WIRING SYSTEMS

———	EXISTING
———	NEW

ANNOTATION

+24"	INDICATES MOUNTING HEIGHT CENTER LINE TO FINISHED FLOOR.
⬡ #	KEYED NOTE REFERENCE
①	DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM

POWER DISTRIBUTION

▬	DISTRIBUTION PANELBOARD, SURFACE OR FLUSH MOUNTED.

POWER AND TELECOMMUNICATION

J	JUNCTION BOX, MOUNTING TO BE VERIFIED IN FIELD
	DUPLEX RECEPTACLE, MOUNTING TO BE VERIFIED IN FIELD
	QUAD RECEPTACLE, MOUNTING TO BE VERIFIED IN FIELD
	DATA/PHONE JACK, MOUNTING TO BE VERIFIED IN FIELD
PP	POWER POLE
CL	CURRENT LIMITER
SP	SUSPENDED CEILING AUDIO SPEAKER
SP	WALL MOUNTED SPEAKER – 72" A.F.F

ELECTRICAL DRAWING LIST

E0.1	SYMBOLS & NOTES
E0.2	ELECTRICAL SPECS – 1
E0.3	ELECTRICAL SPECS – 2
E1.0	LIGHTING PLAN
E2.0	POWER PLAN
E3.0	RISER & PANELS
E3.1	PANELS

ELECTRICAL ABBREVIATIONS

A	AMPERES
A/C, AC	AIR CONDITIONING UNIT
AF	AMPERE FRAME/AMP FUSE
AFF	ABOVE FINISHED FLOOR
AS	AMP SWITCH
AIC	AMPS INTERRUPTING CAPACITY
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
C/B,CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
COMM	COMMUNICATION
CT	CURRENT TRANSFORMER
CU	COPPER
°C	DEGREE CELSIUS
°F	DEGREE FAHRENHEIT
DIA	DIAMETER
DISC	DISCONNECT
DN	DOWN
DWG	DRAWING
JB	JUNCTION BOX
KCMIL	ONE THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT–AMPERES
KW	KILOWATTS
LP	LIGHTING PANEL
LTG	LIGHTING
MAX	MAXIMUM
MC	MOTOR CONTROLLER
MCB	MAIN CIRCUIT BREAKER
MER	MECHANICAL EQUIPMENT ROOM
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
N	NEUTRAL
NE	NEW DEVICE TO REPLACE EXISTING
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OC	ON CENTER
P	POLES
PB	PULLBOX
PC	PERSONAL COMPUTER
ø	PHASE
PNL	PANEL
W	WATT
W	WIRE
WH	WALL HEATER
E	EXISTING
TC	TIME CLOCK
EA	EACH
EC	EMPTY CONDUIT/ ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
ER	EXISTING TO BE RELOCATED
ETR	EXISTING TO REMAIN
EWF	ELECTRIFIED WORKSTATION FURNITURE
EWH	ELECTRIC WATER HEATER
FA	FIRE ALARM
FBO	FURNISHED BY OTHERS, INSTALLED & WIRED BY EC
FDR	FEEDER
FIBO	FURNISHED & INSTALLED BY OTHERS, WIRED BY EC
FIXT	FIXTURE
FL	FLOOR
FLUOR	FLUORESCENT
G	GROUND
GFI	GROUND FAULT INTERRUPTER
GP	GENERAL PURPOSE
HC	HUNG CEILING
HP	HORSEPOWER
HWH	HOW WATER HEATER
HZ	HERTZ
IC	INTERRUPTING CAPACITY
PP	POWER PANEL
PVC	POLYVINYL CHLORIDE
PWR	POWER
R	REMOVE
RE	RELOCATED EXISTING
REC	RECEPTACLE
RR	REMOVE & RELOCATE
SECT	SECTION
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SPEC	SPECIFICATION
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
SYS	SYSTEMS
TELE	TELEPHONE
TEMP	TEMPERATURE
TXF	TOILET EXHAUST FAN
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLT/VOLTAGE
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHER PROOF
XFMR	TRANSFORMER
IG	ISOLATED GROUND
TR	TAMPER RESISTANCE

GENERAL NOTES
(APPLY TO ALL "E" DRAWINGS)

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CURRENT VERSION OF THE NATIONAL ELECTRICAL CODE 2023, LOCAL JURISDICTION REQUIREMENTS, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
2. CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
3. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
4. FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED WATERTIGHT.
5. SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
6. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
7. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
8. CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
9. ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
10. CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE–EXISTING CONDITIONS OR BETTER.
11. MINIMUM SIZE OF CONDUIT SHALL BE ¾", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
12. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
13. PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CANCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
14. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
15. FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
16. ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAINTIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
17. ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
18. ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL, DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
19. ALL CONDUITS AND EQUIPMENT TO BE CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
20. ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
21. OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE–RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE–RATED BOXES OR PUTTY PADS ARE UTILIZED.
22. COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH THE ENGINEER AND OWNER BEFORE INSTALLATION.
23. COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATIONS OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
24. REFER TO ARCHITECTURAL PLANS FOR FINAL LOACTIONS OF ALL LUMINARIES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
25. REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
26. LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
27. NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.

Property of NY Engineers

FAMOUS footwear

DESIGNER:	
DRAWN BY:	
CHECKED BY:	
DATE:	
PROTO. VER.:	
PROJECT NO:	

SYMBOLS & NOTES

E0.1

ELECTRICAL SPECIFICATION

1. GENERAL:

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED, MAINTAIN HEADROOM AND SPACE CONDITIONS.

C. BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS, REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

D. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTANANCE AND REPAIR, MINOR DEVIATIONS FROM DRAWING MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

E. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSAL.

F. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES. AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

G. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

H. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

I. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.

J. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT, PROVIDE EQUIPMENT CURBS AS REQUIRED.

K. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT ND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

L. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

M. UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

N. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

O. INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

P. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATED OF INSPECTION AND APPROVAL.

2. 2. GENERAL PROVISIONS FOR ELECTRICAL WORK:

A. DEFINITIONS:

1) "PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

3) "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE. AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

4) "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

5) "WIRING": RACEWAY. FITTINGS, WIRE, BOXES, AND RELATED ITEMS.

6) "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES

7) "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

8) "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

B. TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING OWNER. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

C. QUALITY ASSURANCE

1) QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2) GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.

3) CURRENT CHARACTERISTICS:

a. DISTRIBUTION: 277/480 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

4) HEIGHTS OF OUTLETS:

a. FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:

– RECEPTACLES AND TELEPHONES: 1 FT–6 IN.

– WALL SWITCHES: 4 FT–0 IN.

– WALL FIXTURES: 7 FT–0 IN.

– MOTOR CONTROLLERS: 5 FT–0 IN.

– CLOCKS: 7 FT 6 IN

b. EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

D. PRODUCT DELIVERY, STORAGE AND HANDLING

1) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2) ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

E. MATERIALS

1) NAMEPLATES: PROVIDE BLACK LAMICOID SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.

2) CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.

3) INSERTS AND SUPPORTS:

a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.

– SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.

– MULTI–ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.

– CLIP FORM NAILS FLUSH WITH INSERTS.

– MAXIMUM LOADING 75 PERCENT OF RATING.

b. SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.

c. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.

d. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

F. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER INORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION. UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC BASED PRIMER FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS ZINC BASED PRIMER WITH FINISH TO MATCH BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

G. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.

H. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

3. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH THE NATIONAL ELECTRICAL CODE 2023 WITH LOCAL ADOPTIONS, AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLIED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER, DATE IS EARLIER, THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

E. CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE BUILDING CODE. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.

F. AREAS WITH NO ELECTRICAL WORK SHALL REMAIN AS IS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS TO ALL AREAS NOT COVERED BY THIS RENOVATION AND SHALL PROVIDE 48 HOUR NOTICE TO LANDLORD OF ANY PLANNED POWER INTERRUPTIONS OR SIGNAL SYSTEM OUTAGES.

4. SHOP DRAWINGS

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT,INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION

2) NAME OF ARCHITECT AND ENGINEER

3) ITEM IDENTIFICATION

4) APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

1) SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

2) SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1) SAFETY/DISCONNECT SWITCHES

2) FUSES

3) CIRCUIT BREAKERS

4) PANELBOARDS/LOADCENTE (INCLUDING DIMENSIONS, SCHEDULES, AND CATALOG CUTS).

5) RACEWAYS

6) WIRE AND CABLE

7) WALL SWITCHES

8) INSERTION RECEPTACLES

9) MOMENTARY CONTACT SWITCHES

10) TIME SWITCHES

11) LIGHTING FIXTURES.

12) TRANSFORMER.

E. ASSIST AND PROVIDE ALL NECESSARY INFORMATION, DIAGRAMS, SKETCHES, ETC. TO THE HVAC CONTRACTOR, FOR THE PREPARATION OF COORDINATED SHOP DRAWINGS INDICATING ROUTING OF FEEDERS, CONTROL CONDUITS, RECESSED FIXTURES AND ADJACENT NEARBY PIPING AND DUCTWORK WHERE APPLICABLE, CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN ESTABLISHED. SUBMIT FOUR(4) BOOKBOUND OPERATING AND SERVICE MANUALS WHICH SHALL INCLUDE COPIES OF ALL SHOP DRAWING. PROVIDE SHOP DRAWINGS FOR PANELS, FIXTURES, WIRING DEVICES, CONDUIT, CABLE, DISCONNECT SWITCH, RELAYS, CONTRACTORS, AND OTHER SYSTEMS AS DIRECTED BY THE ENGINEER.

5. AS–BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8–1/2 IN. X 11 IN. PAPER A BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE "AS–BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS–BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

6. LOW–VOLTAGE DISTRIBUTION EQUIPMENT:

A. PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.

B. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.

C. DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. TWO–POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 6808F. THREE–POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 7810F. KNIFE–BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK–MAKE– QUICK–BREAK, UL CLASS R UP TO 600 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.

7. FUSES:

A. CIRCUITS 0 TO 600 AMPERES SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW–PEAK DUAL–ELEMENT TIME–DELAY LPN–RK (AMP)SP (250V) /LPS–RK (AMP)SP (600V) OR LPJ (AMP)SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

B. MOTOR CIRCUITS – ALL INDIVIDUAL MOTOR CIRCUITS WITH FULLLOAD AMPERE RATINGS (FLA) OF 480 AMPERES OR LESS SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMANN LOW–PEAK DUAL–ELEMENT TIME–DELAY LPN–RK (AMP)SP (250V) /LPS–RK (AMP)SP (600V) OR LPJ (AMP) SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

C. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

D. PROVIDE 1 SPACE MATCHING FUSE FOR EACH SET OF 3.

E. CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL–MAGNETIC, QUICK–MAKE–QUICK–BREAK, BOLT–ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP–FREE HANDLE. MULTI–POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT–TRIPPING, OPEN AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED. FRAMES, IC AND INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

1) 120 VOLTS, 100–AMP FRAME: 10,000 AMPS, 1 POLE.

2) 120/240 VOLTS, 225–AMP FRAME: 22,000 AMPS MINIMUM.

8. DISTRIBUTION PANELBOARDS, CIRCUIT BREAKER TYPE:

A. THREE PHASE, 4 OR 5 WIRE, COPPER BUS BARS, WITH 2, 3, OR 4 WIRE BRANCHES, AS NOTED. CAPACITY OF PANEL AND CIRCUITS, AS NOTED BELOW. PANELBOARD TO HAVE GROUND BUS SAME SIZE AS PHASE BUSES.

B. CABINETS: CODE GAUGE GALVANIZED SHEET STEEL PRIMED AND PAINTED WITH TRIM AND DOOR, TYPE AS NOTED, LAP AND RIVET CORNERS OR FORM AS APPROVED.

C. TRIM: ONE PIECE FULL FINISH PRIMED AND PAINTED SHEET STEEL TRIM SHALL BE MOUNTED WITH A CONTINUOUS PIANO HINGE CONFIGURED IN SUCH A MANNER THAT IT SHALL BE POSSIBLE TO GAIN FULL ACCESS TO CIRCUIT BREAKERS AND WIRING GUTTERS WITHOUT REMOVING THE TRIM. PROVIDE A MULTI–PIN CYLINDER LOCK (YALE, CORBIN OR EQUAL) TO LATCH THE TRIM. KEYS SHALL BE MILLED.

D. HARDWARE: MULTI–PIN, CYLINDER LOCKS WITH MILLED KEYS. ALL PANELS SHALL BE KEYED ALIKE. DOOR OVER 48" HIGH SHALL BE EQUIPPED WITH A CHROME PLATED VAULT HANDLE, BUILT–IN LOCK AND 3–POINT CATCH FASTENING DOOR AT TOP, BOTTOM AND CENTER.

E. HINGES: CONCEALED, CONTINUOUS PIANO HINGE AS DESCRIBED ABOVE.

F. DIRECTORY HOLDER: MEAL FRAME WITH NONBREAKABLE TRANSPARENT COVER AND DIRECTORY CARD. ENTRIES TO BE TYPEWRITTEN BY ELECTRICAL CONTRACTOR. PROVIDE AN ENGRAVED LAMINATED NAMEPLATE ADJACENT TO EACH BRANCH BREAKER. MOUNT WITH SELF TAPPING MACHINE SCREWS.

G. FURNISH MULTI–CABLE LUGS WHERE REQUIRED. DOUBLE LUGGING NOT PERMITTED. SECURE LUGS TO BUS BY STUD BOLTS.

H. PANELBOARD CONSTRUCTION FOR BOLTED TYPE BREAKERS. MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, RMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. INDIVIDUAL CIRCUIT BREAKERS SHALL HAVE MINIMUM 100A FRAME, TRIPS SIZED AS SHOW ON THE PLANS.

I. MINIMUM GUTTER SPACES: PANELS WITH 225 AMPERE MAINS, 5–¾" MINIMUM, 400 AMPERES AND OVER, MINIMUM GUTTERS 8". FOR PANELS WITH THROUGH FEEDERS, INCREASE GUTTER WIDTH BY 2" MINIMUM AND PROVIDE A SHEET STEEL BARRIER BETWEEN THE PANEL GUTTER AND THE THROUGH FEEDER PORTION OF THE BACK BOX. BRANCH CIRCUIT BREAKERS SHALL BE MECHANICALLY INTERLOCKED WHEN SHOWN ON DRAWINGS.

J. DISTRIBUTION AND SUB–DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

K. PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

L. PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANE TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

9. DISTRIBUTION PANELBOARDS, SWITCH AND FUSE:

A. THREE PHASE, 3 OR 4 WIRE WITH COPPER BUS BARS. ALL THROUGH BUS SHALL BE INSULATED.

B. NEMA CLASS 1 CONSTRUCTION TO ACCOMMODATE FUSIBLE, INDIVIDUALLY ENCLOSED SWITCHES, FRONT REMOVABLE, SWITCH AND DOOR INTERLOCKS. COVERS TO BE PAD–LOCKABLE.

C. PANELBOARD SHALL BE CONSTRUCTED OF CODE–GAUGE STEEL, GRAY FINISH OVER RUST INHIBITOR, FOR SURFACE MOUNTING. BOX AND PANEL FRAME SHALL BE FLANGED AND REINFORCED FOR RIGID SUPPORT OF INTERIOR AND ACCURATE ALIGNMENT OF INTERIOR WITH FRONT. TRIMS TO BE FASTENED TO BACK BOX WITH SCREWS.

D. ALL BRANCH SWITCHES SHALL HAVE INDIVIDUAL ENGRAVED LAMICOID NAMEPLATES (BLACK WITH WHITE CORE).

E. DISTRIBUTION PANELBOARD CONSTRUCTION MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, REMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. APPLICATIONS.

F. DISCONNECTS

1) DISCONNECT SWITCHES SHALL CONFORM TO NEMA AND UL STANDARDS, AND SHALL BE HORSEPOWER RATED.

2) SWITCHING MECHANISM SHALL BE QUICK–MAKE, QUICK–BREAK, SINGLE THROW WITH EXTERNAL OPERATING HANDLE MECHANICALLY INTERLOCKED WITH ENCLOSURE COVER TO PROVIDE ACCESS TO INTERIOR WHEN DISCONNECT IS IN OFF POSITION ONLY. PROVIDE MEANS TO LOCK OPERATING HANDLE IN THE OPEN AND CLOSED POSITION. DESIGNATE ON THE ENCLOSURE THE OPEN AND CLOSED POSITION OF THE OPERATING HANDLE.

3) SWITCHES SHALL BE OF THE DOUBLE STATIONARY CONTACT TYPE.

4) SWITCHES SHALL BE EQUIPPED WITH REJECTION TYPE FUSE HOLDERS, FUSIBLE AS SHOWN ON THE DRAWINGS; PROVIDE COMPLETE WITH FUSES AS SCHEDULED.

PROPERTY OF NY Engineers

FAMOUS footwear

DESIGNER:	
DRAWN BY:	
CHECKED BY:	
DATE:	
PROTO. VER.:	
PROJECT NO:	

ELECTRICAL SPECS - 1

E0.2

ELECTRICAL SPECIFICATION (CONT.)

D. INSTALLATION

1) DISTRIBUTION PANELBOARD SHALL BE MOUNTED TO STRUCTURAL STEEL CHANNEL (KINDORF) WHICH SHALL BE BOLTED TO THE WALL USING EXPANSION ANCHORS FOR LARGE PANELS.

H. IDENTIFICATION

1) PROVIDE NAMEPLATE AT EACH SWITCH IDENTIFYING THE LOAD SERVED.

2) NAMEPLATES SHALL BE MOUNTED ON THE FRONT COVER SECURED WITH SELF–TAPPING SCREWS OR NUTS AND BOLTS. NAMEPLATES SHALL BE LAMINATED PHENOLIC, BLACK WITH A MINIMUM OF ¼" HIGH WHITE LETTERING.

I. DISTRIBUTION AND SUB–DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

J. POWER PANELBOARDS SHALL BE SIMILAR TO GENERAL ELECTRIC TYPE "OMR", AS MANUFACTURED BY ATLAS SWITCH COMPANY, ELECTRIC SWITCHBOARD COMPANY OR APPROVED EQUAL.

K. PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

L. PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANE TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

M. MATERIALS

1) RACEWAYS:

a. RIGID STEEL CONDUIT: FULL–WEIGHT PIPE, GALVANIZED, THREADED.

b. ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADLESS.

c. FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED.

d. WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM NO. 16 GAUGE STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW–ON.

e. SURFACE METAL RACEWAY: SIZE AS NOTED. BASE 0.04 IN., COVER 0.25 IN. MATERIAL SHALL BE STEEL. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW–ON.

2) FITTINGS AND ACCESSORIES:

a. RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.

b. ELECTROMETALLIC TUBING: COMPRESSION TYPE. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER.

c. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.

d. BUSHINGS: METALLIC INSULATED TYPE.

3) BOXES:

a. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1–1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2–3/4 IN. DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1–1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER. OFFSET BACK–TO–BACK OUTLETS WITH MINIMUM 6 IN. SEPARATION.

b. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW–ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN 120/208 VOLT AND 265/460 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE: BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

N. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.

PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U–BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB FOR THROUGH–THE–FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE–THROUGH–FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U–BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK. NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPLATES.

EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE, GALVANIZED OR NYLON ROPE.

RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD–THREADED CONDUIT WITH GRAPHITE–BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD–CUT THREADS, CRC–COLD GALVANIZED. EMT SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY, IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

ALL COUPLINGS SHALL BE COMPRESSION TYPE. NO SET SCREW FITTINGS.

EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

RACEWAYS PASSING THROUGH FIRE–RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.

O. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH WASHINGTON ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE–PIECE PLUG WITH POZI–GRIP WEDGING PLUG AS MANUFACTURED BY OZ–GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.

INSTALL CABLE SUPPORTS AT THE TOP OF A VERTICAL RISE AND PROVIDE INTERMEDIATE ADDITIONAL SUPPORTS AS REQUIRED TO LIMIT SUPPORTED CONDUCTOR LENGTHS TO NOT GREATER THAN THOSE SPECIFIED IN TABLE 300.19(A).

P. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIER BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.

Q. PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR–TO–CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

R. FIRE SEALANTS: PROVIDE FOR RACEWAYS AND WIRE PASSING THROUGH FLOOR SLOTS, SLEEVES OR OPENINGS IN FIRE–PARTITIONS ROOMS.

S. PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING 1 CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

WIRE AND CABLE:

A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.

B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.

C. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

D. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF–2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C.FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS–LINKED POLYETHYLENE INSULATION (TYPE XHHW).

E. ARMORED CABLE (MC) SHALL BE UTILIZED FOR BRANCH CIRCUITS IN DRY HOLLOW LOCATIONS, ABOVE HUNG CEILINGS, AND WITHIN BLOCK WALLS. WHEN USED IN LIEU OF CONDUIT, CONTRACTOR SHALL BASE PRICING ON STANDARD–GRADE MC CABLE.

F. COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM:	277/480 VOLT SYSTEM:
BLACK FOR A PHASE	BROWN FOR A PHASE
RED FOR B PHASE	ORANGE FOR C PHASE
BLUE FOR C PHASE	YELLOW FOR C PHASE

1) NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.

G. WHERE COLOR–CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

H. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION–TYPE OF TWIST–ON SPRING–LOADED CONNECTORS AND CLEAR NYLON–INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON TANG.

I. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 265/460 VOLT SYSTEMS, EXCEPT 460 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.

J. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.

K. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

11. WIRING DEVICES:

A. WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE SPECIFIED. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS OTHERWISE NOTED. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.

B. LOCAL WALL SWITCHES SHALL BE ROCKER TYPE, QUIET OPERATING, RATED 20 AMP, 120/277 VOLT, AC. SIMILAR TO LEVITON DECORA SERIES A5621 (SINGLE POLE), A5623 (3–WAY) AND A5624 (4–WAY).

C. STRAIGHT BLADE RECEPTACLES SHALL BE RESIDENTIAL GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, DECORA SERIES BY LEVITON. GROUNDED, EXCEPT AS NOTED.

1) SINGLE GANG, RECESSED, DUPLEX RECEPTACLE: TAMPER RESISTANT, 2–POLE, 3–WIRE GROUNDING, 15A, 125V, NEMA 5–20R; LEVITON 689 SERIES (COLOR AS SPECIFIED BY ARCHITECT).

2) USB CHARGER/ DUPLEX TAMPER–RESISTANT RECEPTACLE: TAMPER RESISTANT,

D. DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBED VOLTAGE AVAILABLE.

E. COLORS: COORDINATE COLORS WITH ARCHITECT.

F. MOUNTING ORIENTATION OF RECEPTACLES (HORIZONTAL OR VERTICAL): COORDINATE WITH ARCHITECT.

12. LIGHTING FIXTURES:

A. FIXTURES TO BE AS SPECIFIED BY ARCHITECT AND SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.

B. FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.

C. BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, ET1 AND CBM APPROVED. ENERGY SAVING TYPE. TRIGGER START FOR 24–INCH LAMPS AND RAPID START FOR 48–INCH. TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL.

D. LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47, PART 15 AND COMPLY WITH NEMA SSL 1 "ELECTRONIC DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.

E. DIMMABLE LED DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKER ACROSS THEIR FULL DIMMING RANGE. PROVIDE TYPE OF LED DRIVER AS PER LIGHTING FIXTURE SCHEDULE, DIMMABLE LED DRIVERS SHALL BE 0–10V WHERE NOT INDICATED.

F. CONTINUOUS ROW, TWO LAMP STRIP FIXTURES SHALL BE STAGGERED TYPE.

G. EXIT SIGNS SHALL BE PRECISION DIE–CAST ALUMINUM HOUSING WITH LASER–FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE LOCAL AHJ APPROVED. AC POWERED WITH PREMIUM LONG–LIFE NICKEL CADMIUM BATTERY WITH STANDARD UL LISTED 3–HOUR RUN TIME. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

13. TELEPHONE CONDUIT SYSTEM:

A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.

C. OUTLETS SHALL BE:

1) WALL: 4 IN. SQUARE WITH BUSHED COVER PLATE.

D. PROVIDE FISHWIRES, IN RACEWAYS OVER 10 FT LONG.

E. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM OUTLET BOX TO BUSHED END THRU WALL 6" BELOW THE PLASTER CEILING.

F. FACE RACEWAYS IN ROOMS SHALL HUBBELL HBL500, HBL750 OR HBL2000 SERIES OR AS ACCEPTABLE.

14. INTERCOM CONDUIT SYSTEM:

A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF INTERCOM MANUFACTURER.

C. OUTLETS SHALL BE:

1. 4 IN. SQUARE WITH SINGLE GANG COVER PLATE.

D. PROVIDE FISH WIRES, IN RACEWAYS OVER 10 FT LONG.

E. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM EACH APARTMENT TO MAIN INTERCOM CONTROLLER AT ENTRANCE.

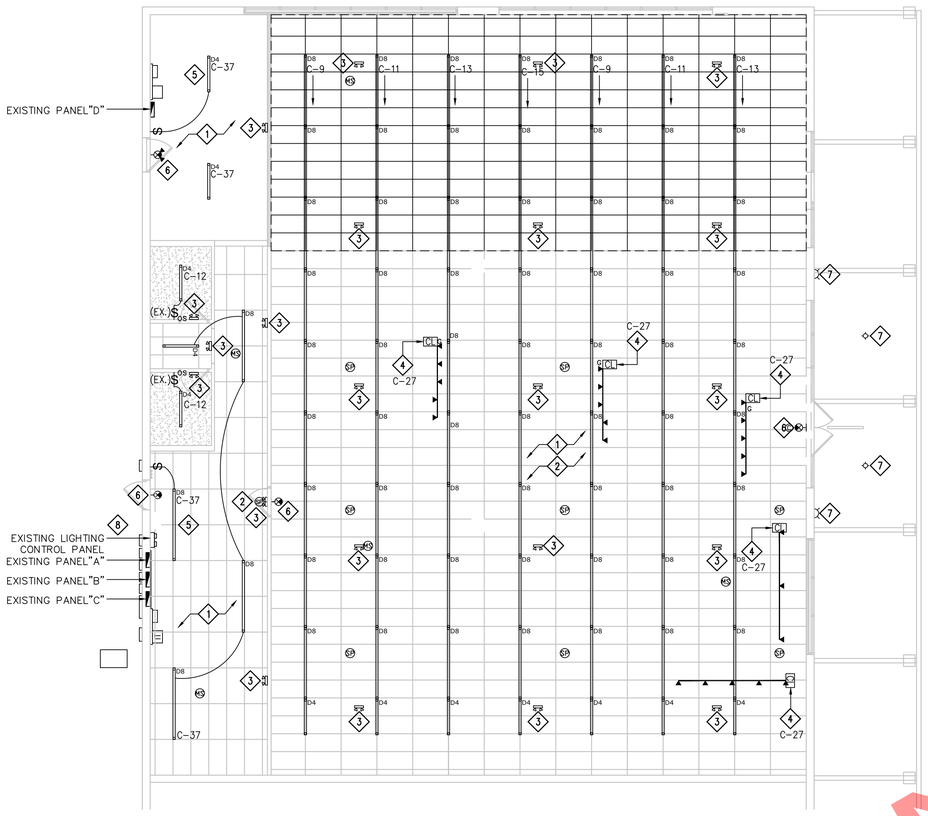
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Engineers

FAMOUS footwear

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ELECTRICAL SPECS - 2

E0.3



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

LIGHTING PLAN GENERAL NOTES

A. REFER TO DWG. E0.1 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND E0.2 & E0.3 FOR ADDITIONAL SPECIFICATIONS.

B. FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.

C. LOW VOLTAGE / POS WIRING NEEDS TO BE RUN IN EMT CONDUIT AND IN WALLS ON THE SALES FLOOR. NO EXPOSED LOW VOLTAGE WIRING, OR CABLES ALLOWED. OPEN CEILING CONCEPT ALL LOW-VOLTAGE WIRING NEEDS TO BE IN EMT CONDUIT. NO EXPOSED MC CABLE OTHER THAN LIGHTING WHIPS.

D. ALL WORK TO BE COMPLETED PER LOCAL CODE REQUIREMENTS. EQUIPMENT TO BE NEW, UL LABELED, AND INSTALLED PER UL AND MANUFACTURER REQUIREMENTS.

E. ALL WIRING LOCATED IN RETURN AIR PLENUMS SHALL MEET LOCAL CODE.

F. COORDINATE EMERGENCY LIGHTING AND EXIT LIGHT REQUIREMENTS WITH LOCAL AHJ.

G. THE MEANS OF EGRESS EMERGENCY LIGHTING ILLUMINATION LEVEL SHALL NOT BE LESS THAN 1 FOOT-CANDELA MEASURED AT THE FLOOR LEVEL. THE ARCHITECT/OWNER SHALL CONFIRM COMPLIANCE PRIOR TO THE INSPECTION BEING PERFORMED.

H. E.C. SHALL REUSE EXISTING LIGHTING CIRCUITS WHEREVER APPLICABLE.

I. PROVIDE CEILING MOUNTED WIRELESS ACCESS POINT AND ANY CABLING/CONDUIT REQUIRED. MAKE CONNECTION TO NETWORK AS REQUIRED.

LIGHTING PLAN KEYED NOTES

1. ALL NEW LIGHT FIXTURES IN SPACE TO BE CIRCUITED THROUGH EXISTING LIGHTING CONTROL PANEL FOR LIGHTING CONTROL AND TIME CLOCK FUNCTION. E.C. SHALL VERIFY OPERABLE CONDITION OF EXISTING LIGHTING CONTROL PANEL & TIME CLOCK IN FIELD, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
2. ALL EXISTING CEILING/WALL MOUNTED SPEAKERS, CEILING OUTLETS, DOME CAMERAS, ETC. THROUGHOUT THE SPACE TO REMAIN IN PLACE. G.C. TO PROTECT IN PLACE DURING CEILING WORK.
3. PROVIDE UNSWITCHED CIRCUITS (C-39 & C-41) TO EMERGENCY FIXTURES, NIGHT LIGHTS, EMERGENCY BATTERY AND EXIT LIGHTS. E.C. SHALL VERIFY IF THE EXISTING CIRCUIT CAN BE UTILIZED TO POWER NEW EMERGENCY LIGHT, IF NOT AVAILABLE, PROVIDE NEW CIRCUIT.
4. NEW TRACK AND TRACK HEAD LIGHTING WITH 1A CURRENT LIMITER.
5. LIGHTING NEAR ELECTRICAL PANELS SHALL NOT BE CONTROLLED BY ANY AUTOMATIC MEANS AND SHALL BE COMPILED AS PER NEC 110.26(D).
6. EXISTING EXIT SIGNS AND RELOCATED EXIT SIGNS AND ASSOCIATED EXISTING CIRCUIT SHALL REMAIN AS IS. E.C. SHALL VERIFY OPERABLE CONDITION OF EXISTING EXIT SIGN AND IT'S CIRCUIT INCLUDING BREAKER, WIRE & CONDUIT IN FIELD, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
7. EXISTING EXTERIOR LIGHTING FIXTURES TO REMAIN. G.C. TO PROTECT EXTERIOR LIGHTING FIXTURES DURING CONSTRUCTION. PATCH/REPAIR/RE-BULB FIXTURES AS NEEDED. BASE BID ACCORDINGLY.
8. EXISTING EMS SYSTEM TO REMAIN.

LIGHTING FIXTURE LEGEND

TAG	SYMBOL	DESCRIPTION	MANUFACTURER	VOLTS	WATT	QTY.	MODEL
D4		4'-0" LED STRIP LIGHT FIXTURE	LSI ADVANTAGE SERIES LED STRIP (AST) (2ND GENERATION) 1 3/4" WIDE PROFILE	120/277	40	12	AST 4 FS CPD UNC QR35
D8		8'-0" LED STRIP LIGHT FIXTURE	LSI ADVANTAGE SERIES LED STRIP (AST) (2ND GENERATION) 1 3/4" WIDE PROFILE	120/277	80	67	AST 8 FS CPD UNC QR35
G	▼	TRACK HEAD WITH LED LAMP	SYLLED 17PAR38	120	16.5	23	78359
		STANDARD LIGHT TRACK IN LENGTH AS INDICATED ON PLAN	HALO LZR108	120	–	5	LZR108
X		CEILING/WALL MOUNTED EMERGENCY LIGHT	SURELITE SEL50	120/277	–	22	LED LAMPS
		WALL MOUNTED EXIT SIGN WITH 90 MINUTE BATTERY BACK UP	EXISTING TO REMAIN	–	–	3	–
		EXISTING CEILING/WALL MOUNTED EXIT SIGN WITH 90 MINUTE BATTERY BACK UP	EXISTING TO REMAIN	–	–	1	–

FIXTURE SCHEDULE NOTES:

1. ALL LIGHT FIXTURES, SHELF LIGHTING FIXTURES AND LAMPS TO BE PURCHASED UNDER A NATIONAL PURCHASE AGREEMENT THROUGH CALERES LIGHTING VENDOR. REFER TO VENDOR CONTACTS, SHEET A1.0.
2. MODEL SPECIFICATIONS INDICATED INCLUDE UNIVERSAL VOLTAGE BALLASTS. CONFIRM WIRING INSTRUCTIONS FOR FIELD SPECIFIC VOLTAGE WITH LIGHTING SUPPLIER PRIOR TO INSTALLING FIXTURES.
3. E.C. SHALL COORDINATE EXACT MAKE/MODEL, COLOR, FINISH & CCT OF LIGHTING FIXTURES WITH ARCHITECT/OWNER IN FIELD.
4. FIXTURE MODEL NUMBER MAY NOT REFLECT ALL MOUNTING HARDWARE. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY MOUNTING EQUIPMENT, LENSES, STEMS, SAFETY CHAINS, END PLATES, AND ALL OTHER HARDWARE NECESSARY FOR A COMPLETE FIXTURE INSTALLATION. SEE MOUNTING DETAILS WHEN APPLICABLE.
5. ALL FIXTURES SHALL BE UL OR ETL LISTED.
6. E.C. SHALL VERIFY EXACT LOCATION AND OPERABLE CONDITION OF ALL THE EXISTING LIGHT/EXIT/EMERGENCY FIXTURES IN FIELD IN COORDINATION WITH THE ARCHITECT/OWNER, REPLACE WITH NEW IF FOUND INOPERBALE. BASE BID ACCORDINGLY.

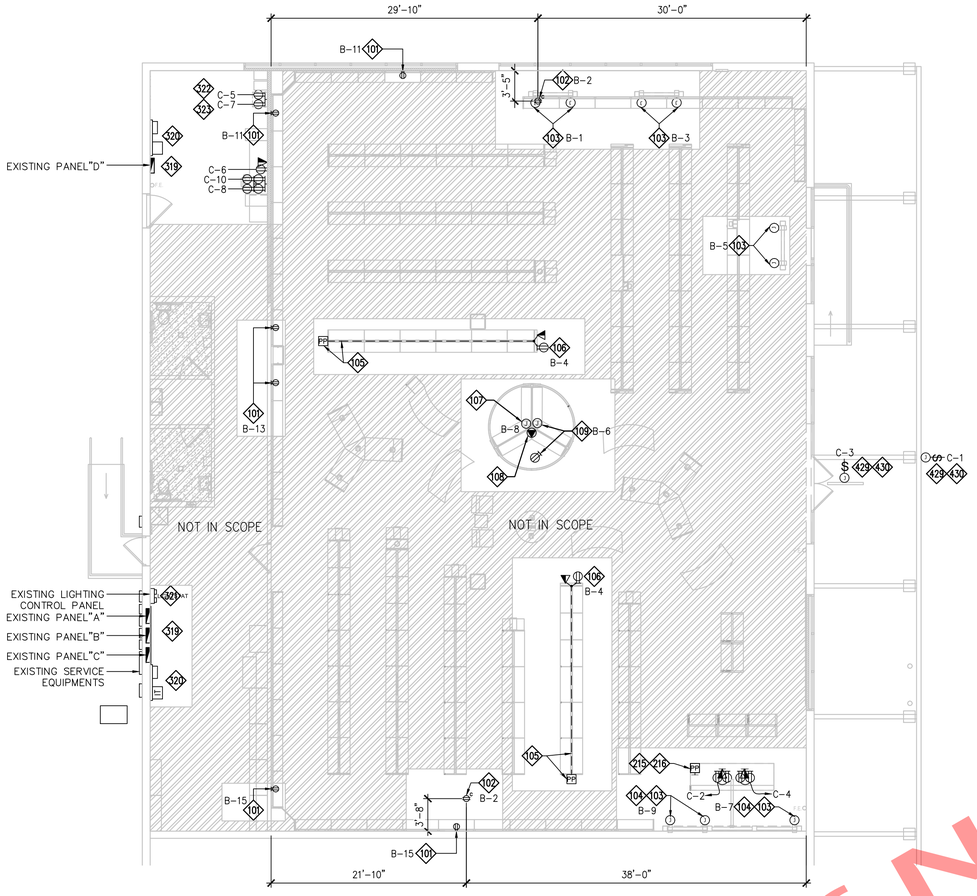
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FAMOUS footwear

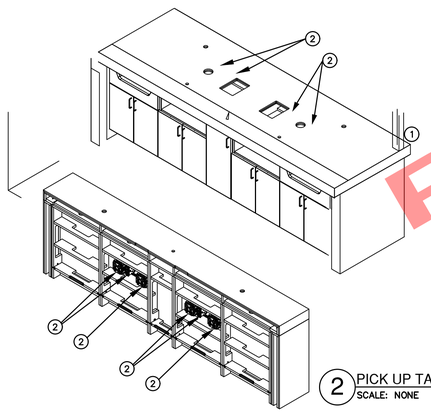
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LIGHTING PLAN

E1.0



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



1. POWER POLE LOCATION. TENANT GENERAL CONTRACTOR TO MAKE POWER AND DATA CONNECTIONS FROM EXISTING PANEL BOARD AND NETWORK SWITCH/PHONE BOARD, THROUGH POWER POLE AND TO JUNCTION BOXES AS REQUIRED. WIRING METHODS AND CABLE MANAGEMENT TO BE APPROVED BY LOCAL AHJ.

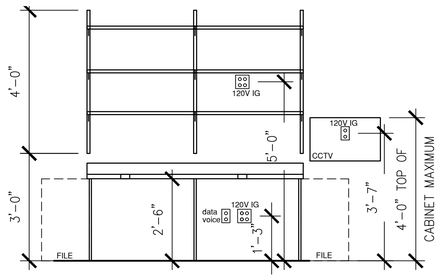
2. FIXTURE MANUFACTURER TO PRE-INSTALL J-BOXES AT CASHWRAP AS SHOWN ON DETAIL. CONTRACTOR TO USE PRE-INSTALLED J-BOXES- SINGLE BOX FOR DATA AND QUAD FOR POWER. J-BOX LOCATION IS NOT TO BE MODIFIED. WIRING FROM POWER POLE TO BE IN CONDUIT AND PER CODE.

GENERAL NOTES:
1. DATA AND PHONE FINAL CONNECTIONS BY TENANT GENERAL CONTRACTOR.

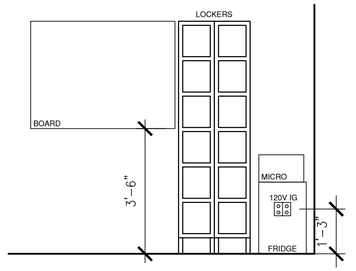
2. CASHWRAP FIXTURE HAS ACCESS PANELS AT EACH BAY TO FACILITATE WIRING.

3. TENANT GENERAL CONTRACTOR IS RESPONSIBLE FOR FINAL POWER CONNECTIONS TO ALL TENANT FIXTURES.

2 PICK UP TABLE WITH POS ELECTRICAL DETAIL
SCALE: NONE



3 MANAGER'S AREA DETAIL
SCALE: NONE



POWER PLAN GENERAL NOTES

A. REFER TO DWG. E0.1 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND E0.2 & E0.3 FOR ADDITIONAL SPECIFICATIONS.

B. FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.

C. RECEPTACLES AND DATA/PHONE BOXES SHALL BE MOUNTED AT 24" A.F.F. TO THE CENTER OF OUTLET UNLESS OTHERWISE NOTED.

D. ALL TELEPHONE FINAL CONNECTIONS BY TENANT.

E. ALL WORK TO BE COMPLETED PER LOCAL CODE REQUIREMENTS. EQUIPMENT TO BE NEW, UL LABELED, AND INSTALLED PER UL AND MANUFACTURER REQUIREMENTS.

F. ALL WIRING LOCATED IN RETURN AIR PLENUMS SHALL MEET LOCAL CODE.

G. ALL LINE VOLTAGE WIRING LOCATED IN RETURN AIR PLENUMS SHALL BE MOUNTED IN CONDUIT TO MEET LOCAL CODE. COORDINATE REQUIREMENTS WITH HVAC CONTRACTORS. ALL LOW VOLTAGE WIRING LOCATED ABOVE CEILING LEVEL AND CONCEALED IN WALLS SHALL BE PER CODE, NO EXCEPTIONS.

H. LOW VOLTAGE / POS WIRING NEEDS TO BE RUN IN EMT CONDUIT AND IN WALLS ON THE SALES FLOOR. NO EXPOSED LOW VOLTAGE WIRING, OR CABLES ALLOWED. OPEN CEILING CONCEPT ALL LOW-VOLTAGE WIRING NEEDS TO BE IN EMT CONDUIT. NO EXPOSED MC CABLE OTHER THAN LIGHTING WHIPS.

POWER PLAN KEYED NOTES

SALES AREA

101 PROVIDE DUPLEX RECEPTACLE AT 60" A.F.F. FOR CONNECTION TO CABINET/SHELF LIGHTING.

102 PROVIDE ACT CEILING MOUNTED DUPLEX RECEPTACLE LOCATED AS SHOWN. G.C. TO OBTAIN SITE SPECIFIC CCTV LAYOUT FROM TENANT'S VENDOR FOR FINAL LOCATION OF CEILING OUTLET.

103 PROVIDE J-BOX FOR POWER TO LIGHT BOX, WIRING TO RUN UP THROUGH FIXTURE POSTS AND CONNECT TO RESPECTIVE PANELS. CONNECT CIRCUIT TO EXISTING LIGHTING CONTROL/EMS. G.C. TO COORDINATE WITH CALERES C.M.

104 PROVIDE (2) J-BOX MOUNTED ABOVE CEILING IN ACCESSIBLE LOCATION FOR POWER CONNECTION TO LIGHT BOX. PROVIDE 120V CIRCUIT TO J-BOX AS INDICATED. LOW VOLTAGE LIGHTING FROM LED LIGHTED PANELS TO BE RUN UP THROUGH LIGHT BOX FIXTURES AND UPRIGHTS TO ASSOCIATED J-BOX. COORDINATE EXACT REQUIREMENTS WITH FIXTURE SUPPLIER PRIOR TO INSTALLATION.

105 TWO CHANNEL POWER POLE FOR DIGITAL END CAP POWER AND DATA WITH ONE (PART OF FIXTURE PACKAGE) AVAILABLE CIRCUIT FROM EXISTING PANEL AND ONE DATA CABLE FROM NETWORK SWITCH. POWER AND DATA TO BE ROUTED THROUGH POWER POLE TO FIXTURE BASE. CONTINUE POWER AND DATA RUN PARALLEL TO FINISHED FLOOR FROM POWER POLE THROUGH THE FIXTURE BASE SHELVING TO END CAP AS REPRESENTED BY DASHED LINE. TERMINATE POWER AND DATA RUNS AT END CAP POWER AND DATA RECEPTACLES. POWER AND DATA HORIZONTAL RUN FROM POWER POLE, THROUGH FIXTURE BASE SHELVING TO DIGITAL END CAP SHALL BE ROUTED IN CONDUIT APPROVED FOR THIS USE BY LOCAL AHJ.

106 PROVIDE DUPLEX RECEPTACLE AND (1) RJ45 DATA OUTLET TERMINATED INTO KEYSTONE FOR CONNECTION TO DIGITAL MEDIA PLAYER ON ENDCAP. POWER AND DATA TO BE LOCATED WHERE SCREEN AND MEDIA PLAYER GO. POWER TO BE PROVIDED THROUGH A POWER POLE AT THE BACK OF DISPLAY AND RAN THROUGH THE BOTTOM OF THE SHELVING TO THE ENDCAP. VERIFY MOUNTING HEIGHT BEFORE ROUGH-IN.

107 PROVIDE (1) J-BOX MOUNTED ABOVE CEILING IN ACCESSIBLE LOCATION FOR POWER CONNECTION TO PINWHEEL POWER SUPPLY. PROVIDE 120V CIRCUIT FROM ELECTRICAL PANEL "B" TO J-BOX AS INDICATED. PROVIDE 2#12 FROM J-BOX TO EACH POWER SUPPLY. TWO (2) TOTAL POWER SUPPLIES.LOW VOLTAGE WIRING FROM LED LIGHTED COMPONENTS TO BE RUN UP THROUGH THE FIXTURE AND UP THE CENTER POST TO THE ASSOCIATED POWER SUPPLY. COORDINATE EXACT REQUIREMENTS WITH FIXTURE SUPPLIER PRIOR TO INSTALLATION.

108 PROVIDE (1) DATA JACK AND LOW VOLTAGE CABLING TO PINWHEEL FIXTURE. COORDINATE EXACT REQUIREMENTS WITH FIXTURE SUPPLIER PRIOR TO INSTALLATION.

109 PROVIDE (1) J-BOX MOUNTED ABOVE CEILING IN ACCESSIBLE LOCATION FOR POWER CONNECTION TO PINWHEEL RECEPTACLE. PROVIDE 120V CIRCUIT FROM ELECTRICAL PANEL "L1" TO J-BOX AS INDICATED. PROVIDE 2#12 FROM J-BOX TO RECEPTACLE. RECEPTACLE TO BE INSTALLED ON THE INSIDE RING OF THE PINWHEEL. COORDINATE EXACT REQUIREMENTS WITH FIXTURE SUPPLIER PRIOR TO INSTALLATION.

CASHWRAP

215 DOOR BUZZER ABOVE CEILING OVER CASHWRAP (EDWARDS 725 OR EQUAL). CONNECT TO SECONDARY OF EXISTING TRANSFORMER IN WORK ROOM. BUZZER TO SIGNAL STORE ENTRY & REAR DOOR. MAKE CONNECTIONS TO EXISTING BUZZER. IF EXISTING BUZZER & TRANSFORMER NOT FOUND IN FIELD PROVIDE NEW IN COORDINATION WITH ARCHITECT/OWNER. BASE BID ACCORDINGLY.

216 PROVIDE NEW POWER POLE FOR CASHWRAP. E.C. SHALL PROVIDE NEW 120V, 20A CIRCUIT TO CASHWRAP ELECTRICAL OUTLETS AND ROUTE CONDUIT/WIRING AS REQUIRED. REFER TO DETAIL 2/E2.0 FOR FURTHER INFORMATION. E.C. SHALL VERIFY EXACT LOCATION AND COORDINATE WITH ARCHITECT/OWNER PRIOR TO INSTALLATION. BASE BID ACCORDINGLY. INFORM ENGINEER OF ANY DISCREPANCIES.

BACKROOM

319 EXISTING ELECTRICAL EQUIPMENT LOCATION.

320 EXISTING PHONE BOARD.

321 EXISTING EMS SYSTEM AND LIGHTING CONTROL SYSTEMS TO REMAIN AS IS. E.C. SHALL VERIFY OPERABLE CONDITION OF THE SAME AND ASSOCIATED CONNECTIONS IN FIELD, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

322 REFRIGERATOR RECEPTACLE. SEE DETAIL 3/E2.0 FOR RECEPTACLE MOUNTING HEIGHT.

323 MICROWAVE RECEPTACLE. SEE DETAIL 3/E2.0 FOR RECEPTACLE MOUNTING HEIGHT.

EXTERIOR

429 EXISTING EXTERIOR OUTDOOR PHOTOCELL SHALL REMAIN. E.C. SHALL VERIFY OPERABLE CONDITION OF THE SAME IN FIELD, REPLACE WITH NEW IF FOUND INOPERABLE. IN CASE OF EXISTING PHOTOCELL NOT FOUND, PROVIDE NEW AND WIRE BACK TO THE ENERGY MANAGEMENT SYSTEM/LIGHTING CONTROL PANEL. BASE BID ACCORDINGLY.

430 J-BOX FOR EXTERIOR SHALL CONTAIN ONE (1) 120V 20 AMP CIRCUITS. ALL PRIMARY WIRING BY E.C. TO THE SIGN MUST BE AS PER UL2161 FOR GFI SIGN TRANSFORMERS. UL261 REQUIRES THAT ALL CIRCUITS MUST HAVE A DEDICATED HOT, NEUTRAL AND GROUND TERMINATING AT THE ELECTRICAL PANEL. CIRCUIT THRU ENERGY MANAGEMENT SYSTEM CONTRACTOR. COORDINATE J-BOX LOCATION WITH SIGN CONTRACTOR PRIOR TO ROUGH-IN. SEE ARCHITECTURAL STOREFRONTS SECTIONS FOR CLARIFICATION.

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POWER PLAN
E2.0

PANEL: A (EXISTING) ◇1 — **MOUNTING:** RECESSED

208Y/120 VOLTS, **3** PHASE, **4** WIRE — **FED FROM:** EXISTING 200A DISCONNECT

MAIN CB NA — **MLO:** — **200A** — **BUS:** EXISTING — **PANEL LOCATION:** WORKROOM

NOTE: L : LIGHTING, R : RECEPTACLES, H : HVAC LOAD, M : MOTOR LOAD, E: KITCHEN/EQUIPMENTS, O : OTHER/MISC. (TYPICAL), * : NEW BREAKER

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA) A	B	C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1			H	3.60		7.21				3.60	H			2
3	3P-35	A/C UNIT (EX)	H	3.60	EXISTING		7.21		EXISTING	3.60	H	A/C UNIT (EX)	3P-50	4
5			H	3.60				7.21		3.60	H			6
7			H	3.60		7.21				3.60	H			8
9	3P-35	A/C UNIT (EX)	H	3.60	EXISTING		7.21		EXISTING	3.60	H	A/C UNIT (EX)	3P-50	10
11			H	3.60				7.21		3.60	H			12
13						0.00								14
15	3P-50	SPARE					0.00					SPARE	3P-50	16
17								0.00						18
19		SPACE				0.00						SPACE		20
21		SPACE					0.00					SPACE		22
23		SPACE						0.00				SPACE		24
25		SPACE				0.00						SPACE		26
27		SPACE					0.00					SPACE		28
29		SPACE						0.00				SPACE		30
TOTAL CONNECTED LOAD (KVA)						**14.41**	**14.41**	**14.41**						

LOAD CLASSIFICATION		CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
TOTAL LIGHTING	L	0.00	100%	0.00
TOTAL RECEPTACLE	R	0.00	100%	0.00
TOTAL HVAC	H	43.23	100%	43.23
TOTAL MOTOR	M	0.00	100%	0.00
TOTAL KITCHEN/EQUIPMENTS	E	0.00	100%	0.00
TOTAL OTHER/MISCELLANEOUS	O	0.00	100%	0.00

PANEL TOTAL LOAD		
TOTAL CONNECTED LOAD	43.23	KVA
TOTAL DEMAND LOAD	43.23	KVA
TOTAL CONNECTED CURRENT	120.14	AMP
TOTAL DEMAND CURRENT	120.14	AMP
SYSTEM VOLTAGE	208Y/120	

PANEL: B (EXISTING) ◇1 — **MOUNTING:** RECESSED

208Y/120 VOLTS, **3** PHASE, **4** WIRE — **FED FROM:** EXISTING 200A DISCONNECT

MAIN CB NA — **MLO:** — **200A** — **BUS:** EXISTING — **PANEL LOCATION:** WORKROOM

NOTE: L : LIGHTING, R : RECEPTACLES, H : HVAC LOAD, M : MOTOR LOAD, E: KITCHEN/EQUIPMENTS, O : OTHER/MISC. (TYPICAL), * : NEW BREAKER

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA) A	B	C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	LIGHTBOX	L	1.20	2#12, #12G, 3/4"C	1.56			2#12, #12G, 3/4"C	0.36	R	CCTV CEILING RECEPTACLES	20	2
3	20	LIGHTBOX	L	1.20	2#12, #12G, 3/4"C		1.56		2#12, #12G, 3/4"C	0.36	R	DISPLAY ENDCAP RECEPTACLES	20	4
5	20	LIGHTBOX	L	1.20	2#12, #12G, 3/4"C			2.20	2#12, #12G, 3/4"C	1.00	R	PINWHEEL FIXTURE POWER	20	6
7	20	LIGHTBOX	L	0.60	2#12, #12G, 3/4"C	1.10			2#12, #12G, 3/4"C	0.50	L	PINWHEEL LED LIGHTS	20	8
9	20	LIGHTBOX	L	1.20	2#12, #12G, 3/4"C		1.20					SPARE	20	10
11	20	LIGHITNG DISPLAY	L	0.36	2#12, #12G, 3/4"C			0.36				SPARE	20	12
13	20	LIGHITNG DISPLAY	L	0.36	2#12, #12G, 3/4"C	0.36						SPARE	20	14
15	20	LIGHITNG DISPLAY	L	0.36	2#12, #12G, 3/4"C		0.36					SPARE	20	16
17	20	SPARE						0.00				SPARE	20	18
19	20	SPARE				0.00						SPARE	20	20
21	20	SPARE					0.00					SPARE	20	22
23	20	SPARE						0.00				SPARE	20	24
25	20	SPARE				0.00						SPARE	20	26
27	20	SPARE					0.00					SPARE	20	28
29	20	SPARE						0.00				SPARE	20	30
31	20	SPARE				0.00						SPARE	20	32
33	20	SPARE					0.00					SPARE	20	34
35	20	SPARE						0.00				SPARE	20	36
37	20	SPARE				0.00						SPARE	20	38
39	20	SPARE					0.00					SPARE	20	40
41	20	SPARE						0.00				SPARE	20	42
TOTAL CONNECTED LOAD (KVA)						**3.02**	**3.12**	**2.56**						

LOAD CLASSIFICATION		CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
TOTAL LIGHTING	L	6.98	100%	6.98
TOTAL RECEPTACLE	R	1.72	100%	1.72
TOTAL HVAC	H	0.00	100%	0.00
TOTAL MOTOR	M	0.00	100%	0.00
TOTAL KITCHEN/EQUIPMENTS	E	0.00	100%	0.00
TOTAL OTHER/MISCELLANEOUS	O	0.00	100%	0.00

PANEL TOTAL LOAD		
TOTAL CONNECTED LOAD	8.70	KVA
TOTAL DEMAND LOAD	8.70	KVA
TOTAL CONNECTED CURRENT	24.18	AMP
TOTAL DEMAND CURRENT	24.18	AMP
SYSTEM VOLTAGE	208Y/120	

PANEL SCHEDULE GENERAL NOTES

A. ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE IN FIELD.

B. E.C. SHALL COORDINATE EXACT ELECTRICAL REQUIREMENT OF ELECTRICAL EQUIPMENT WITH EQUIPMENT MANUFACTURER IN FIELD IN COORDINATION WITH ARCHITECT/OWNER, MAKE POWER PROVISION ACCORDINGLY. BASE BID ACCORDINGLY.

C. E.C. SHALL VERIFY EXISTING CONDITION OF ALL THE CIRCUITS INCLUDING WIRE/CONDUIT/BREAKER USED FOR THE SCOPE OF WORK, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

D. ALL THE EXISTING CIRCUITS MARKED AS (EX) MAY NOT IN USE. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER/CALERES C.M. FOR EXACT REQUIREMENT OF EXISTING CIRCUITS.

PANEL SCHEDULE KEYED NOTES

◇1 ALL THE BREAKERS IN THE PANEL ARE EXISTING U.N.O.. E.C. SHALL VERIFY OPERABLE CONDITION OF EXISTING BREAKERS, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

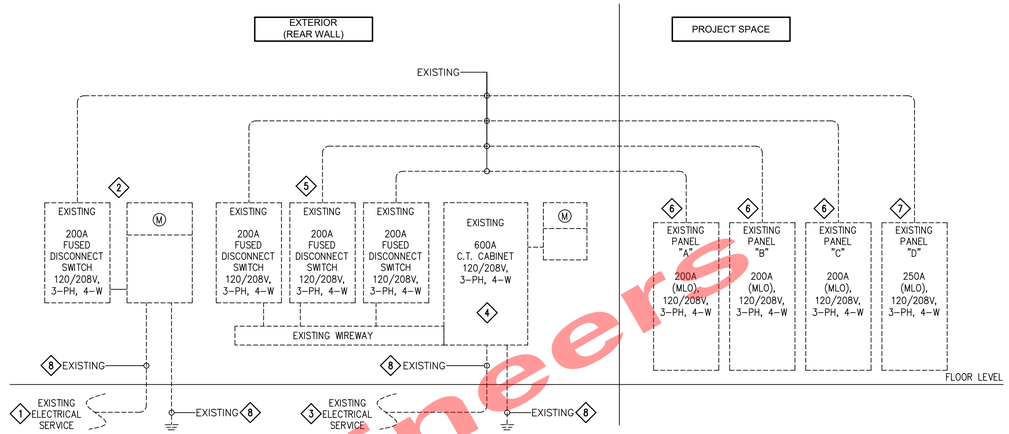
1 PANEL SCHEDULE
SCALE:N.T.S

NOTE

All ELECTRICAL PANELS AND EMS SYSTEM ARE EXISTING TO REMAIN

ELECTRICAL RISER SYMBOLS

- NEW
- EXISTING ITEM/FEEDER TO REMAIN
- EXISTING ITEM/FEEDER TO BE DISCONNECTED & REMOVED



RISER DIAGRAM GENERAL NOTES

A. ABOVE RISER DIAGRAM IS FOR REFERENCE PURPOSE ONLY. E.C TO VERIFY EXACT POWER DISTRIBUTION & OPERABLE CONDITION OF EXISTING DEVICES IN FIELD AND INFORM ENGINEER FOR ANY DISCREPANCY. VERIFY SCOPE OF WORK WITH OWNER/LANDLORD PRIOR TO BID.

B. E.C. SHALL VERIFY THE RATING, SIZE, LOCATION AND OPERABLE CONDITION OF ALL THE EXISTING PANELS AND ELECTRICAL CONNECTION IN FIELD. INFORM ENGINEER FOR ANY DISCREPANCY FOUND BEFORE COMMENCING ANY WORK.

C. E.C. SHALL VERIFY THE INCOMING SERVICE AMPERAGE, VOLTAGE, NUMBER OF PHASES, WIRE SIZE AND DISTRIBUTION IN FIELD.

D. E.C. SHALL VERIFY THE EXACT POWER DISTRIBUTION & INCOMING CONNECTION TO ALL PANELS IN FIELD. INFORM ENGINEER FOR ANY DISCREPANCY FOUND.

E. E.C. SHALL VERIFY THE OPERABLE CONDITION/LOCATION OF EXISTING SYSTEM GROUNDING AT BASE BUILDING/EXTERIOR. REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

RISER DIAGRAM KEYED NOTES

◇1 EXISTING 200A, 120/208V, 3-PHASE, 4-WIRE, ELECTRICAL SERVICE FOR THE PROJECT SPACE SHALL REMAIN. E.C SHALL VERIFY EXACT ELECTRICAL DISTRIBUTION/INCOMING LOCATION/RATING/VOLTAGE/PHASE/WIRE OF EXISTING ELECTRICAL SERVICE IN FIELD WITH ARCHITECT/OWNER/LANDLORD. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.

◇2 EXISTING 200A, 120/208V, 3-PHASE, 4-WIRE, ELECTRICAL METER AND FUSED DISCONNECT SWITCH FOR THE PROJECT SPACE SHALL REMAIN. E.C SHALL VERIFY EXACT LOCATION/RATING/VOLTAGE/PHASE/WIRE OF EXISTING ELECTRICAL METER AND DISCONNECT SWITCH IN FIELD WITH ARCHITECT/OWNER/LANDLORD. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.

◇3 EXISTING 600A, 120/208V, 3-PHASE, 4-WIRE, ELECTRICAL SERVICE FOR THE PROJECT SPACE SHALL REMAIN. E.C SHALL VERIFY EXACT ELECTRICAL DISTRIBUTION/INCOMING LOCATION/RATING/VOLTAGE/PHASE/WIRE OF EXISTING ELECTRICAL SERVICE IN FIELD WITH ARCHITECT/OWNER/LANDLORD. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.

◇4 EXISTING 600A, 120/208V, 3-PHASE, 4-WIRE, ELECTRICAL C.T. CABINET, METER & WIREWAY FOR THE PROJECT SPACE SHALL REMAIN. E.C SHALL VERIFY EXACT LOCATION/RATING/VOLTAGE/PHASE/WIRE OF EXISTING ELECTRICAL C.T. CABINET, METER & WIREWAY IN FIELD WITH ARCHITECT/OWNER/LANDLORD. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.

◇5 EXISTING (3) 200A, 120/208V, 3-PHASE, 4-WIRE, ELECTRICAL FUSED DISCONNECT SWITCHES FOR THE PROJECT SPACE SHALL REMAIN. E.C SHALL VERIFY EXACT LOCATION/RATING/VOLTAGE/PHASE/WIRE OF EXISTING ELECTRICAL FUSED DISCONNECT SWITCHES IN FIELD WITH ARCHITECT/OWNER/LANDLORD. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.

◇6 EXISTING (3) 200A(MLO), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANELS "A, B & C" SHALL REMAIN AS IS. E.C. SHALL VERIFY EXACT LOCATION AND OPERABLE CONDITION OF EXISTING PANELS "A, B & C" AND IT'S INCOMING FEEDER IN FIELD WITH ARCHITECT/OWNER, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

◇7 EXISTING 250A(MLO), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "D" SHALL REMAIN AS IS. E.C. SHALL VERIFY EXACT LOCATION AND OPERABLE CONDITION OF EXISTING PANEL "D" AND IT'S INCOMING FEEDER IN FIELD WITH ARCHITECT/OWNER, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

◇8 E.C. SHALL VERIFY OPERABLE CONDITION OF EXISTING SERVICE INCOMING FEEDER & GROUNDING IN FIELD, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

2 RISER DIAGRAM
SCALE:N.T.S

Property of NY Engineers

FAMOUS footwear

DESIGNER:
DRAWN BY:
CHECKED BY:
DATE:
PROTO. VER.:
PROJECT NO:
RISER & PANELS

E3.0

PANEL:	C (EXISTING) ◇1											MOUNTING:	RECESSED		
208Y/120	VOLTS,	3	PHASE,		4	WIRE						FED FROM:	EXISTING 200A DISCONNECT		
MAIN CB	NA	MLO:	200A	BUS:	EXISTING							PANEL LOCATION:	WORKROOM		

NOTE: L : LIGHTING, R : RECEPTACLES, H : HVAC LOAD, M : MOTOR LOAD, E: KITCHEN/EQUIPMENTS, O : OTHER/MISC. (TYPICAL), * : NEW GFI BREAKER

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA) A	B	C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	TENANT SIGN FRONT	L	1.20	2#12, #12G, 3/4"C	1.92			2#12, #12G, 3/4"C	0.72	R	REC. CASH WRAP (EX)	20	2
3	20	TENANT BLADE SIGN	L	1.20	2#12, #12G, 3/4"C		1.92		2#12, #12G, 3/4"C	0.72	R	REC. CASH WRAP (EX)	20	4
5	20	REFRIGERATOR	E	1.30	2#12, #12G, 3/4"C			1.48	2#12, #12G, 3/4"C	0.18	R	CCTV WORKSTATION RECEPTACLE	20	6
7	20	MICROWAVE	E	1.40	2#12, #12G, 3/4"C	1.76			2#12, #12G, 3/4"C	0.36	R	REC. WORKSTATION	20	8
9	20	LTS SALE	L	1.52	2#12, #12G, 3/4"C		1.88		2#12, #12G, 3/4"C	0.36	R	REC. WORKSTATION	20	10
11	20	LTS SALE	L	1.52	2#12, #12G, 3/4"C			2.02	2#12, #12G, 3/4"C	0.50	L	RESTROOM LTS. , EF'S (EX)	20	12
13	20	LTS SALE	L	1.52	2#12, #12G, 3/4"C	2.06			EXISTING	0.54	R	REC, BUZZER, WORKRM, SALES (EX)	20	14
15	20	LTS SALE	L	0.76	2#12, #12G, 3/4"C		1.01		EXISTING	0.25	O	DETEX (EX)	20	16
17	20	SPARE						0.50	EXISTING	0.50	L	LIGHTSTAT LTG. CONTROL (EX)	20	18
19	20	SPARE				0.36			EXISTING	0.36	R	REC ROOF (EX)	20	20
21	20	SPARE					0.36		EXISTING	0.36	R	REC RESTROOM (EX)	20	22
23	20	SPARE						0.72	EXISTING	0.72	R	REC PHONE BOARD (EX)	20	24
25	20	SPARE				0.72			EXISTING	0.72	R	REC PHONE BOARD (EX)	20	26
27	20	TRACK LIGHT	L	0.38	2#12, #12G, 3/4"C		1.10		EXISTING	0.72	R	REC PHONE BOARD (EX)	20	28
29	20	SPARE						0.72	EXISTING	0.72	R	REC PHONE BOARD (EX)	20	30
31	20	EXTER. WALL SCONCES (EX)	L	0.52	EXISTING	1.72			EXISTING	1.20	L	REC SHOW WINDOW (EX)	20	32
33	20	EXTER. RECESSED CANS (EX)	L	0.46	EXISTING		1.66		EXISTING	1.20	L	REC SHOW WINDOW (EX)	20	34
35	20	SP (EX)	O	0.34	EXISTING			1.14	EXISTING	0.80	O	WH-1 (EX)	20	36
37	20	WORK ROOM LIGHTS	L	0.44	2#12, #12G, 3/4"C	0.44						SPARE	20	38
39	20	EMERG./NIGHT LIGHTS	L	0.15	2#12, #12G, 3/4"C		0.69		EXISTING	0.54	R	REC SALE (EX)	20	40
41	20	EMERG./NIGHT LIGHTS	L	0.19	2#12, #12G, 3/4"C			0.73	EXISTING	0.54	R	REC SALE (EX)	20	42
TOTAL CONNECTED LOAD (KVA)						**8.98**	**8.62**	**7.31**						

LOAD CLASSIFICATION		CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
TOTAL LIGHTING	L	13.26	100%	13.26
TOTAL RECEPTACLE	R	7.56	100%	7.56
TOTAL HVAC	H	0.00	100%	0.00
TOTAL MOTOR	M	0.00	100%	0.00
TOTAL KITCHEN/EQUIPMENTS	E	2.70	100%	2.70
TOTAL OTHER/MISCELLANEOUS	O	1.39	100%	1.39

PANEL TOTAL LOAD		
TOTAL CONNECTED LOAD	24.91	KVA
TOTAL DEMAND LOAD	24.91	KVA
TOTAL CONNECTED CURRENT	69.22	AMP
TOTAL DEMAND CURRENT	69.22	AMP
SYSTEM VOLTAGE	208Y/120	

PANEL:	D (EXISTING) ◇1											MOUNTING:	SURFACE		
208Y/120	VOLTS,	3	PHASE,		4	WIRE						FED FROM:	EXISTING 200A DISCONNECT		
MAIN CB	NA	MLO:	250A	BUS:	EXISTING							PANEL LOCATION:	WORKROOM		

NOTE: L : LIGHTING, R : RECEPTACLES, H : HVAC LOAD, M : MOTOR LOAD, E: KITCHEN/EQUIPMENTS, O : OTHER/MISC. (TYPICAL), * : NEW GFI BREAKER

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA) A	B	C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	BREAK AREA RECEPT. (EX)	R	0.36	EXISTING	0.90			EXISTING	0.54	R	SALES AREA WEST WALL RECEPT. (EX)	20	2
3	20	BREAK AREA RECEPT. (EX)	R	0.36	EXISTING		0.90		EXISTING	0.54	R	SALES AREA WEST WALL RECEPT. (EX)	20	4
5	20	SALES AREA NORTH WALL RECEPT. (EX)	R	0.36	EXISTING			0.36				SPARE	20	6
7	20	SPARE				0.36			EXISTING	0.36	R	TV, REFRIGERATOR RECEPT. (EX)	20	8
9	20	SPARE					0.36		EXISTING	0.36	R	REST RM. GFCI RECEPT. (EX)	20	10
11	20	CELLING RECPT. (EX)	R	0.54	EXISTING			0.72	EXISTING	0.18	R	RT UNIT RECEPT. (EX)	20	12
13			H	3.84		7.69				3.84	H			14
15	3P-40	RT UNIT #1 (EX)	H	3.84	EXISTING		7.69		EXISTING	3.84	H	RT UNIT #2 (EX)	3P-40	16
17			H	3.84				7.69		3.84	H			18
19	20	SPARE				0.50			EXISTING	0.50	O	WATER HEATER RECEPT. #1 (EX)	20	20
21	20	WALL PACKS (EX)	L	0.28	EXISTING		0.88		EXISTING	0.60	O	WATER HEATER RECEPT. #2 (EX)	20	22
23								0.72	EXISTING	0.72	R	PHONE BOARD RECPT (EX)	20	24
25						0.00								26
27							0.00							28
29								0.00						30
31						0.00								32
33							0.00							34
35								0.00						36
37						0.00								38
39							0.00							40
41								0.00						42
TOTAL CONNECTED LOAD (KVA)						**9.45**	**9.83**	**9.49**						

LOAD CLASSIFICATION		CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
TOTAL LIGHTING	L	0.28	100%	0.28
TOTAL RECEPTACLE	R	4.32	100%	4.32
TOTAL HVAC	H	23.06	100%	23.06
TOTAL MOTOR	M	0.00	100%	0.00
TOTAL KITCHEN/EQUIPMENTS	E	0.00	100%	0.00
TOTAL OTHER/MISCELLANEOUS	O	1.10	100%	1.10

PANEL TOTAL LOAD		
TOTAL CONNECTED LOAD	28.76	KVA
TOTAL DEMAND LOAD	28.76	KVA
TOTAL CONNECTED CURRENT	79.91	AMP
TOTAL DEMAND CURRENT	79.91	AMP
SYSTEM VOLTAGE	208Y/120	

NOTE

All ELECTRICAL PANELS AND EMS SYSTEM ARE EXISTING TO REMAIN

PANEL SCHEDULE GENERAL NOTES

A. ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE IN FIELD.

B. E.C. SHALL COORDINATE EXACT ELECTRICAL REQUIREMENT OF ELECTRICAL EQUIPMENT WITH EQUIPMENT MANUFACTURER IN FIELD IN COORDINATION WITH ARCHITECT/OWNER, MAKE POWER PROVISION ACCORDINGLY. BASE BID ACCORDINGLY.

C. E.C. SHALL VERIFY EXISTING CONDITION OF ALL THE CIRCUITS INCLUDING WIRE/CONDUIT/BREAKER USED FOR THE SCOPE OF WORK, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

D. ALL THE EXISTING CIRCUITS MARKED AS (EX) MAY NOT IN USE. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER/CALERES C.M. FOR EXACT REQUIREMENT OF EXISTING CIRCUITS.

PANEL SCHEDULE KEYED NOTES

◇1 ALL THE BREAKERS IN THE PANEL ARE EXISTING U.N.O.. E.C. SHALL VERIFY OPERABLE CONDITION OF EXISTING BREAKERS, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

1 PANEL SCHEDULE
SCALE:N.T.S

Property of NY Engineers

FAMOUS footwear

DESIGNER:
DRAWN BY:
CHECKED BY:
DATE:
PROTO. VER.:
PROJECT NO:

PANELS

E3.1