16050 BASIC MATERIALS AND METHODS

1. <u>GENERAL</u>

A. EXECUTE ALL WORK IN CONFORMITY WITH BEST STANDARDS OF PRACTICE. LAY OUT AND INSTALL WORK IN ACCORDANCE WITH DRAWINGS, MANUFACTURER'S INSTRUCTIONS, SHOP DRAWINGS, AND FIELD LAYOUTS OF OTHER TRADES.

B. THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOWN APPROXIMATE LOCATIONS OF EQUIPMENT. LOCATIONS OF EQUIPMENT MUST BE VERIFIED WITH FIELD CONDITIONS BEFORE INSTALLATION. REPORT DISCREPANCIES DISCOVERED BETWEEN ELECTRICAL DRAWINGS AND DRAWINGS FOR OTHER DIVISIONS TO THE ARCHITECT. VERIFY EXISTING FIELD CONDITIONS PRIOR TO BID AND INSTALLATION OF NEW WORK.

C. FURNISH ALL LABOR, MATERIAL AND EQUIPMENT TO INSTALL AND SUCCESSFULLY TEST ELECTRICAL SYSTEMS AND WORK, COMPLETE AND IN PLACE, AS HEREIN SPECIFIED AND AS SHOWN ON DRAWINGS. D. FURNISH ONLY NEW, FIRST-CLASS QUALITY, MATERIALS AND EQUIPMENT, DELIVERED, ERECTED, CONNECTED AND

FINISHED IN EVERY DETAIL, SELECTED AND ARRANGED TO FIT PROPERLY INTO BUILDING SPACES. WHERE NO SPECIFIC KIND OR QUALITY OF MATERIAL IS SPECIFIED, FURNISH FIRST-CLASS STANDARD ARTICLE, APPROVED BY ARCHITECT.

E. FURNISH SERVICES OF ONE OR MORE EXPERIENCED SUPERINTENDENTS, TO BE IN CHARGE OF INSTALLATION OF WORK, AND ALL SKILLED WORKMEN, ELECTRICIANS AND LABORERS REQUIRED TO UNLOAD, TRANSFER, ERECT, CONNECT, ADJUST, START, OPERATE AND TEST EACH SYSTEM.

F. PROVIDE ALL COMPONENT PARTS OF EACH ITEM OF EQUIPMENT OR DEVICE WITH MANUFACTURER'S NAMEPLATE, GIVING NAME OF MANUFACTURER, DESCRIPTION, SIZE, TYPE, SERIAL NUMBER, ELECTRICAL CHARACTERISTICS, ETC., TO FACILITATE MAINTENANCE OR REPLACEMENT. NAMEPLATE OF SUBCONTRACTOR OR DISTRIBUTOR IS NOT ACCEPTABLE.

G. COMPLY WITH LATEST EDITION OR REVISION OF EACH STANDARD OR CODES.

H. PERFORM ALL WORK IN CLOSE COOPERATION WITH OTHER TRADES AND UTILITY COMPANIES. I. LOCATE CONDUITS, JUNCTION BOXES, ETC., TO ALLOW ACCESS TO PIPING, CONTROL VALVES, ETC., FOR MAINTENANCE AND REPAIR.

J. VERIFY LOCATIONS OF OUTLETS AND TYPES OF CONNECTIONS REQUIRED FOR EQUIPMENT INSTALLED BY OTHERS. K. RELOCATE ANY IMPROPERLY LOCATED OUTLET, AND REPLACE AND INCORRECT CONNECTION CAUSED BY LACK OF PREPARATION OR COORDINATION. ALSO, REPAIR TO THESE ARCHITECT'S/OWNER'S SATISFACTION ANY OPENINGS, ETC., CAUSED BY THESE RELOCATIONS/REPLACEMENTS.

2. DEMOLITION

A. DISCONNECT AND REMOVE ALL ELECTRICAL WIRING AND EQUIPMENT, IN DEMOLITION OR REMODELED AREAS, UNLESS NOTED OTHERWISE ON THE DRAWINGS, INCLUDING ALL ABANDONED CONDUIT AND WIRE. CUT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES.

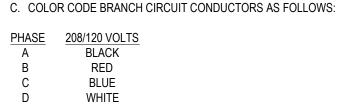
B. DISCONNECT AND REMOVE ALL ELECTRICAL WIRING AND EQUIPMENT FEEDING MECHANICAL AND OTHER SIMILAR EQUIPMENT BEING REMOVED OR ABANDONED (SEE DEMOLITION AND MECHANICAL DRAWINGS).

C. PRIOR TO REMOVING EXISTING WIRING, VERIFY EXTENT OF LOADS AND/OR SYSTEMS BEING SERVED. RECONNECT WIRING FOR ALL LOADS AND/OR SYSTEMS SO THAT REMAINING DOWNSTREAM EQUIPMENT, IN AREAS WHICH ARE NOT BEING REMODELED, SHALL REMAIN IN SERVICE.

D. REMOVE ABANDONED EQUIPMENT, CONDUIT, WIRE, ETC., WHICH IS NOT TO REMAIN PROPERTY OF OWNER FROM PROJECT SITE EACH DAY. DO NOT REUSE EXISTING EQUIPMENT, CONDUIT, WIRE, ETC., WHICH IS REMOVED, UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.

# 3. IDENTIFICATION

A. EQUIP EACH PANELBOARD ASSOCIATED WITH PROJECT SCOPE WITH TYPEWRITTEN DIRECTORY ACCURATELY INDICATING ROOMS AND/OR EQUIPMENT BEING SERVICED. USE IDENTIFICATIONS COMPATIBLE WITH OWNER'S PROGRAM, AND READILY IDENTIFIABLE WITHOUT REMOVING DIRECTORY FROM ITS HOLDER. PROVIDE NEW TYPEWRITTEN DIRECTORY FOR EACH EXISTING PANELBOARD HAVING CIRCUIT REVISIONS DONE ON THIS PROJECT.



4. <u>QUALITY</u>

A. UPON COMPLETION OF THE PROJECT:

1. TEST AND ADJUST ALL AUXILIARY SYSTEMS FOR OPTIMUM PERFORMANCE AND AS REQUIRED.

B. MEASURE LOAD BALANCE UNDER NEAR FULL-LOAD CONDITIONS ON ALL PANELBOARDS INCLUDING EXISTING PANELBOARDS HAVING CIRCUITING REVISIONS WITH TRUE RMS READING METERS, AND RECONNECT LOADS AS MAY BE NECESSARY TO OBTAIN REASONABLE BALANCE OF LOAD BETWEEN PHASES. RELABEL AFFECTED EQUIPMENT, DEVICES, JUNCTION BOXES, WIRING, PANELBOARD DIRECTORIES, ETC., DUE TO LOAD RECONNECTION AND BRANCH CIRCUIT NUMBER CHANGES. PROVIDE TWO (2) COPIES OF FINAL BALANCE REPORT INDICATING MEASURED LOAD CURRENT ON EACH PHASE AND NEUTRAL CURRENT FOR EACH PANELBOARD.

5. CUTTING AND PATCHING

A. DO ALL CUTTING AND PATCHING NECESSARY FOR INSTALLATION OF ELECTRICAL WORK WITH APPROVAL, AND UNDER SUPERVISION OF, ARCHITECT.

B. DO NOT IMPAIR STRENGTH OR FUNCTION OF WORK BEING CUT OR PATCHED, I.E., DO NOT WEAKEN STRUCTURAL MEMBERS AND WATERPROOF HOLES THROUGH EXTERIOR WALLS AND GROUND FLOOR. USE ROTARY TYPE DRILLING TOOLS AND CONCRETE CUTTING SAWS TO CUT CONCRETE AND MASONRY WALLS. DO NOT USE TORCHES FOR CUTTING STEEL.

## 6. WALL, FLOOR, AND CEILING OPENINGS

A. PLACE ALL SLEEVES NECESSARY FOR ELECTRICAL INSTALLATION AND ADVISE OTHER CONTRACTORS OF ALL OPENINGS NECESSARY FOR INSTALLATION OF ELECTRICAL WORK.

B. PROVIDE SLEEVES NECESSARY FOR INSTALLATION OF FIRE ALARM, SECURITY, TELEPHONE, VIDEO, DATA, ETC., SYSTEM CABLES. IF SYSTEM WIRING HAS NOT BEEN INSTALLED AT TIME OF BUILDING OFFICIAL'S INSPECTION, SEAL ALL SLEEVES. SEAL ALL SLEEVES WITH HILTI FIRESTOP SEALANT TO MEET OR EXCEED FIRE RATING.

C. PASS SLEEVES ENTIRELY THROUGH FLOOR, WALL, CEILING, OR PARTITION. FINISH SLE4EVES IN WALLS OR PARTITIONS FLUSH WITH FINISHED SURFACE ON BOTH SIDES; SLEEVES IN FLOORS 2 INCHES ABOVE FINISHED FLOOR LEVEL. USE APPROPRIATELY SIZED SCHEDULE 40 STEEL PIPE OR 1/4 INCH ROLLED STEEL PLATE FOR SLEEVES THROUGH FLOORS. USE 20 GAUGE SHEET METAL, PLASTIC OR FIBER MATERIAL FOR SLEEVES THROUGH WALLS, CEILINGS AND PARTITIONS.

D. SEAL ALL ELECTRICAL PENETRATIONS THROUGH FLOORS, WALLS, ETC. VERIFY LOCATIONS OF SMOKE AND FIRE BARRIERS FROM ARCHITECTURAL FLOOR PLANS. MATCH THE FIRE RATING OF THE FLOOR, WALL, OR CEILING BEING PENETRATED. FILL OPENINGS CREATED BY THE REMOVAL OF ELECTRICAL EQUIPMENT, CONDUITS, ETC. USE HILTI PRODUCTS ONLY AND PROVIDE WRITTEN DOCUMENTATION TO OWNER THAT ALL PENETRATIONS ARE SEALED PER HILTI'S INSTALLATION REQUIREMENTS.

16060 GROUNDING 1. <u>GENERAL</u>

A. A PERMANENT GROUNDING SYSTEM WITH METHODS AND MATERIALS IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS, ABLE TO CONDUCT GROUND FAULT CURRENTS TO THE GROUNDED NEUTRAL OF ELECTRICAL DISTRIBUTION SYSTEMS, AND LIMIT POTENTIAL DIFFERENCES BETWEEN GROUNDING CONDUCTORS, RACEWAYS AND ENCLOSURES.

B. GROUND CONDUCTIVE RACEWAYS AND ENCLOSURES FOR ELECTRICAL SYSTEMS WIRING. MAKE ALL GROUND CIRCUITS COMPLETE TO FORM PERMANENT CONDUCTIVE PATHS. SOLIDLY GROUND EACH LOW VOLTAGE ELECTRICAL SYSTEM. PROVIDE BARE CONDUCTORS WHERE IN OPEN AIR OR SOIL AND PROVIDE 600 VOLT, GREEN, INSULATED CONDUCTORS WHEN IN RACEWAY.

16120 WIRE AND CABLE, 600 VOLT AND BELOW

- 1. <u>GENERAL</u>
- A. BUILDING WIRING -- 600 VOLT
- 1. 98 PERCENT CONDUCTIVITY, STRANDED COPPER, 600 VOLT INSULATION.
- A. TYPE THHN/THWN, UNLESS OTHERWISE NOTED

B. DO NOT USE CONDUCTORS SMALLER THAN NO. 12 AWG FOR BRANCH CIRCUIT WIRING. CONDUCTORS SMALLER THAN NO. 12 AWG MAY BE USED FOR ALARM SYSTEMS, SOUND SYSTEMS, ETC., WHERE RECOMMENDED BY SYSTEM MANUFACTURER.

C. FIRE ALARM SYSTEM WIRING

1. TYPE INSULATION FOR FIRE ALARM SYSTEM CONDUCTORS PER ARTICLE 760 OF NATIONAL ELECTRICAL CODE AND PER SIMPLEX REQUIREMENTS.

16130 CONDUIT

- 1. <u>GENERAL</u>
- A. MINIMUM CONDUIT SIZE
- 1. 3/4 INCH.

B. UTILIZE ELECTRICAL METALLIC TUBING (EMT) FOR COMMUNICATION AND DATA WIRING IN DRY LOCATIONS NOT SUBJECT TO MECHANICAL INJURY NOR IN CONCRETE.

C. UTILIZE ELECTRICAL METALLIC TUBING CONCEALED IN WALLS AND CEILINGS FOR APPLICATIONS NOT INDICATED ABOVE.

D. ROUTE CONDUIT AS REQUIRED BY JOB CONDITIONS. COORDINATE ROUTING WITH MECHANICAL PIPING AND EQUIPMENT, AND GIVE PRIORITY TO THESE ITEMS.

E. CONTRACTOR MAY USE MC CABLE FOR BRANCH CIRCUITING (NOT HOMERUNS). SUPPORT PER NEC REQUIREMENTS. PROVIDE PROPER GROUNDING.

16132 BOXES

#### A. CUTLER HAMMER B. SQUARE D COMPANY C. GENERAL ELECTRIC

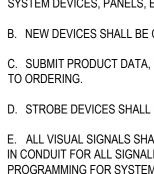
A. BALLAST CRITERIA

NOT USED 4. PROVIDE BALLASTS FOR 1, 2, 3, OR 4 LAMP, OR COMBINATIONS THEREOF AS INDICATED ON DRAWINGS. 5. BALLASTS FOR INDOOR APPLICATION TO HAVE MINIMUM STARTING TEMPERATURE OF 50°F (10°C), UNLESS NOTED OTHERWISE. 6. PROVIDE BALLASTS THAT MEET OR EXCEED FCC REGULATIONS, PART 18. 7. PROVIDE FIVE (5) YEAR WARRANTY FOR BALLASTS. 8. BALLASTS TO BE RAPID START.

1. <u>GENERAL</u>

A. PROVIDE MODIFICATIONS AND ADDITIONS TO THE EXISTING FIRE ALARM SYSTEM AS SHOWN ON THE DRAWINGS. SYSTEM DEVICES, PANELS, EQUIPMENT, SYSTEM CHECKOUT, SYSTEM PROGRAMMING SHALL BE BY SIMPLEX. B. NEW DEVICES SHALL BE COMPATIBLE WITH EXISTING SYSTEM AND MEET REQUIREMENT OF LOCAL JURISDICTION. C. SUBMIT PRODUCT DATA, DESCRIPTIVE BROCHURE, FOR ENGINEER APPROVAL, OF VISUAL SIGNAL DEVICES PRIOR

E. ALL VISUAL SIGNALS SHALL BE SYNCHRONIZED WITH ALL OTHER LOCAL VISUAL UNITS. PROVIDE APPROVED WIRING IN CONDUIT FOR ALL SIGNALING, NOTIFICATION, AND INTERCONNECTING PANEL WIRING. PROVIDE REQUIRED PROGRAMMING FOR SYSTEM TO BE FULLY INTEGRATED WITH EXISTING EQUIPMENT AND FOR ALL NEW DEVICES TO ASSURE PROPER OPERATION. PROVIDE ALL POWER SUPPLIES FOR NEW DEVICES AS REQUIRED WHETHER INDICATED ON PLANS OR NOT. TEST SYSTEM FOR PROPER OPERATION AND PERFORM OPERATIONAL TESTING AS REQUIRED FOR THE AUTHORITIES HAVING JURISDICTION. PROVIDE ALL REQUIRED SUBMISSIONS TO THE AUTHORITIES HAVING JURISDICTION AND INCLUDE ALL COSTS IN BID PRICE.



1. <u>GENERAL</u>
A. PULL BOXES AND JUNCTION BOXES
<ol> <li>INDOOR BOXES: GALVANIZED STEEL CONSTRUCTION, WITH FULL ACCESS SCREW-ON OR HINGED COVERS.</li> <li>FLUSH MOUNTED BOXES: OVERLAPPING COVERS WITH FLUSH-HEAD COVER RETAINING SCREWS, PRIME COATED.</li> </ol>
B. WALL/CEILING OUTLET BOXES
1. GENERAL: HOT DIP GALVANIZED, 1.25 OZ. PER SQ. FT. (381 G/SQUARE METER) OR CADMIUM PLATED, CONFORM TO UL REQUIREMENTS.
<ol> <li>INTERIOR: PRESSED SHEET STEEL, BLANKED FOR CONDUIT. PROVIDE ATTACHED LUGS FOR MOUNTING.</li> <li>CEILING: 4 INCH BY 2-1/8 INCH DEEP (102 MM X 54 MM DEEP), OCTAGONAL BOXES FOR RECEIVING THREE OR LESS</li> </ol>
1/2 IN (12 MM) CONDUITS. 4. WALLBOXES, FLUSH MOUNTED, GYPSUM WALLBOARD
<ul> <li>A. 4 INCH BY 2-1/8 INCH DEEP (102 MM X 54 MM DEEP) SQUARE BOXES WITH MATCHING SQUARE-DRAWN/TILE COVER</li> <li>FOR SINGLE OR TWO (2) GANG OUTLETS.</li> <li>B. 4-11/16 INCH BY 2-1/8 INCH DEEP (119MM X 54 MM) SQUARE BOXES WITH MATCHING SQUARE-DRAWN/TILE COVERS</li> </ul>
FOR SINGLE OR TWO (2) GANG OUTLETS. USE FOR ALL COMMUNICATION/DATA OUTLETS AND FOR 1 INCH OR 1-1/4 INCH CONDUIT ENTRIES.
<ul> <li>C. 2-1/2 INCHES DEEP (64MM) GANGABLE SWITCH BOXES AT WALL SWITCH LOCATIONS.</li> <li>5. WALL BOXES, FLUSH MOUNTED, MASONRY: 3-1/2 INCHES (89 MM) DEEP MASONRY BOXES, SINGLE OR MULTIPLE GANG, AS REQUIRED OR AS INDICATED ON THE DRAWINGS.</li> <li>6. SURFACE MOUNTED: 4 INCHES BY 2-1/8 INCHES DEEP (102 MM X 54 MM) SQUARE.</li> </ul>
16140 WIRING DEVICES
1. <u>GENERAL</u>
A. WIRING DEVICES SHALL CONFORM TO FEDERAL SPECIFICATIONS, ANSI AND NEMA STANDARDS.
B. TOGGLE SWITCHES SHALL BE 20 AMP,120-277 VOLT AC, HEAVY DUTY SPECIFICATION GRADE. MATCH COLOR OF EXISTING SWITCHES IN AREA.
C. NOT USED
D. RECEPTACLES SHALL BE 20 AMP, 120 VAC, NEMA 5-20R, SPECIFICATION GRADE. DUPLEX TYPE UNLESS NOTED OTHERWISE. PROVIDE SPECIAL RECEPTACLES AS INDICATED ON PLANS. PROVIDE DUPLEX GFCI SPECIFICATION GRADE RECEPTACLES WHERE LOCATED WITHIN FIVE FEET OF SINKS. MATCH COLOR OF EXISTING RECEPTACLES IN AREA.
E. COVERPLATES SHALL BE STAINLESS STEEL. COVERPLATES SHALL HAVE CAPTIVE MOUNTING SCREW HOLE.
F. ACCEPTABLE MANUFACTURERS: ARROW-HART, BRYANT, HUBBELL, PASS & SEYMOUR OR LEVITON.
16470 PANELBOARDS
1. PROVIDE PRODUCTS OF ONE OF THE FOLLOWING MANUFACTURERS:
A. CUTLER HAMMER B. SQUARE D COMPANY C. GENERAL ELECTRIC
2. ALL PANELBOARDS SHALL COMPLY WITH NEMA STANDARDS.
3. PROVIDE DEAD-FRONT SAFETY TYPE LIGHTING AND APPLIANCE PANELBOARDS WITH CIRCUIT BREAKER PROTECTIVE DEVICES AS SHOWN.
4. PROVIDE PANELS WITH COPPER BUS BARS, FULL-SIZED NEUTRAL BAR WITH SUITABLE LUGS.
5. PROVIDE MOLDED CASE AUTOMATIC CIRCUIT BREAKERS. THERMAL-MAGNETIC, AMBIENT TEMPERATURE COMPENSATED WITH BOLT ON BUS CONNECTION. U.L. LISTED.
6. CIRCUIT BREAKERS SHALL BE RATED AT 10,000 RMS, SYMMETRICAL AMPERES INTERRUPTING CAPACITY.
7. PROVIDE INDEX LISTING ALL CIRCUIT LOADING.
16491 FUSES
A. IN-LINE FUSE FOR BALLAST PROTECTION
1. SMALL DIMENSION GLASS FUSE IN SUITABLE HOLDER. BUSSMAN GLR.
B. PROVIDE ALL FUSES, 600 BOLT OR LESS, FROM ONE (1) MANUFACTURER UNLESS NOT COMMERCIALLY AVAILABLE.
16501 LAMPS
1. FLUORESCENT LAMPS ECOLOGIC LOW MERCURY
<ul> <li>A. LOW MERCURY T8</li> <li>1. RAPID START, 265 MILLI-AMP TYPE WITH HIGH EFFICIENCY RARE EARTH PHOSPHORS, A DUAL COAT PHOSPHOR PROCESS, AND 3500°K COLOR CHARACTERISTICS, AND PASS EPA LOW MERCURY TESTS.</li> </ul>
B. OTHERS
1. AS SHOWN ON DRAWINGS.
16502 BALLASTS AND ACCESSORIES
1. FLUORESCENT ELECTRONIC BALLASTS
A. BALLAST CRITERIA

### 1. PROVIDE BALLAST FOR VOLTAGE AS INDICATED ON DRAWINGS. 2. PROVIDE BALLASTS OF COMPATIBLE DESIGN TO LAMPS SPECIFIED.

16721 FIRE ALARM AND DETECTION SYSTEM (EXISTING SIMPLEX SYSTEM)

D. STROBE DEVICES SHALL MEET ALL NFPA 72 REQUIREMENTS FOR INTENSITY LEVELS AND FLASH RATES.

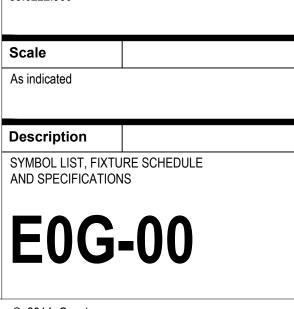
POWER SYMBOL LEGEND				ELECTRICAL ABBREVIATIONS		
		MOUNTING	ABBREVIA	ABBREVIATION DESCRIPTION		
SYMBOL	DESCRIPTION	HEIGHT/NOTE	NL	NIGHT LIGHT		
J	JUNCTION BOX (ROUND)		EM	FIXTURE/DEVICE IS CONNECTED TO AN EMERGENCY BRA PROVIDED WITH AN EMERGENCY BATTERY BALLAST (NOF		
J	JUNCTION BOX (SQUARE)		GFI	GROUND FAULT INTERRUPTER	- ,	
	SINGLE PHASE HOME RUN		WP	WEATHERPROOF		
	THREE PHASE HOME RUN		E CT	EXISTING COUNTERTOP - MOUNT 2" ABOVE COUNTERTOP, BACKSP		
	BRANCH CIRCUIT PANELBOARD	5'-6" AFF		COORDINATE MOUNTING HEIGHTS WITH ARCHITECTURAL		
11111	DISTRIBUTION PANEL		ETBR			
	SYSTEM CABINET		R	EXISTING RELOCATED		
Φ	DUPLEX RECEPTACLE	18" UNO	UNO	UNLESS OTHERWISE NOTED		
₽GFI	DUPLEX RECEPTACLE W/GROUND FAULT INTERRUPTER	18" UNO	C	CEILING MOUNT DEVICE		
•	RECEPTACLE FOR ELECTRIC WATER COOLER W/GROUND	18" UNO		LIGHTING SYMBOL LEGE	END	
₩EWC		18" UNO			MOUNTING	
<b></b>		54" UNO	SYMBOL	DESCRIPTION	HEIGHT/NOTE	
	SPECIAL RECEPTACLE - TYPE AS INDICATED	2" ABOVE COUNTER	$\otimes$	RECESSED LUMINAIRE		
Ψc	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER	2 ABOVE COUNTER	X	SURFACE OR PENDANT MOUNTED LUMINAIRE	MOUNTING HEIGHT AS NOTED ON PLAN	
₽F	FLOOR MOUNTED RECEPTACLE		$\diamond$	RECESSED DIRECTIONAL LUMINAIRE		
φ	SINGLE RECEPTACLE	18" UNO		SURFACE OR PENDANT MOUNTED DIRECTIONAL LUMINAIRE	MOUNTING HEIGHT AS	
FII	RE ALARM SYMBOL L	EGEND			NOTED ON PLAN NOTE 3	
		MOUNTING	- 🛇	RECESSED LUMINAIRE ON EMERGENCY CIRCUIT (OR WITH EMERGENCY BATTERY BALLAST)		
SYMBOL	DESCRIPTION	HEIGHT/NOTE		SURFACE OR PENDANT MOUNTED LUMINAIRE ON EMERGENCY	MOUNTING HEIGHT AS NOTED ON PLAN	
F	FIRE ALARM PULL STATION	44"		CIRCUIT (OR WITH EMERGENCY BATTERY BALLAST)		
FO	FIRE ALARM AUDIO/VISUAL SIGNAL	80"	Q	WALL MOUNTED LUMINAIRE	MOUNTING HEIGHT AS NOTED ON PLAN	
F¢-	FIRE ALARM VISUAL SIGNAL	80"	×	RECESSED (IN WALL) LUMINAIRE	MOUNTING HEIGHT AS	
FS	FIRE ALARM AUDIO SPEAKER SIGNAL	80"		WALL MOUNTED LUMINAIRE ON EMERGENCY CIRCUIT (OR WITH	NOTED ON PLAN MOUNTING HEIGHT AS	
FSD	AREA SMOKE DETECTOR		Ř	EMERGENCY BATTERY BALLAST)	NOTED ON PLAN	
FDD	DUCT SMOKE DETECTOR		<b>X</b>	CEILING OR PENDANT MOUNTED EXIT SIGN - ARROWS AS INDICATED ON PLAN	NOTE 2	
FHD	HEAT DETECTOR		×	WALL MOUNTED EXIT SIGN - ARROWS AS INDICATED ON PLAN	NOTE 2	
FFS	FIRE PROTECTION FLOW SWITCH			EMERGENCY BATTERY UNIT - WALL MOUNTED	NOTE 2	
FTS	FIRE PROTECTION MONITORED VALVE					
F DH	MAGNETIC DOOR HOLDER			RECESSED MOUNTED LUMINAIRE - LAY-IN CEILING		
F <sub>DS</sub>	DUCT SMOKE DAMPER			SUSPENDED LUMINAIRE		
FACP	FIRE ALARM PANEL					
FAAP	FIRE ALARM SYSTEM ANNUNCIATOR PANEL			LINEAR FLUORESCENT LUMINAIRE		
NAC	NOTIFICATION APPLIANCE CIRCUIT EXTENDER PANEL		\$ a	SINGLE POLE WALL SWITCH (LOWER CASE LETTER INDICATES CONTROL)	44"	
S	ECURITY SYMBOL LE	GEND	\$ 2	DOUBLE POLE WALL SWITCH	44"	
		MOUNTING	\$3	THREE-WAY WALL SWITCH	44"	
SYMBOL	DESCRIPTION	HEIGHT/NOTE	\$4	FOUR-WAY WALL SWITCH	44"	
JCR	SECURITY SYSTEM CARD READER	44"	\$ os	WALL SWITCH WITH OCCUPANCY SENSOR	44"	
JDS	SECURITY SYSTEM ELECTRIC DOOR STRIKE		\$ D	WALL DIMMER SWITCH	44"	
Μ	SECURITY SYSTEM MOTION DETECTOR		\$\$	DUAL-LEVEL SWITCH (FOR INNER/OUTER ROW OR MULTI-LEVEL	44"	
	CCTV CAMERA		<u> </u>	SWITCHING)		
C	OMMUNICATIONS SYMBOL I	LEGEND	OS	CEILING MOUNTED OCCUPANCY SENSOR (360° COVERAGE)		
_		MOUNTING	$ (0S) \rightarrow$	CEILING/WALL/CORNER MOUNTED OCCUPANCY SENSOR (ARROWS INDICATE TYPE OF COVERAGE)		
SYMBOL	DESCRIPTION	HEIGHT/NOTE	$ \leftarrow$ $\odot$ $\rightarrow$	CEILING MOUNTED COVERAGE (ARROWS INDICATE TYPE OF COVERAGE)		
AV	LOCAL VIDEO INPUT OUTLET	16" UNO		,		
TV	DUPLEX/CABLE/DATA OUTLETS	80" UNO		LIGHTING LEGEND NOTES		
$\bigtriangledown$	DATA OUTLET	16" UNO	1.	ALL SYMBOLS INDICATED MAY NOT BE USED ON THIS PROJECT.		
▼	TELEPHONE OUTLET	16" UNO	2.	EXIT AND EMERGENCY BATTERY FIXTURES SHALL BE WIRED "AHE CONTROL AND UPON LOSS OF UTILITY POWER PROVIDE 90 MINUT		
▼w	W = WALL HEIGHT PHONE OUTLET	44"	3.	ILLUMINATION PER NFPA 101.		
		16" UNO	0.	FIXTURES WITH EMERGENCY BATTERY BALLASTS SHALL BE SWITE FIXTURES OR USED AS NIGHT LIGHT FIXTURES (AS NOTED ON DR/	AWINGS), AND SHALL NOT BE	
$\mathbf{V}$	COMMUNICATIONS (TELEPHONE AND DATA) OUTLET			NORMALLY "OFF" UNLESS SWITCHED OFF, EITHER AUTOMATICALL OF UTILITY POWER, THE BATTERY SHALL AUTOMATICALLY ILLUMII	NATE LAMPS REGARDLESS OF	
$\Psi_{F}$	FLOOR MOUNTED COMMUNICATIONS OUTLET			THE SWITCH CONTROL STATUS AND PROVIDE 90 MINUTES OF EME NFPA 101. WIRE PER MANUFACTURERS INSTRUCTIONS.		
DED	DEDICATED CIRCUIT	AS NOTED	4.			
			_	WALL MOUNTED LIGHTING FIXTURES EXTENDING OUT FROM WALI MOUNTED AT A MINIMUM OF 80" ABOVE FINISHED FLOOR TO BOTT WALKWAYS, CORRIDORS, PASSAGEWAYS AND AISLES. COORDINA FIXTURES WITH ARCHITECTURAL INTERIOR ELEVATIONS AND DET	OM OF FIXTURE, IN TE MOUNTING HEIGHTS OF	

LIGHTING FIXTURE SCHEDULE					
TYPE	DESCRIPTION	MANUFACTURER NO.			
FA1	2' x 4' RECESSED FLUORESCENT LIGHTING FIXTURE. (3) 32W T8 LAMPS. SINGLE ELECTRONIC BALLAST. 120V. ACRYLIC DIFFUSER.	LITHONIA 2 SP8 TYPE OR APPROVED EQUAL			
FA2	2' x 4' RECESSED FLUORESCENT LIGHTING FIXTURE. (4) 32W T8 LAMPS. DUAL ELECTRONIC BALLASTS FOR DUAL SWITCHING (INNER/OUTER). 120V. ACRYLIC DIFFUSER.	LITHONIA 2 SP8 TYPE OR APPROVED EQUAL			
FA3	2' x 2' RECESSED FLUORESCENT LIGHTING FIXTURE. (3) 17W T8 LAMPS. SINGLE ELECTRONIC BALLAST. 120V. ACRYLIC DIFFUSER.	LITHONIA 2 SP8 TYPE OR APPROVED EQUAL			
FA4	2' x 4' RECESSED FLUORESCENT LIGHTING FIXTURE. PARABOLIC, 18 CELL, (3) LAMP T8 120V. MATCHES APPEARANCE OF ADJACENT EXISTING LIGHTING FIXTURES.	LITHONIA PARAMAX SERIES OR APPROVED EQUAL			
Х	EXIT SIGN LIGHTING FIXTURE. SINGLE FACE. WHITE FACE WITH RED LETTERING/DIRECTIONAL ARROW. LED. 120/277V INPUT. UNIVERSAL MOUNT.	EMERGI-LITE OR APPROVED EQUAL			
EBU	EMERGENCY BATTERY POWERED EGRESS LIGHTING FIXTURE. DUAL HEAD ADJUSTABLE. LEAD CALCIUM BATTERY. SEALED MAINTENANCE FREE. 120V INPUT. 12V, 50WATT. WHITE.	EMERGI-LITE ECM SERIES OR APPROVED EQUAL			
UC1	4' UNDER-CABINET FLUORESCENT LIGHTING FIXTURE (1) 32W T8 LAMP. SINGLE ELECTRONIC BALLAST. 120V. ACRYLIC COVER. ROCKER ON/OFF SWITCH.	HALO. SLIMLINE. 8632REB OR APPROVED EQUAL			

# **GENERAL NOTES**

SHEET NOTES

0	201/	Gensler
⊌	2014	Gensiel



Project Number 59.6222.900

Project Name URS - PORTLAND

Seal / Signature

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