations of the work upon which the contract is based. They show the materials and their relationship to one another, including sizes, shapes, locations, and connections. They also convey the scope of work, indicating the intended general arrangement of the equipment and other materials without showing all of the exact details as to elevations, offsets, control lines, and other installation requirements. Use the drawings as a guide when laying out the work and to verify that materials and equipment will fit into the designated spaces, and which, when installed per manufacturers' requirements, will ensure a complete, coordinated, satisfactory and properly operating system. Determine exact locations by job measurements, by checking the requirements of other trades, and by reviewing all contract documents. Correct errors that could have been avoided by proper checking and inspection, at no additional cost to the owner.

Specifications define the qualitative requirements for products, materials, and workmanship upon which the contract is based. 26A 1-2 DEFINITIONS

Whenever used in these specifications or drawings, the following terms shall have the indicated meanings:

Furnish: "to supply and deliver to the project site, ready for unloading, unpacking, assembling, installing, and similar operations." Install: "to perform all operations at the project site, including, but not limited to, and as required: unloading, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, testing,

commissioning, starting up and similar operations, complete, and ready for the intended use." Provide: "to furnish and install complete, and ready for the intended use."

Furnished by owner (or owner-furnished) or furnished by others: "an item furnished by the owner or under other divisions or contracts, and installed under the requirements of this division, complete, and ready for the intended use, including all items and services incidental to the work necessary for proper installation and operation. Include the installation under the warranty

Engineer: where referenced in this division, "engineer" is the engineer of record and the design professional for the work under this division, and is a consultant to, and an authorized representative of, the architect, as defined in the general and/or supplementary conditions. When used in this division, it means increased involvement by, and obligations to, the engineer, in addition to involvement by, and obligations to, the "architect".

AHJ: the local code and/or inspection agency (authority) having jurisdiction over the work. NRTL: nationally recognized testing laboratory, as defined and listed by OSHA in 29 CFR 1910.7 (e.g., UL, ETL, CSA), and acceptable to the AHJ over this project.

The terms "approved equal", "equivalent", or "equal" are used synonymously and shall mean "accepted by or acceptable to the engineer as equivalent to the item or manufacturer specified". The term "approved" shall mean labeled, listed, certified, or all three, by an NRTL, and acceptable to the AHJ over this project. 26A 1-3 PRE-BID SITE VISIT

Prior to submitting bid, visit the site of the proposed work and become fully informed as to the conditions under which the work is to be done. Failure to do so will not be considered sufficient justification to request or obtain extra compensation over and above the contract price.

26A 1-4 MATERIAL AND WORKMANSHIP

required by this division.

Provide all material and equipment new and in first class condition. Provide markings or a nameplate for all material and equipment identifying the manufacturer and providing sufficient reference to establish quality, size and capacity. In general, provide the following quality grade(s) for all materials and equipment: Commercial Specification Grade

Work performed under this contract shall provide a neat and "workmanlike" appearance when completed, to the satisfaction of the architect and engineer. Workmanship shall be the finest possible by experienced mechanics of the proper trade The complete installation shall function as designed and intended with respect to efficiency, capacity, noise level, etc. Abnormal or excessive noise from equipment, devices or other system components will not be acceptable.

Remove from the premises waste material present as a result of work. Clean equipment installed under this contract to present a neat and clean installation at the termination of the work.

Repair or replace public and private property damaged as a result of work performed under this contract to the satisfaction of authorities and regulations having jurisdiction.

26A 1-5 MANUFACTURERS

In other articles where lists of manufacturers are introduced, subject to compliance with requirements, provide products by one of the manufacturers specified.

Where a list is provided, manufacturers listed are not in accordance with any ranking or preference.

Where manufacturers are not listed, provide products subject to compliance with requirements from manufacturers that have been actively involved in manufacturing the specified product for no less than 5 years. 26A 1-6 COORDINATION

Coordinate all work with other divisions and trades so that the various components of the systems will be installed at the proper time, fit the available space, and will allow proper service access to those items requiring maintenance. Refer to all other division's drawings, and to relevant equipment submittals and shop drawings to determine the extent of clear spaces. Components which are installed without regard to the above shall be relocated at no additional cost to the owner.

Unless otherwise indicated, the general contractor will provide chases and openings in building construction required for installation of the systems specified herein. Contractor shall furnish the general contractor with information where chases and openings are required. Make all offsets required to clear equipment, beams and other structural members, and to facilitate concealing system components in the manner anticipated in the design. Keep informed as to the work of other trades engaged in the construction of the project, and execute work in a manner as to not interfere with or delay the work of other trades.

Figured dimensions shall be taken in preference to scale dimensions. Contractor shall take his own measurements at the building, as variations may occur. Contractor will be held responsible for errors that could have been avoided by proper checking and inspection

Provide materials with trim that will properly fit the types of ceiling, wall, or floor finishes actually installed. Model numbers listed in the construction documents are not necessarily intended to designate the required trim. 26A 1-7 ORDINANCES, CODES, AND STANDARDS

Work performed under this contract shall, at a minimum, be in conformance with applicable national, state and local codes having jurisdiction. Equipment furnished and associated installation work performed under this contract shall be in strict compliance with current applicable codes adopted by the local AHJ including any amendments and standards as set forth by the National Fire Protection Association (NFPA), Underwriters Laboratories (UL), Occupational Safety and Health Administration (OSHA), American Society of Mechanical Engineers (ASME), American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), American National Standards Institute (ANSI), American Society of Testing Materials (ASTM) and other national standards and codes where applicable. Additionally, comply with rules and regulations of public utilities and municipal departments affected by connection of services. Where the contract documents exceed the requirements of the referenced codes, standards, etc., the contract documents shall take precedence.

Promptly bring all conflicts observed between codes, ordinances, rules, regulations, referenced standards, and these documents to the engineer's attention for final resolution. Contractor will be held responsible for any violation of the law.

Procure and pay for permits and licenses required for the accomplishment of the work herein described. Where required, obtain, pay for and furnish certificates of inspection to owner. Contractor will be held responsible for violations of the law.

26A 1-8 PROTECTION OF EQUIPMENT AND MATERIALS new equipment and material as required at no additional cost to the owner.

shall have a neat and clean appearance at the termination of the work.

debris into the systems.

26A 1-9 SUBSTITUTIONS

each proposed alternate.

substitution.

The Architect's or Engineer's decision to approve or disapprove a substitution in a Bid is final. rely upon approvals made in any other manner, including verbal.

No substitutions will be considered after receipt of Bids and before award of the Contract.

26A 1-10 SUBMITTALS

without action:

The project name. The applicable specification section and paragraph. The submittal date. drawings and specifications, and have been coordinated with other trades.

Submittals and shop drawings shall not contain HP Engineering's firm name or logo, nor shall it contain the HP Engineering's engineers' seal and signature. They shall not be copies of HP Engineering's work product.

Transmit submittals as early as required to support the project schedule. Allow for two weeks engineer review time, plus a duplication of this time for re-submittals, if required. The engineer's submittal reviews will not relieve the contractor from responsibility for errors in dimensions, details, size of members, or quantities; or for omitting components or fittings; or for not coordinating items with actual building conditions.

Refer to division 1 for acceptance of electronic submittals for this project. For electronic submittals, contractor shall submit the documents in accordance with the procedures specified in division 1. Contractor shall notify the architect and engineer that the shop drawings have been posted. If electronic submittal procedures are not defined in division 1, contractor shall include the website, user name and password information needed to access the submittals. For submittals sent by e-mail, contractor shall copy the architect and engineer's designated representatives. Contractor shall allow the engineer review time as specified above in the construction schedule. Contractor shall submit only the documents required to purchase the materials and/or equipment in the electronic submittal and shall clearly indicate the materials, performance criteria and accessories being proposed. General product catalog data not specifically noted to be part of the specified product will be rejected and returned without review.

26A 1-11 ELECTRONIC DRAWING FILES

In preparation of shop drawings or record drawings, contractor may, as an option, obtain electronic drawing files in Revit, AutoCAD, or DXF format from the engineer for a fee of \$200 for the first sheet and \$100 per sheet for each additional sheet. Contact the architect for written authorization; and, contact the engineer to obtain the necessary release agreement form and to indicate the desired shipping method and drawing format. In addition to payment, architect's written authorization and engineer's release agreement form must be received before electronic drawing files will be sent. 26A 1-12 OPERATION AND MAINTENANCE MANUALS

Electronically submit to the architect, for engineer's review, copies each of operations and maintenance instruction manuals, include approved copies of the following, revised if necessary to show system and equipment as actually installed. Paper clips, staples, rubber bands, and mailing envelopes are not considered approved binders. Provide the number of submittals required by Division 1; however, at a minimum, submit two (2) sets, and include, at a minimum, the following information: Cover sheet that lists the project name, date, owner, architect, consulting engineer, general contractor, sub-contractor, and an index of contents

Manufacturers' catalogs and product data sheets Wiring diagrams **Operation and Maintenance instructions** 

Parts lists Approved shop drawings

Test reports as defined in NETA ATS for the systems and equipment provided or furnished or installed under this contract. Names, addresses, telephone numbers, and e-mail addresses of local contacts for warranty services and spare parts.

Submit manuals prior to requesting the final punch list and before any requests for substantial completion. Final approval of this division's systems installed under this contract will be withheld until this equipment brochure is received and deemed complete by the architect and engineer. Provide "as-built" drawings (see Division 1 and general conditions).

26A 1-13 TRAINING

project.

Schedule training with owner with at least 7 days advance notice. 26A 1-14 WARRANTIES

the owner.

Perform any required remedial work promptly, upon written notice from the engineer or owner. commencement date and term.

#### Store and protect from damage equipment and materials delivered to job site, in accordance with manufacturers' recommendations. For materials and equipment susceptible to changing weather conditions, dampness, or temperature variations, store inside in conditioned spaces. For materials and equipment not susceptible to these conditions, cover with waterproof, tear-resistant, heavy tarp or polyethylene plastic as required to protect from plaster, dirt, paint, water, or physical

damage. Equipment and material that has been damaged by construction activities will be rejected, and contractor shall furnish Keep premises broom clean from foreign material created during work performed under this contract. Piping, equipment, etc.

Plug or cap open ends of conduits while stored and installed during construction when not in use to prevent the entrance of

Include in the base bid the products specifically named in these specifications or on the drawings. Submit, in the form of alternates, with bid, products of any other manufacturers for similar use, provided the differences in cost, if any, are included for

No substitutions will be considered with receipt of Bids, unless the Architect and Engineer have received from the Bidder a written request for approval to bid a substitution at least ten calendar days prior to the date for receipt of Bids, and have approved the substitution request. Include, with each such request, the name of the material or equipment for which substitution is being requested, and a complete description of the proposed substitution, including drawings, cut sheets, performance and test data, and all other information necessary for an evaluation. Include also a statement setting forth changes in other materials, equipment or other work that would be required to incorporate the substitution. The burden of proof of the merit of the proposed substitute is upon the proposer. The proposer of any substitutions shall compensate the Engineer at a rate of \$150.00 per hour for time spent evaluating proposed substitutions and or the subsequent revisions to the design required to utilize the

If the proposed substitution is approved prior to receipt of Bids, such approval will be stated in an Addendum. Bidders shall not

No substitutions will be considered after the Contract is awarded unless specifically provided in the Contract Documents.

Assemble and submit to the architect, for engineer's review, manufacturers' product literature for material and equipment to be furnished, installed, or both, under this division, including shop drawings, manufacturers' product data and performance sheets, samples, and other submittals required by this division. Highlight, mark, list or indicate the materials, performance criteria and accessories that are being proposed. Before submitting, verify that all materials and equipment submitted are mutually compatible and suitable for the intended use, fit the available spaces, and allow ample and code-required room for access and maintenance. Submittals shall contain the following information. Submittals not so identified will be returned to the contractor

The contractor's stamp, which shall certify that the stamped drawings have been checked by the contractor, comply with the

At a time mutually agreed upon between the owner and contractor, provide the services of a factory trained and authorized representative to train owner's designated personnel on the operation and maintenance of the equipment provided for this

Provide training to include but not be limited to an overview of the system and/or equipment as it relates to the facility as a whole; operation and maintenance procedures and schedules related to startup and shutdown, troubleshooting, servicing, preventive maintenance and appropriate operator intervention; and review of data included in the operation and maintenance manuals. Submit a certification letter to the architect stating that the owner's designated representative has been trained as specified herein. Letter shall include date, time, attendees and subject of training. The contractor and the owner's representative shall sign the certification letter indicating agreement that the training has been provided.

Warrant each system and each element thereof against all defects due to faulty workmanship, design or material for a period of 12 months from date of substantial completion, unless specific items are noted to carry a longer warranty in the construction documents or manufacturer's standard warranty exceeds this duration. Warranties shall include labor and material. Remedy all defects, occurring within the warranty period(s), as stated in the general conditions and Division 1 without any additional costs to

At the time of substantial completion, deliver to the owner all warranties, in writing and properly executed, including term limits for warranties extending beyond the required period, each warranty instrument being addressed to the owner and stating the

26A 2 ELECTRICAL WORK

26A 2-1 BUILDING OPERATION

Comply with the schedule of operations as outlined in the architectural portions of this specification. Building shall be in continuous operation. Accomplish work that requires interruption of building operation at a time when the building is not in operation, and only with written approval of building owner and/or tenant. Coordinate interruption of building operation with the owner and/or tenant a minimum of 7 days in advance of work.

26A 2-2 EXCAVATION AND BACKFILLING Perform excavation and backfill required for installation of underground work under this contract. Trenches shall be of sufficient width. Crib or brace trenches to prevent cave-in or settlement. Do not excavate trenches close to columns and walls of building without prior consultation with the architect. Use pumping equipment if required to keep trenches free of water. Backfill trenches in maximum 6" layers of well-tamped dry earth in a manner to prevent future settlement.

Excavation as herein specified shall be classified as common excavation. Common excavation shall comprise the satisfactory removal and disposition of material of whatever substances and of every description encountered, including rock, if any, within the limits of the work as specified and shown on the drawings. Excavation shall be performed to the lines and grades indicated on the drawings. Excavated materials which are considered unsuitable for backfill, and surplus of excavated material which is not required for backfill, shall be disposed of by the contractor at his own expense and responsibility, and to the satisfaction of the architect.

26A 2-3 COINCIDENTAL DAMAGE

Repair all streets, sidewalks, drives, paving, walls, finishes, and other facilities damaged in the course of this work. Repair materials shall match existing construction and or conform to all requirement identified in other divisions. All backfilling and repairing shall meet all requirements of the owner, city and others having jurisdiction. Repair work shall be thoroughly first class. 26A 2-4 CUTTING AND PATCHING

Following the requirements in Division 1, cut walls, floors, ceilings, and other portions of the facility as required to perform work under this division. Obtain permission of the architect, owner, or both, before doing any cutting. Cut all holes as small as possible. Patch walls, floors, and other portions of the facility as required by work under this division. All patching shall be thoroughly first class and shall match the original material and construction, including fire ratings if applicable in a manner satisfactory to the architect.

26A 2-5 ROUGH-IN

Coordinate without delay all roughing-in with other divisions. Conceal all piping and rough-in except in unfinished areas and where otherwise indicated in the construction documents. A.Metallic coatings: hot-dip galvanized after fabrication and applied according to MFMA-3

B.Nonmetallic coatings: manufacturer's standard PVC, polyurethane or polyester coating applied according to MFMA-3. C.Painted coatings: manufacturer's standard painted coating applied according to MFMA-3. D. Stainless steel: type 304, per ASTM A240.

2.Aluminum slotted support systems (slotted channel): comply with MFMA-3, type 6063-T6, per ASTM B221; factory-fabricated components for field assembly; 12-gauge, 1-5/8-inch by 1-5/8-inch; Cooper B-Line, Erico International Corporation, Hilti, Inc., Power-Strut, Thomas & Betts Corporation, Unistrut.

Field Fabrication:

Where field cutting of standard lengths of channel are required, make cuts straight and perpendicular to manufactured surfaces. For field-cut or damaged surfaces of coated channels, dress cut ends, damaged surfaces, or both, with an abrasive material

(e.g., file, grinding stone, or similar) and cleanser to remove oils, rust, sharp edges and shards. For channel with a factory-applied coating, re-finish cut edges with a coating compatible with the factory finish and as recommended by the manufacturer (e.g., manufacturer's touch-up paint or zinc-rich cold-galvanizing compound, as applicable).

26A 2-7 PENETRATIONS

Coordinate sleeve selection and application with selection and application of fire-stopping specified in Division 7 section "through-penetration firestop systems."

Roofs:

Coordinate all roof penetrations with engineer, owner, and as applicable, the roofing contractor providing a roof warranty. Keep all raceway penetrations within mechanical equipment curbs wherever possible. Coordinate with all other applicable Division's work.

Flash and counterflash all openings through roof, and/or provide pre-fabricated molded seals compatible with the roof construction installed, or as required by the engineer, owner, or roofing contractor. All roof penetrations shall be leak-tight at the termination of the work and shall not void any new or existing roof warranties.

Walls and Floors: Sleeves for raceways and cables

Steel pipe sleeves: ASTM A 53/A 53M, type E, grade B, schedule 40, galvanized steel, plain ends and drip rings. Cast-iron pipe sleeves: cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

Sleeves for rectangular openings: galvanized sheet steel with minimum 0.138 inch thickness and of width and length to suit application.

26A 2-8 FIRE-STOPPING THROUGH PENETRATIONS

Fire-resistant through penetration sealants: two-part, foamed-in-place, silicone sealant formulated for use in through-penetration fire-stopping around cables, raceways, and cable tray penetrations through fire-rated walls and floors. Sealants and accessories shall have fire-resistance ratings indicated, as established by testing identical assemblies in accordance with ASTM E 814, by underwriters' laboratories, inc., or other NRTL acceptable to AHJ.

Acceptable manufacturers: Hilti, Inc.

3m Corp. Rectorseal.

Specify Technology Inc United States Gypsum Company.

Submittals

Submit product data, manufacturer's specifications and technical data for each material including the composition and limitations, documentation of UL firestop systems to be used and manufacturer's installation instructions to comply with Division 1.

Manufacturer's engineering judgment identification number and drawing details when no UL system is available for an application. Engineering judgment shall include both project name and contractor's name who will install firestop system as

Submit material safety data sheets provided with product delivered to job-site.

26A 2-9 CONCRETE BASES

described in drawings.

Provide concrete bases (e.g., housekeeping pads) for equipment where indicated on the drawings and as specified herein. Concrete bases shall have chamfered edges. Size of base shall be a minimum of 2 inches greater than the footprint of the equipment that it is supporting.

Construct equipment bases of a minimum 28-day, 4000-psi concrete conforming to American Concrete Institute standard building code for reinforced concrete (ACI 318-99) and the latest applicable recommendations of the ACI standard practice manual. Concrete shall be composed of cement conforming to ASTM C 150 type I, aggregate conforming to ASTM C33, and potable water. Exposed exterior concrete shall contain 5 to 7 percent air entrainment.

Unless otherwise specified or shown on the structural drawings, reinforce equipment bases with no. 4 reinforcing bars conforming to ASTM A 615 or 6x6 – w2.9 x w2.9 welded wire mesh conforming to ASTM A185. Place reinforcing bars 24 inches on center with a minimum of two bars each direction.

Provide galvanized anchor bolts for equipment placed on concrete bases or on concrete slabs. Anchor bolts size, number and placement shall be as recommended by the manufacturer of the equipment. Concrete equipment bases shall have a minimum height of 4 inches and shall be poured-in-place.

26A 2-10 ACCESS DOORS

Provide access doors in ceilings and walls, where indicated or required for access or maintenance to concealed equipment installed under this section. Provide concealed hinges, screwdriver-type lock, and anchor straps. Manufactured by Milcor, Zurn, Titus, or equal. Obtain architect's approval of type, size, location and color before ordering.

#### 26A 2-11 EQUIPMENT FURNISHED BY OTHERS

Provide necessary equipment and accessories that are not provided by the equipment supplier or owner to complete installation of equipment furnished by others, in locations as indicated on the drawings, specified herein, or both. Equipment and accessories not provided by the equipment supplier may include such items as flexible cords and plugs, as required for proper operation of the complete system, in accordance with the manufacturers' instructions.

Be responsible for correct rough-in dimensions, and verify them with engineer, owner's representative, equipment supplier, or all three, prior to rough-in and service installations.

#### 26A 2-12 CLEANING

In addition to the requirements of Division 1, remove from the premises dirt and refuse resulting from the performance of the electrical work, as required, to prevent accumulation. Cooperate in maintaining reasonably clean premises at all times. Immediately prior to final inspection, make a final cleanup of dirt and refuse resulting from the work. Clean all material and equipment installed under this division. Remove dirt, dust, plaster, stains and foreign matter from all surfaces. Touch up and restore all damaged finishes to their original condition.

26A 2-13 ADJUSTING, ALIGNING AND TESTING

Adjust, align, and test all electrical equipment on this project provided under this division and all electrical equipment furnished by others for installation or wiring under this division, for proper operation.

Test all systems and equipment according to the requirements in NETA ATS (latest edition) and all additional requirements specified in following sections.

Maintain the following on the project premises at all times: a true RMS reading voltmeter, a true RMS reading ammeter, and a megohmmeter insulation resistance tester. Provide test data readings as requested or as required by the engineer. 26A 2-14 EQUIPMENT IDENTIFICATION

Provide equipment identification nameplates:

-On all panelboards, switches, starters, dimmers, switches in distribution panelboards and switchboards as well as where indicated elsewhere in the construction documents

#### Nameplates:

Engraved, contrasting color, three-layer, laminated plastic indicating the name of the equipment, load, or circuit as designated on the drawings and in the specifications:

-Field-applied permanent epoxy adhesive, compatible with the equipment finish. -Attachment method shall be acceptable to the manufacturers of the equipment to which the nameplates are being applied. Color: black background with white letters for normal power; red background with white letters for emergency power. Letter height: 1/2 -inch minimum.

26A 2-15 SYSTEM START UP

Check all components and devices.

Prior to starting up the electrical systems:

Lubricate items accordingly.

Tighten screws and bolts for connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486a and UL 486b.

Adjust taps on each transformer for rated secondary voltage when the transformer is at minimum load.

Check and record building's service entrance voltage, grounding conditions, grounding resistance, and proper phasing.

Replace all burned-out lamps and lamps used for temporary construction lighting in permanent light fixtures. Replace all defective ballasts, drivers, lamps, fixtures, or other components as necessary to ensure a fully operational and functional lighting system

for all new and existing fixtures to remain.

After all systems have been inspected and adjusted, confirm all operating features required by the drawings and specifications and make final adjustments as necessary.

#### 26A 4 ALTERNATES

Provide all work contemplated under the different alternates to include labor, materials, equipment and services necessary for and incidental to the completion of work under each particular alternate. Furnish separate bids for each alternate applicable to contractor's proposal, stating the amount to be added or deducted from the base bid in case the alternate is accepted. Comply with applicable sections of the base specifications for work required by the alternate unless otherwise specified. Refer to the architectural portion of the specification.

END OF SECTION 26A

![](_page_14_Figure_151.jpeg)

#### 26B BASIC ELECTRICAL MATERIALS AND METHODS rev - 20150520 26B 1 METHODS 26B 1-1 RACEWAYS Metallic Conduit And Tubing: Electrical Metallic Tubing and fittings (EMT): ANSI C80.3, UL 797. Reduced wall EMT is not allowed. Flexible Metal Conduit (FMC): zinc-coated steel or aluminum, UL 1.

Reduced-wall FMC is not allowed. Intermediate Metal Conduit (IMC): hot-dip galvanized rigid steel conduit: ANSI C80.6, UL 1242.

Liquidtight Flexible Metal Conduit (LFMC): flexible steel conduit with PVC jacket: UL 360

Rigid Metal Conduit (RMC): hot-dip Galvanized Rigid Steel conduit (GRS): ANSI C80.1, UL 6. Plastic-coated IMC, RMC, and fittings: NEMA RN 1, UL listed.

IMC and RMC fittings: NEMA FB 1; compatible with conduit type and material, UL listed

Non-Metallic Conduit And Tubing:

Rigid Nonmetallic Conduit (RNC): schedule 40 PVC, 90 deg C rated, NEMA TC-2, UL 651; fittings: NEMA TC 3, TC 6; UL 514, compatible with conduit/tubing type and material, UL listed. Electrical Nonmetallic Tubing (ENT): NEMA TC 13, UL listed.

Liquidtight Flexible Nonmetallic Conduit (LFNC): UL 1660.

ENT and LFNC fittings: Compatible with conduit/tubing type and material, UL listed. 26B 1-2 RACEWAY INSTALLATION

## Above Ground Use:

Install all circular raceways concealed above suspended ceilings or concealed in walls or floors wherever possible except where otherwise indicated.

Provide GRS for all conduits run exposed to weather, or exposed to other hazardous conditions.

All other raceway may be EMT where approved by local code. Use compression type fittings for EMT, with all fittings UL listed for the environment in which they are used.

#### Underground use: Provide GRS installed below grade with a corrosion resistant bonded-plastic or approved mastic coating. This shall include the

90-degree elbow below grade and the entire vertical transition to above grade. RNC conduit may be used underground where permitted by local code and where not specifically restricted by these documents. When used, provide coated GRS, as specified above, for all bends greater than 30 degrees, including the 90-degree elbows below grade and the entire vertical risers for transitions from below to above grade or above-slab.

Equipment Connections Use FMC for final connection to each motor and transformer, and to any device that would otherwise transmit motion, vibration, or noise. Use LFMC where exposed to liquids, vapors or sunlight, and to connect to kitchen and food service equipment. Provide all FMC and LFMC with an insulated bonding conductor.

Use only metal raceways for all power wiring from the output of variable frequency drives to their respective motors. All feeders to variable frequency drives (VFDs) shall be in EMT or other metallic conduit. PVC or fiberglass is not allowed for feeders to VFDs. General Raceway Installation Requirements:

Install raceways parallel and perpendicular to building lines.

Install raceways to requirements of structure and to requirements of all other work on the project; to clear all openings, depressions, pipes, ducts, reinforcing steel, and other immovable obstacles.

Install raceways set in forms for concrete structure in such a manner that installation will not affect the strength of the structure. Except where approved in writing by the engineer, install no raceway in a slab-on-grade. Locate raceway in granular fill below slabs-on-grade.

Install raceways continuous between connections to outlets, boxes and cabinets with a minimum possible number of bends and not more than the equivalent of four 90-degree bends between connections. Use manufactured elbows for all 45- and 90-degree bends, unless approved by the engineer in advance. Make other bends smooth and even and without flattening raceway or flaking galvanizing or enamel. Radii of bends shall be as long as possible and never shorter than the corresponding trade elbow. Use long radius elbows for all underground installations, where necessary or indicated.

Securely fasten raceways in place with approved straps, hangers and steel supports as required. Attach raceway supports to the building structure. Hang single raceways for feeders with malleable split ring hangers with rod and turnbuckle suspension from inserts spaced not over 10 feet apart in construction above. Clamp groups of horizontal feeder raceways to steel channels that are suspended from inserts spaced not over 10 feet apart in construction above. Securely clamp vertical feeder raceways to structural steel members attached to structure. Install cable clamps for support of vertical feeders where required. Add raceway supports within 12 inches of all bends, on both sides of the bends. Do not support raceways from suspended ceiling components.

Ream raceway ends, thoroughly clean raceways before installation, and keep clean after installation. Plug or cover openings and boxes as required to keep raceways clean during construction and fish all raceways clear of obstructions before pulling conductors. Provide raceways of ample size for pulling of wire and not smaller than code requirements and not less than 1/2-inch in size, unless indicated otherwise on drawings.

Protect all raceway installations against damage during construction. Repair all raceways damaged or moved out of line after roughing-in to meet engineer's approval without additional cost to the owner. Align and install true and plumb all raceway terminations at panelboards, switchboards, motor control equipment and junction

Install approved expansion/deflection fittings where raceways pass through (if embedded) or across (if exposed) expansion joints. Also when using RNC or RAC in exposed environments in accordance with the NEC and expansion/contraction properties of RNC or RAC.

Install a pull wire in each empty raceway that is left for installation of conductors or cables under other divisions or contracts. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 24 inches of slack at each end of pull wire.

Make all joints and connections in a manner that will ensure mechanical strength and electrical continuity.

26B 1-3 BUSHINGS AND LOCKNUTS

Rigidly terminate conduits entering sheet metal enclosures to the enclosure with a bushing and locknut on the inside and a locknut or an approved hub on the outside. Conduit shall enter the enclosure squarely.

Provide bushings and locknuts made of galvanized malleable iron with sharp, clean-cut threads.

Where EMT enters a box, provide approved EMT compression connectors.

Use insulated, grounding, or combination, bushings wherever connection is subject to vibration or moisture, when required by NFPA 70, or both. 26B 1-4 CONDUCTORS AND CABLES

Conductor Material: Annealed (soft) copper complying with ICEA S-95-658/NEMA WC70: Conductor insulation types: 90-degree C-rated, type THHN/THWN-2 or XHHW-2 complying with ICEA S-95-658/NEMA WC70. Sizes of conductors and cables indicated or specified are in American Wire Gage (AWG - brown and sharpe).

All feeder and branch circuit conductors no. 8 AWG and larger: stranded. All conductors, no. 10 AWG and smaller: solid copper

All branch circuit wiring: shall not be smaller than no. 12 AWG. If no conductor size is indicated on the drawings for a branch circuit, provide conductors and conduit sized per NFPA 70 and based on the indicated branch circuit overcurrent protective device (OCPD) rating and number of poles. Where no circuit size (i.e., conductors and OCPD) is indicated on the drawings for a branch circuit, provide three no. 12 AWG conductors, in 1/2-inch raceway, and a 20a circuit breaker.

Control wiring: stranded copper conductors, 600v insulation, of the proper type, size and number as required to accomplish specified function. Minimum size: no. 14 AWG, unless noted otherwise. Stranded for all flexible cords and cables, or as otherwise indicated.

Unless indicated otherwise, special purpose conductors and cables, such as low voltage control and shielded instrument wiring, shall be as recommended by the system equipment manufacturer. Type MC cable: 600v, unjacketed; ANSI E119 and E814, UL standards 44 or 83 (as applicable), and 1569, NFPA 70 article 330;

aluminum or galvanized steel interlocked armor; THHN- or XHHW-insulated conductors; color code: ICEA method 1, with green insulated grounding conductor 26B 1-5 INSTALLATION OF CONDUCTORS AND CABLES

Install all wiring in approved raceway and enclosures , except where specified or indicated, for low-voltage wiring or direct-buried cables; or, where type MC cable is indicated, specified as acceptable, or both.

Support all conductors and cables in vertical installations, as required by NFPA 70, by installing cable supports or plug-type conduit riser supports, or wire-mesh safety grips.

minimum required. Insulate all splices, taps, and joints as required by codes.

All materials used to terminate, splice or tap conductors: designed for, properly sized for, and UL listed for the specific application and conductors involved, and installed in strict accordance with the manufacturer's recommendations, using the manufacturer's ecommended tools.

minimum 3-foot "pigtail" at the box, tape the ends of the conductors, and cover the box. The number of conductors in a specific raceway "home run" is typically indicated with cross lines (tick marks) on each "circuit run"

runs" were indicated in their entirety.

examples.

When multiple home runs are combined into a single raceway such that the number of conductors exceeds four (conductor count is made up of any combination of phase and neutral conductors), the following restrictions apply, which are in addition to those in NFPA 70:

NORMAL or NON-ESSENTIAL CIRCUITS:

Maximum of 16 conductors in a single raceway. For up to eight conductors in a raceway, minimum raceway size: 3/4-inch. For greater than eight conductors, minimum raceway size: 1-inch. Do not install any other type of circuit in this raceway. The minimum wire size for all conductors in this raceway: no. 10 AWG.

Only 15a and 20a branch circuit homeruns may be combined into one raceway ISOLATED GROUND (IG) CIRCUITS:

The Isolated Ground conductor of each IG circuit shall be continuous (no splices) the entire length of the circuit. IG circuits shall be provided with dedicated neutrals, equipment grounds, and isolated grounds and routed in separate conduits from other circuits

GFCI CIRCUITS:

For branch circuits fed from GFCI circuit breakers, limit the one-way conductor length to 100 feet between the panelboard and the most remote receptacle or load on the GFCI circuit

Properly identify all terminal blocks and wire terminals for control wiring with vinyl stick-on markers or equivalent. Provide engineer with a list of proposed identifying numbers for review prior to installing markers.

Provide an equipment-grounding conductor, or bonding jumper, as applicable, in all feeders and branch circuits, sized in accordance with NFPA 70 tables 250.66 or 250.122, as applicable, unless indicated as larger on the drawings. Voltage drop in branch circuits shall not exceed 3 percent.

Wiring shall have insulation of the proper color to match color code system in the table below unless there is a color system currently in use by the facility, in which case the colors are to match the existing system. In larger sizes, where properly colored insulation is not available, use vinyl plastic electrical tape of the appropriate color around each conductor at all termination points. junction and pull boxes

System Voltage 240v and under – 208y/120, 120/240, 120/208, 240d/120 Phase A – black, phase B – red, phase C – blue, neutral – white, equipment ground green, isolated ground – green w/yellow stripe

480v and 480y/277v Phase A – brown, phase B – orange, phase C – yellow, neutral – gray, equipment ground – green. Use of MC Cable, May Only Be Used:

In lieu of flexible conduit and wiring from light fixtures in accessible ceilings to junction boxes (attached to building structure) above the ceiling. Provide cable whips of sufficient lengths to allow for relocating each light fixture within a 5-foot radius of its installed location, but not exceeding 6 feet in unsupported lengths.

For vertical drops in stud walls.

dry concealed locations above grade, except where specifically not permitted by NFPA 70. Do Not Use MC Cable For The Following:

Homeruns to panelboards.

Where exposed to view.

Where exposed to damage.

Hazardous locations.

Wet locations.

Circuits that can be supplied by an emergency or standby power source.

Provide junction boxes, pull boxes, cabinets and wireways wherever necessary for proper installation of various electrical systems according to NFPA 70 and where indicated on the drawings. Size as required for the specific function or as required by NFPA 70, whichever is larger. Construction shall be of a NEMA design suitable for the environment installed. Junction boxes installed behind wall cases, and in or on other display fixtures, except where otherwise specified, shall be 4-inch

square or larger, with galvanized covers.

Install all conductors and cable in raceways continuous without taps or splices. Splice or tap only in approved boxes and enclosures with approved solderless connectors, or crimp connectors and terminal blocks for control wiring, and keep to the

Where wiring is indicated as installed, but the connection is indicated "future" or "by other division, trades, or contracts", leave a

on the drawings. In general, the direction of branch circuit "home run" routing is indicated on the drawings, complete with circuit numbers and panelboard designation. Continue all such "home run" wiring to the designated panelboard, as though "circuit

Multi-wire branch circuits (i.e., shared neutral) shall be provided with a means that will simultaneously disconnect all ungrounded conductors at the point the branch circuit originates. Multi-pole breakers or 3 single pole breakers with a handle tie are two

Do not use multi-conductor circuits, with a shared neutral, for any GFCI circuit breaker or receptacle circuit.

In lieu of EMT, only for 15a and 20a branch circuits (with up to four (4) conductors, not including ground conductor), and only in

When restricted otherwise above, and when specifically disallowed by the local AHJ, landlord, or both.

26B 1-6 JUNCTION BOXES, PULL BOXES, CABINETS AND WIREWAYS

26B 1-7 OUTLET BOXES

All outlets including light fixture, switch, receptacle, and similar outlets: National Electrical, Appleton, Steel City, Raco, or approved equal, galvanized steel knockout boxes, suitable in design to the purpose they serve and the space they occupy. Size as required for the specific function or as required by NFPA 70, whichever is larger. Set all outlet boxes in walls, columns, floors, or ceilings so they are flush with the finished surface, accurately set, and rigidly secured in position. Provide plaster rings, extension rings and/or masonry rings as required for flush mounting. Provide approved cast outlet boxes, with hubs and weatherproof covers, in all areas subject to damp, wet, or harsh conditions. 26B 1-8 OUTLET LOCATIONS

Coordinate locations of outlet boxes. Outlets are only approximately located on the small scale drawings. Use great care in the actual location by consulting the various large scale detailed drawings used by other division trades, and by securing definite

locations from the architect and/or engineer. 26B 1-9 MOUNTING HEIGHTS

Unless noted otherwise, install wiring devices as indicated below (note: all dimensions are to the bottom of the outlet box unless noted otherwise):

Receptacles

Vertically aligned with the ground slot mounted at the bottom: 16 inches above finished floor. Horizontally aligned, with neutral slot mounted at the top: 16 inches above finished floor.

For above counters: 6 inches above top of counter or as specified by others.

Mechanical and electrical equipment rooms and janitors closets: 44 inches above finished floor, vertically aligned. Garages: 24 inches above finished floor, vertically aligned Weatherproof exterior receptacles: 24 inches above finished grade or as indicated on drawings, vertically aligned.

GFCI receptacles: same as general receptacles

Isolated ground receptacles: same as general receptacles

SPD receptacles: same as general receptacles

Clock receptacles: 84 inches above finished floor or as specified by others. Concrete block walls: dimensions above may be adjusted slightly, as required to compensate for variable joint dimensions, such that bottom or top of boxes, as applicable, are at block joints.

Switches: General: 46 inches above finished floor.

Above counters: same as for receptacles.

Concrete block walls: 40 inches above finished floor (dimension may be adjusted slightly, as required to compensate for variable joint dimensions, such that bottom of boxes are at block joints). Walls with wainscoting: 6 inches minimum above wainscoting, but not exceeding 48 inches above finished floor. Telephone/Data Outlet Boxes:

General: match mounting height of adjacent wiring device listed above.

Wall-mounted telephone: 40 inches above finished floor.

For other than wiring devices, refer to paragraphs, articles, sections, divisions, or drawings to obtain mounting heights for specific equipment or systems.

26B 1-10 WIRING DEVICES

Unless noted otherwise on the drawings wiring devices are 20a rated devices. Where 15a rated devices are indicated on the drawings or required for circuit rating limitations, provide wiring devices equivalent to those specified for 20a, but rated for 15a.

Provide the following wiring devices where shown on drawings or required. Minor changes relative to the location of electrical equipment may be made to comply with structural and building requirements as determined in the course of construction. Provide all wiring devices of the same manufacturer and not mixed on the project, to the maximum extent possible. Provide color of toggles and receptacles as requested by the engineer:

Duplex convenience receptacles: Specification grade, NEMA 5-20R, 125V, 20A, grounding type, UL listed and labeled, nylon face, side and back wired, self grounding, manufactured by Leviton or approved equivalent. Hospital Grade straight blade receptacles: NEMA 5-20R, 125V, 20A, grounding type, UL listed and labeled, nylon face, side and back wired, self-grounding, manufactured by Leviton or approved equivalent. Hospital Grade straight blade safety type, tamper-resistant receptacles: NEMA 5-20R, 125V, 20A, grounding type, UL listed and labeled, nylon face, side and back wired, self-grounding, manufactured by Leviton or approved equivalent. Twist-Locking type receptacles: NEMA L5-20R, 125V, 20A, grounding type, UL listed and labeled, nylon face, side and back wired, self-grounding, Leviton 2310 or approved equivalent.

Ground fault circuit interrupter type receptacles: Specification Grade UL listed and labeled complying with UL 943. Class A and NEMA WD-1-1.10, 125V, 20A, trip at 4-6mA within 0.25 second, and feed-thru type with integral heavy duty NEMA 5-20R receptacle arranged to protect receptacles downstream on the same circuit, manufactured by Leviton or approved equivalent

Isolated ground receptacles: Specification Grade NEMA 5-20R NEMA L5-20R, 125V, 20A, grounding type, UL listed and labeled, nylon face, side and back wired, furnished with a green pigtail connected to

the grounding contact, and grounding contacts electrically isolated from the mounting strap, manufactured by Leviton or approved equivalent. TVSS receptacles Specification Grade for 125V (150V maximum continuous operating

voltage) service: NEMA 5-20R, 125V, 20A, self-grounding type, RFI/EMI noise filtering, UL listed 1449 Second Edition (1998) & 489; equipped with LED indicator(s) and audible alarm, manufactured by Leviton or approved equivalent. Suppression module shall protect normal and common modes, with the following mode characteristics, and be suitable for ANSI/IEEE C62.41-1991 A, B installations:

Peak Energy 240 joules minimum Peak Current 13,000A minimum UL 3000A Test400V minimum

Response Time 5 nano-seconds

Special Warranty: Manufacturer agrees to repair or replace TVSS receptacles, or replaceable surge modules (if removable), that fail in materials or workmanship within 5 years from date of Substantial Completion. Special purpose receptacles: Grounding type, UL listed with NEMA configurations as implied on the Drawings, manufactured by

Leviton or approved equivalent. Switches: Specification grade, rated for 120/277V, 20A, back and side wired, and UL listed and labeled, manufactured by Leviton or approved equivalent. Pilot Light switches: 20A, 1-pole, 2-pole, 3-way switch with red neon lighted handle. Toggle shall be illuminated when the switch

is in the "ON" position, manufactured by Leviton or approved equivalent. Lighted Handle switches: 20A, 1-pole, 3-way switch with clear neon lighted handle. Toggle shall be illuminated when the switch is in the "OFF" position. Manufactured by Leviton or approved equivalent. Key operated light switches: Same as standard light switches except toggle handle shall be operated by a factory provided key, manufactured by Leviton or approved equivalent.

Switches for use with mechanically-held, electrically-operated lighting contactors: Single pole, double throw, momentary, center off switch, rated for 120/277V, and UL listed and labeled, manufactured by Leviton or approved equivalent. Wall box dimmers: Specification grade slider type wall box dimmers, UL listed and labeled, with Radio Frequency Interference (RFI) filters to avoid interference with electronic equipment, and a minimum wattage as indicated on the Drawings or as required

for the load, manufactured by Leviton or approved equivalent. Dual Voltage Switch Relay; A normally-open, electrically-held relay that allows a single-pole switch to control loads operating at two different voltages (e.g., 120V and 277V); listed to UL Standard 916; installed in a 2-gang outlet box, with a voltage-separating barrier and plaster ring manufactured by Lighting Controls and Designs (GR 2001 DV) or approved equivalent.

Wall switch occupancy sensors: Passive Infrared type, wall box switch, 120/277V, up to 20-minute time delay, light level sensor, 180-degree field of view, square-foot coverage as required for minimum coverage of the space per the manufacturer, UL listed and labeled, and conforms to California Title 24 Energy Code, manufactured by Leviton or approved equivalent. Wall switch occupancy sensors: Adaptive technology type, wall box switch, 120/277V, up to 20-minute time delay, light level sensor, 180-degree field of view, square-foot coverage as required for minimum coverage of the space per the manufacturer, UL

listed and labeled, and conforms to California Title 24 Energy Code, manufactured by Leviton or approved equivalent. Ceiling mounted occupancy sensors: Passive Infrared type, 120/277V, up to 20-minute time delay, light level sensor, 360-degree field of view, square-foot coverage as required for minimum coverage of the space per the manufacturer, UL listed and labeled, and conforms to California Title 24 Energy Code, manufactured by Leviton or approved equivalent. Ceiling mounted occupancy sensors: Dual technology type, 120/277V, up to 20-minute time delay, light level sensor, 360-degree

field of view, square-foot coverage as required for minimum coverage of the space per the manufacturer, UL listed and labeled, and conforms to California Title 24 Energy Code, manufactured by Leviton or approved equivalent. 26B 1-11 SWITCH AND OUTLET COVER PLATES

Switch and outlet plates: Satin stainless steel; by the same manufacturer as the wiring devices, wherever possible. Verify desired materials and colors with architect and/or engineer before installation. Switch plates in unfinished rooms and spaces: stamped steel, cadmium plated. Install groups of switches under one ganged-plate, usually horizontally; or, where required by details, vertically. Set all cover plates plumb, parallel, and finished flush with the wall.

#### 26B 2-3 GROUNDING

Permanently and effectively ground and bond the electrical installation in a thorough and efficient manner, and in conformance, at a minimum, with NFPA 70, or these documents, where they exceed code requirements. Use bare or insulated conductors, as specified herein, and other materials indicated on the drawings.

#### 26B 3-12 SURGE-PROTECTIVE DEVICES (SPD)

Provide SPD labeled in accordance with the latest editions of UL 1283 and 1449, including the highest fault current of section 37.3 (UL recognized for integral).

#### SPD shall meet or exceed the following criteria:

UL 1449 ratings: the system performance ratings shall be based on the UL 1449 listing ratings for IEEE C62.41 category C3 impulse waveforms of 6kv 1.2 x 50 microseconds, 3ka, 8 x 20 microsecond waveshapes. The maximum UL 1449 listed surge

rating for each and/or all of the specified protection modes shall not be exceeded.

Maximum surge current capability (single pulse rated) per phase shall be:

Service entrance switchboards, switchgear: 240ka. Distribution panelboards, panelboards used for service entrance & MCC: 120ka.

Branch panelboards: 80ka (non-modular is acceptable).

![](_page_15_Picture_141.jpeg)

SPD shall have a minimum EMI/RFI filtering of –50db at 100khz.

Indicators: the SPD shall use LED indicators that provide indication of suppression component failure in all protection modes including N-G, as well as optically isolated N/C dry contacts for remote monitoring.

Transient counter: a transient voltage surge counter shall be included to totalize transient voltage surges which deviate from the sine wave envelope by more than 125v. The readout shall be at least a six digit LCD located on the unit's hinged front cover. The counter shall be equipped with a battery back-up to retain memory when power is not present. A push-button switch on the

display's face-plate shall be provided for manual counter reset. Manufacturers: Cutler hammer, General Electric, Siemens, Square D, APT, Surge Suppression Incorporated.

Switchboard, switchgear, panelboard and MCC internally mounted SPD: factory installed, UL- labeled by, and at the facility of the

Externally mounted SPD (only allowed where noted on the construction documents): install with conductors as short and straight as possible. Twist the SPD input conductors together to reduce input conductor inductance. Follow the SPD manufacturer's

recommended installation practices and comply with all applicable codes. Warranty: the manufacturer shall provide a minimum full five year parts, labor, travel warranty from date of substantial completion against any part failure, excluding breakers, when installed in compliance with manufacturer's written instructions, UL

listing requirements, and all applicable national or local electrical codes. Manufacturer shall make available local, national field engineering service support. Where direct factory employed service engineers are not locally available, travel time from the factory or nearest dispatch center shall be stated.

Thoroughly factory test the specified system before shipment. Testing of each system shall include, but shall not be limited to, quality control checks, dielectric voltage withstand tests at twice rated voltage plus 1000v per UL requirements, and operational and calibration tests.

26B 4 LIGHT FIXTURES, LAMPS AND BALLASTS

electrical distribution equipment manufacturer.

26B 4-1 LIGHT FIXTURE LOCATIONS

Light fixtures shown on the electrical drawings represent general arrangements only. Refer to architectural drawings for more exact locations. Coordinate location with all other trades before installation to avoid conflicts. Coordinate light fixture locations in mechanical rooms with final installed piping and ductwork layouts.

#### 26B 4-2 LIGHT FIXTURES

Provide light fixtures as scheduled on drawings, including all lamps, all necessary accessories, material and labor to securely hang, clean, and make light fixtures completely ready for use. Provide: all hangers, supports, and miscellaneous hardware required to install light fixtures; proper trim to fit each ceiling condition actually encountered; additional tie wires connected to

Packaging of light fixtures will not be allowed. Only those luminares listed in the light fixture schedule, or approved in accordance with substitutions of these specifications, will be accepted. Where the light fixture schedule indicates an allowance for a specific light fixture, the price is a contractor price. Include all additional costs for freight, lamps, and installation of light fixture and lamps.

structure to conform to seismic requirements where required by the applicable building cod

Install all fluorescent light fixtures located in areas without ceilings immediately below the roof-framing members, or suspended from chain hangers suitable in length to provide the indicated mounting height.

Through wiring of recessed light fixtures, in suspended ceilings, is not permitted. Connect each light fixture by a whip to a junction box. Provide cable whips of sufficient lengths to allow for relocating each light fixture within a 5-foot radius of its installed location, but not exceeding 6 feet in unsupported lengths.

26B 4-3 EMERGENCY LIGHTING UNITS AND EXIT SIGNS

Description: self-contained units complying with UL 924.

Battery: sealed, maintenance-free, lead-acid type. The batteries shall be of suitable rating and capacity to supply and maintain at not less than 87 1/2 percent of the nominal battery voltage for the total lamp load associated with the unit for a period of at least 1 1/2 hours, or the unit equipment shall supply and maintain not less than 60 percent of the initial emergency illumination for a period of at least 1 1/2 hours.

#### Charger: fully automatic, solid-state type with sealed transfer relay.

Operation: relay automatically turns lamp on when power supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger. Test push button: push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability. LED indicator light: indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.

Integral time-delay relay: holds unit on for fixed interval of 15 minutes when power is restored after an outage Integral self-test: factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and flashing red LED. 26B 5 MISCELLANEOUS ELECTRICAL

26B 5-1 WIRING OF EQUIPMENT

Provide all raceways and power wiring for all applicable Divisions equipment requiring electrical connections, including, but not limited to, pumps, water heaters, and HVAC equipment, and all line-voltage control and interlock wiring not provided under other Divisions. Connect per manufacturers' wiring diagrams. Coordinate with applicable Divisions for disconnects furnished with equipment, and provide all disconnect switches as required. After installing wiring, verify that each motor load has the correct phase rotation

Verify the actual "maximum overcurrent protection" (MOCP) device ratings and "minimum circuit ampacity" (MCA) conductor sizing for mechanical equipment from the equipment nameplate. Base electrical installations on actual required amperages, which may vary somewhat from the conductor and equipment sizes shown on the drawings; however, in no case, reduce the size of conductors indicated on the drawings without authorization from the engineer. Provide properly sized electrical wiring and equipment without extra cost to the owner. Notify the engineer of all changes required in the electrical installation due to equipment variances so that the effects on feeders, branch circuits, panelboards, fuses and circuit breakers can be checked prior to purchasing and installation. Be responsible for coordinating with applicable Divisions to verify the actual ampacities and correct sizes of all conductors and overcurrent protective devices for all equipment, and correct overload heaters for all motors, when starters are provided under Division 26.

END OF SECTION 26B

![](_page_15_Figure_169.jpeg)