

# ELECTRICAL SPECIFICATIONS

## 1.01 CODES AND STANDARDS

- A) ALL WORK SHALL BE SYSTEMATICALLY, CAREFULLY AND NEATLY PERFORMED AND SHALL CONFORM TO THE FOLLOWING STANDARDS:
- 2015 IBC
  - 2014 NATIONAL ELECTRIC CODE
  - UNDERWRITERS LABORATORIES, INC. (UL)
  - OSHA AND ALL AGENCIES HAVING JURISDICTION

## 1.02 BASIC MATERIAL AND METHODS

- A) COORDINATE ALL WORK WITH THE WORK OF OTHER TRADES PRIOR TO INSTALLATION. ASSIST IN THE PREPARATION OF COORDINATION DRAWINGS AS REQUIRED BY THE GENERAL CONDITIONS.
- B) CUT AND PATCH NON STRUCTURAL SURFACES AS REQUIRED. REPAIRS SHALL MATCH ORIGINAL FINISH. PENETRATIONS OF FIRE RATED PARTITIONS SHALL BE SEALED WITH APPROVED MATERIAL TO PROVIDE THE SAME RATING AS THE PARTITION. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED PARTITIONS.
- C) PROVIDE EXPANSION FITTINGS WHERE RACEWAYS CROSS BUILDING EXPANSION JOINTS.
- D) EQUIPMENT, DEVICES AND ENCLOSURES SHALL BE RATED NEMA 1 FOR INTERIOR LOCATIONS, NEMA 3R FOR DAMP LOCATIONS AND WET LOCATIONS.
- E) PROVIDE LABELS ON ALL SERVICE EQUIPMENT WITH AVAILABLE MAXIMUM AVAILABLE FAULT CURRENT PER NEW 110.24. PROVIDE FAULT CURRENT CALCULATION FOR REVIEW BY LOCAL AUTHORITY HAVING JURISDICTION.
- F) PROVIDE ARC FLASH WARNING LABELS ON ALL ELECTRICAL DISCONNECT SWITCHES, PANELBOARDS, METER SOCKET ENCLOSURES, ETC PER NEC 110.16. MARKINGS SHALL MEET THE REQUIREMENTS OF NEC 110.21(B)

## 1.03 RACEWAYS

- A) ELECTRICAL METALLIC TUBING (EMT) SHALL CONFORM TO UL 797. FITTINGS SHALL BE GLAND AND RING COMPRESSION TYPE.
- B) FLEXIBLE METALLIC CONDUIT SHALL CONFORM TO UL 1. LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL CONFORM TO UL 360.
- C) ALL CONDUIT FITTINGS AND CONNECTORS SHALL BE STEEL WITH INSULATED THROATS. DIE-FORMED ZINC OR MALLEABLE IRON FITTINGS ARE NOT ACCEPTABLE. BUSHINGS SHALL BE PROVIDED AT ALL CONDUIT TERMINATIONS. BUSHINGS LARGER THAN 1" SHALL BE GROUNDING TYPE. PVC BUSHINGS MAY BE UTILIZED ONLY FOR 3/4" BRANCH CIRCUIT CONDUITS TERMINATING AT PANELBOARDS.
- D) MINIMUM RACEWAY SIZE SHALL BE 3/4". RACEWAYS SHALL BE RUN PARALLEL TO BUILDING STRUCTURAL LINES. RACEWAYS SHALL NOT BE RUN HORIZONTALLY BELOW 8'-0" AFF IN PARTITIONS. ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200LB TEST NYLON DRAG LINE.
- E) ALL WIRING BETWEEN JUNCTION BOXES AND FOR CIRCUIT HOMERUNS BETWEEN FIRST OUTLET SERVED BY THE BRANCH CIRCUIT AND THE PANELBOARD SHALL BE RUN IN EMT OR RGS AS REQUIRED.
- F) RACEWAY UTILIZATION SHALL BE AS FOLLOWS:
- ELECTRICAL METALLIC TUBING (EMT) - INTERIOR CONCEALED AND EXPOSED LOCATIONS; (EXCEPT AS NOTED ABOVE) INTERIOR COMMUNICATIONS WIRING. EMT FITTINGS SHALL BE STEEL, CONNECTORS SHALL HAVE INSULATED THROATS.
  - FLEXIBLE METALLIC CONDUIT - FINAL CONNECTIONS TO LIGHTING FIXTURES IN INTERIOR LOCATIONS (MIN. LENGTH 18", MAX. LENGTH 6'-0"); WHERE APPROVED BY THE ENGINEER.
  - ARMORED CABLE (MC OR AC WITH INSULATED GROUND CONDUCTOR) - BRANCH CIRCUITING IN CONCEALED LOCATIONS ONLY.
  - RIGID NONMETALLIC CONDUIT - EXTERIOR WET LOCATIONS, INSTALLED AND EQUIPPED SO AS TO PREVENT WATER FROM ENTERING CONDUIT, ALL SUPPORTS, STRAPS, SCREWS, ETC., SHALL BE OF CORROSION RESISTANT MATERIAL OR PROTECTED BY CORROSION RESISTANT MATERIAL. DRY AND DAMP LOCATIONS. UNDERGROUND INSTALLATIONS.
  - ROMEX AND NON-METALLIC FLEXIBLE CONDUIT SHALL NOT BE INSTALLED. ALL EXISTING INSTANCES SHALL BE REPLACED WITH WIRING MEETING THIS SPECIFICATION.
- H) ALL CONDUIT AND TUBING SHALL BE CUT SQUARE AND REAMED AT THE ENDS.
- I) CONDUIT AND TUBING RUNS SHALL BE MECHANICALLY AND ELECTRICALLY CONTINUOUS FROM SERVICE STARTING TO ALL OUTLETS AND EQUIPMENT. CONDUIT SHALL ENTER AND BE SECURELY CONNECTED TO A CABINET, JUNCTION BOX, PULLBOX OR OUTLET BOX BY MEANS OF LOCKNUTS ON THE OUTSIDE AND INSIDE AND AN INSULATED BUSHING ON THE INSIDE. IN TUBING OR FLEXIBLE METAL CONDUIT THE ONE COMPRESSION LOCKNUT SHALL BE MADE WRENCH-TIGHT. ALL LOCKNUTS SHALL BE THE BONDING TYPE WITH SHARP EDGES FOR DIGGING INTO THE METAL WALL OF AN ENCLOSURE AND SHALL BE INSTALLED IN A MANNER THAT WILL ASSURE A LOCKING AND ELECTRICALLY CONTINUOUS INSTALLATION. LOCKNUTS AND BUSHINGS ARE NOT REQUIRED WHERE CONDUITS ARE SCREWED INTO TAPPED CONNECTIONS.
- J) ALL VERTICAL RUNS OF CONDUIT OR TUBING TERMINATING IN THE BOTTOMS OF WALL BOXES OR CABINETS, OR SIMILAR LOCATIONS, SHALL BE PROTECTED FROM THE ENTRANCE OF FOREIGN MATERIAL PRIOR TO THE INSTALLATION OF CONDUCTORS.
- K) UNLESS OTHERWISE SPECIFIED, ALL CONDUIT AND TUBING SHALL BE INSTALLED CONCEALED. IN GENERAL, ALL CONDUIT AND TUBING SHALL BE RUN IN HUNG CEILINGS AND FURRED SPACES WHERE THEY EXIST. WHERE CONDUIT IS RUN EXPOSED IT SHALL BE SECURELY SUPPORTED WITH ZINC COATED MALLEABLE IRON PIPE STRAPS OR OTHER APPROVED MEANS. ALL CONDUITS SHALL BE SUPPORTED FROM STRUCTURAL MEMBERS.
- L) CONDUIT SYSTEM SHALL BE INSTALLED COMPLETE BEFORE ANY CONDUCTORS ARE DRAWN IN. WIRE PULLING LUBRICANTS, WHEN UTILIZED, SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF UNDERWRITERS' LABORATORIES, INC., APPLICABLE TO THE SPECIFIC CONDUCTOR OR CABLE INSULATION AND RACEWAY MATERIAL.
- M) WHERE REQUIRED BY THE ENGINEER, EXTRA DEEP OR EXTRA SHALLOW OUTLET BOXES SHALL BE USED TO FACILITATE THE INSTALLATION OF THE CONDUIT SYSTEM.

## 1.04 BOXES

- A) OUTLET, PULL AND JUNCTION BOXES SHALL BE FABRICATED FROM STEEL AND CONFORM TO UL 50, UL 514 AND NEMA OS1. BOXES FOR INTERIOR LOCATIONS SHALL BE CODE GAUGE, GALVANIZED SHEET STEEL. BOXES FOR MECHANICAL ROOMS SHALL BE CAST STEEL WITH GASKETED COVERS.
- B) BOXES SHALL CONTAIN SUITABLE KNOCKOUTS. BARRIERS SHALL BE FURNISHED AS REQUIRED BY CODE AND TO SEPARATE SWITCHES FOR 277 VOLT CIRCUITS ON DIFFERENT PHASES.
- C) BOXES SHALL BE SIZED AS REQUIRED BY CODE FOR NUMBER AND GAUGE OF CONDUCTORS THEREIN, EXCEPT WHERE NOTED TO BE LARGER, THE MINIMUM BOX SHALL BE 4" SQUARE BY 1-1/2" DEEP. COVERS GREATER THAN 50LB SHALL BE DIVIDED INTO MULTIPLE SECTIONS.

## 1.05 FASTENERS

- A) PROVIDE INSERTS, EXPANSION SHIELD LUGS, ANCHORS, BOLTS WITH NUTS AND WASHERS, SHIMS OR ANY OTHER TYPE OF FASTENING DEVICES REQUIRED TO FASTEN PANELS OR OTHER EQUIPMENT TO FLOORS, WALLS OR CEILINGS, UNLESS OTHERWISE SPECIFIED HEREIN OR SHOWN ON THE CONTRACT DRAWINGS. ALL FASTENERS SHALL BE HOT-DIPPED GALVANIZED, OF SIZES AND TYPES RECOMMENDED BY THE EQUIPMENT MANUFACTURER AND AS APPROVED BY THE ENGINEER.

## 1.06 WIRES, CABLES, SPLICES AND TERMINATIONS

- A) POWER AND CONTROL WIRING SHALL BE COPPER, MINIMUM 98% CONDUCTIVITY, WITH TYPE THHN/THWN INSULATION RATED 600 VOLTS. MINIMUM WIRE SIZE SHALL BE #12 AWG. CONDUCTORS SHALL BE SOLID FOR WIRE SIZED #10 AWG AND SMALLER AND STRANDED FOR WIRE SIZES #8 AWG AND LARGER.

- B) METAL CLAD CABLE SHALL BE 90°C RATED CODE TYPE ACTHH WITH A SEPARATE GREEN INSULATED GROUND CONDUCTOR IN ACCORDANCE WITH UL 4. JACKET SHALL BE GALVANIZED STEEL ARMOR.
- C) CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS:
- | 208/120V | PHASE   |
|----------|---------|
| BLACK    | A       |
| RED      | B       |
| BLUE     | C       |
| WHITE    | NEUTRAL |
| GREEN    | GROUND  |
- WHITE WITH TRACER NEUTRAL FOR GFI CIRCUIT
- D) CONDUCTOR SIZES SHALL BE INCREASED WHERE REQUIRED BY CODE AND/OR THE ENGINEER TO COMPENSATE FOR VOLTAGE DROP AND HIGH AMBIENT TEMPERATURE.
- E) COMMUNICATIONS CABLING RUN EXPOSED IN AIR HANDLING PLENUMS SHALL BE TYPE CMP PLENUM RATED.
- F) SPLICES FOR WIRE SIZES #10 AWG AND SMALLER SHALL BE MADE WITH SPRING CONNECTORS AND TAPE. SPLICES FOR WIRE SIZES #8 AWG AND LARGER SHALL BE HYDRAULIC COMPRESSION TYPE WITH PRE-MOLDED COVER AND TAPE.
- G) TERMINATIONS OF POWER AND CONTROL WIRING SHALL BE COMPRESSION TYPE, WITH TWO-HOLE LUGS FOR WIRE SIZES #8 AWG AND LARGER. MECHANICAL LUGS MAY ONLY BE UTILIZED FOR TERMINATIONS AT BRANCH CIRCUIT PANELBOARDS.

## 1.07 WIRING DEVICES

- A) WIRING DEVICES SHALL BE DECORA STYLE WITH NEMA CONFIGURATIONS AS INDICATED ON THE DRAWINGS. COLOR OF DEVICES SHALL BE AS SELECTED BY THE ARCHITECT. WIRING DEVICES SHALL BE MANUFACTURED BY ARROW-HART, HUBBELL, LEVITON, PASS & SEYMOUR OR APPROVED EQUAL.
- B) FACEPLATES SHALL BE NON-MAGNETIC STAINLESS STEEL WITH BRUSHED FINISH UNLESS SPECIFIED BY THE ARCHITECT. FACEPLATES SHALL BE FURNISHED FOR ALL COMMUNICATIONS OUTLETS AND SHALL BE CONFIGURED TO SUIT THE SYSTEM SUPPLIERS' REQUIREMENTS.
- C) DEVICES MOUNTED ADJACENT TO EACH OTHER SHALL BE FURNISHED WITH A COMMON FACEPLATE AND BE GANGED IN ONE BOX.
- D) SWITCHES SHALL BE RATED FOR EITHER INCANDESCENT, ELECTRONIC OR MAGNETIC LOW VOLTAGE AND/OR FLUORESCENT DIMMING BALLASTS. COORDINATE SWITCH TYPE WITH LIGHT FIXTURES BEING CONTROLLED.
- E) ALL DEVICES SHALL BE MOUNTED AT LOCATIONS AND HEIGHTS AS INDICATED ON ARCHITECTURAL DRAWINGS.
- F) WHERE NEW, EXISTING OR NEW AND EXISTING SWITCHES ARE MOUNTED AT SAME LOCATION, MOUNT SWITCHES BEHIND COMMON FACEPLATE.

## 1.08 GROUNDING

- A) THE DISTRIBUTION SYSTEM SHALL BE COMPLETELY AND PROPERLY GROUNDED USING APPROVED FITTINGS. SEPARATE INSULATED GROUND CONDUCTORS SHALL BE RUN WITH ALL FEEDERS WHERE INDICATED, RECEPTACLE BRANCH CIRCUITS AND FLEXIBLE CONNECTIONS TO LIGHTING FIXTURES AND EQUIPMENT.
- B) METAL RACEWAYS, METAL ENCLOSURES OF ELECTRICAL DEVICES AND OTHER EQUIPMENT SHALL BE COMPLETELY GROUNDED IN AN APPROVED MANNER. PROPER HARDWARE REQUIRED FOR A COMPLETE GROUNDING SYSTEM SHALL BE INSTALLED BY THE CONTRACTOR.

## 1.09 IDENTIFICATION OF WORK

- A) ALL PANELBOARDS, EQUIPMENT AND CABINETS SPECIFIED HEREIN SHALL BE CLEARLY IDENTIFIED WITH THE EQUIPMENT DESIGNATION, VOLTAGE AND AMPERE RATING, FUSE RATING, EQUIPMENT SERVED AND ORIGIN OF THE INCOMING FEED. IDENTIFICATION SHALL BE WHITE ON BLACK PLASTIC NAMEPLATE WITH 1/2" MINIMUM LETTERING ATTACHED BY SCREWS.
- B) FACEPLATES OF SWITCHES FOR EQUIPMENT SUCH AS REMOTE FANS AND MOTORIZED SCREENS SHALL BE IDENTIFIED WITH THE NAME OF THE DEVICE CONTROLLED. IDENTIFICATION SHALL BE BY INDELIBLE MARKER IN CONCEALED LOCATIONS AND ADHESIVE LABELS IN EXPOSED LOCATIONS. EMERGENCY DEVICES SHALL BE IDENTIFIED IN RED.
- C) EMPTY CONDUITS SHALL BE IDENTIFIED WITH TAGS AT BOTH ENDS INDICATING THE LOCATION OF TERMINATION AT THE OPPOSITE END.
- D) ALL WIRES SHALL BE IDENTIFIED BY PANEL AND CIRCUIT NUMBER AT ALL TERMINATION AND SPLICE POINTS BY THE USE OF BRADY B-500 VINYL CLOTH TAPE OR EQUIVALENT METHOD.
- E) ALL JUNCTION BOXES SHALL BE IDENTIFIED WITH PANEL AND CIRCUIT NUMBERS OF ALL CIRCUITS OR NAME OF COMMUNICATIONS SYSTEM CABLING CONTAINED WITHIN. JUNCTION BOXES IN EXPOSED LOCATIONS SHALL BE CLEARLY MARKED WITH IDENTIFYING LABELS. JUNCTION BOXES IN CONCEALED LOCATIONS SHALL BE MARKED WITH A BOLD, INDELIBLE MARKING PEN. LETTERING SHALL BE NEATLY AND LEGIBLY PRINTED.
- F) CONDUIT RUNS FOR BRANCH CIRCUITING AND/OR COMMUNICATIONS CABLING SHALL BE IDENTIFIED AT EVERY 50 FEET OF LENGTH, AND AT EACH OUTLET AND PULL BOX WITH CIRCUIT NUMBER OR SYSTEM NAME.

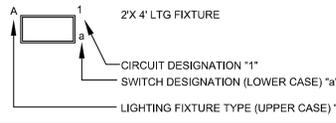
## 1.10 SEALING OF PENETRATIONS

- A) ALL PENETRATIONS OF WALLS, FLOORS OR CEILINGS MUST BE SEALED IN AN APPROVED MANNER USING AN OUTER CIRCUMFERENTIAL SLEEVE FILLED INSIDE AND OUT.
- B) ALL PENETRATIONS OF FIRE RATED WALLS, FLOORS OR CEILINGS SHALL BE SEALED WITH APPROVED MATERIAL TO PROVIDE SAME RATING AS FLOOR, WALL OR CEILING ASSEMBLY. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED PARTITIONS.

## 1.11 HANGERS AND SUPPORTS

- A) THREADED RODS SHALL BE FULLY GALVANIZED, MINIMUM 3/8" DIAMETER. MODULAR CHANNEL SUPPORTS SHALL BE GALVANIZED STEEL. SUPPORT CLIPS AND FASTENERS SHALL BE LISTED AND APPROVED FOR THE APPLICATION. STRAPS AND CLAMPS SHALL BE MALLEABLE IRON.
- B) SUPPORTS SHALL BE SIZED TO ACCOMMODATE THE LOAD REQUIRED. ALL WORK SHALL BE SUPPORTED INDEPENDENTLY OF THE WORK OF OTHER TRADES, INCLUDING CEILING SYSTEM SUPPORTS.
- C) PANELS AND EQUIPMENT LOCATED ON OTHER THAN MASONRY WALLS SHALL BE MOUNTED WITH MODULAR CHANNEL SUPPORTS SECURED TO THE BUILDING STRUCTURE.
- D) APPROVED SEISMIC RESTRAINTS RATED TO RESIST 1/2 G OF FORCE SHALL BE FURNISHED FOR ALL ELECTRICAL WORK WHERE REQUIRED BY LOCAL BUILDING CODES AND THE AUTHORITIES HAVING JURISDICTION.

# LIGHTING, POWER & SIGNAL SYMBOLS

	2'X 4' LTG FIXTURE CIRCUIT DESIGNATION "1" SWITCH DESIGNATION (LOWER CASE) "a" LIGHTING FIXTURE TYPE (UPPER CASE) "A"
	STRIP LIGHTING FIXTURE TYPE.
	RECESSED OR SURFACE MOUNTED LIGHT FIXTURE TYPE .
	CEILING MOUNTED DUAL TECHNOLOGY VACANCY SENSOR W/ POWER PAK AND LOW VOLTAGE OVERRIDE
	CEILING MOUNTED OCCUPANCY SENSOR
	EXIT LIGHT - CONFIRM CHEVRON WITH ARCHITECTURAL LIFE SAFETY DRAWING
	LIGHT TRACK W/FIXTURES TYPE AND LENGTH AS INDICATED ON DWGS
	SINGLE POLE SWITCH 20A-125V MTD 48" AFF LOWER CASE LETTERS INDICATE FIXTURE TO BE CONTROLLED (GANGED SWITCHES)
	SINGLE POLE SWITCH (SUBSCRIPT INDICATES TYPE OF SWITCH 2 - DOUBLE POLE SINGLE THROW SWITCH 3 - THREE WAY SWITCH L - LOW VOLTAGE CONTROL SWITCH FOR VACANCY SENSOR VC - VACANCY SENSOR SWITCH D - DIMMER SWITCH TO MATCH BALLAST TYPE M - MANUAL SW (MOTOR RATED) WITH LOCKOUT DEVICE, WITHOUT OVERLOADS
	CONDUIT RUN EXPOSED
	CONDUIT RUN EMBEDDED IN BUILDING CONSTRUCTION OR CONCEALED BY FINISH
	HOME RUN TO PANEL ARROWS AND NUMBERS INDICATE CIRCUITS
	CONDUIT TURNED OR STUBBED UP
	CONDUIT TURNED OR STUBBED DOWN
	120/208V 3- 4W PANEL
	PHOTO CELL CONTROL
	DUPLEX RECEPTACLE OUTLET
	QUADRUPLX RECEPTACLE OUTLET
	DUPLEX RECEPTACLE OUTLET - CEILING MOUNTED
	MULTI-GANG FLUSH FLOOR MOUNTED CAST FLOOR BOX. PROVIDE COMBINATION TYPE OF RECEPTACLES AND/OR TELECOMMUNICATIONS OUTLETS. SAWCUT EXISTING FLOOR AND PROVIDE 3/4" FOR POWER AND 1" WITH DRAG WIRE FOR TEL/DATA WIRES IN-SLAB FROM FLUSH FLOOR MOUNTED DEVICES TO NEAREST WALL OR FURRED OUT COLUMN AND STUBBED 6" ABOVE ACCESSIBLE HUNG CEILING AND TERMINATED WITH BUSHING. PATCH FLOOR TO MATCH EXISTING FLOOR CONSTRUCTION. WIREMOLD OMNI RFB6 SERIES COLOR AND FINISH BY ARCHITECT.
	DUPLEX RECEPTACLE OUTLET WITH GROUND FAULT INTERRUPTER
	MOTOR RATING IS INDICATED ON DRAWING ALL NECESSARY DISC SHALL BE INCLUDED AS NEEDED
	DISCONNECT SWITCH RATING AND TYPE AS REQUIRED BY NEC
	FUSED DISCONNECT SWITCH
	COMBINATION STARTER/DISCONNECT SWITCH
	MAGNETIC MOTOR STARTER
	JUNCTION BOX
	INDICATES MOUNTING HEIGHT OTHER THAN STANDARD COORDINATE HEIGHTS WITH OWNER
	EQUIPMENT LABEL IDENTIFICATION NUMBER
	GROUND ROD - 3/4" COPPER ROD 10'-0" LONG
	TELEDATA - DOUBLE GANG JUNCTION BOX, W/ PULL STRING SINGLE GANG PLASTER RING AND 1-1/4" RACEWAY. PROVIDE CABLES PER OWNER'S DIRECTION.
	INDICATES FLOOR INDICATES CEILING (SPECIAL FUNCTION) C - WALL MOUNTED FOR CAMERA TV - TELEVISION OUTLET

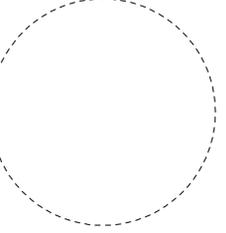
# SHEET NOTES ELECTRICAL:

- PROVIDE ALL DEVICES AND ACCESSORIES ETC. WHERE NOTED ON DRAWINGS OR AS DIRECTED BY ARCHITECT/TENANT.
- CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS AT THE BUILDING SITE BEFORE INSTALLATION OF HIS WORK.
- PROVIDE A COMPLETE INSTALLATION INCLUDING DISCONNECT SWITCHES, PULLBOXES, EQUIPMENT AND WIRING AS INDICATED ON PLANS AND SPECIFICATIONS.
- ALL ELECTRICAL DEVICES INTENDED FOR OPERATION BY THE OCCUPANTS INCLUDING THERMOSTATS SERVICING BASEBOARD HEATERS, SWITCHES (TO TOP OF SWITCH) SHALL BE ACCESSIBLE AND COMPLY WITH REACH RANGE REQUIREMENTS. THE HIGH FORWARD OR SIDE REACH SHALL BE 48-INCHES MAXIMUM ABOVE THE FLOOR. THE LOW FORWARD OR SIDE REACH SHALL BE 15 INCHES MINIMUM ABOVE FLOOR. ALL APPLICABLE CONTROLS AND EQUIPMENT MUST CONFORM TO THE IBC 1109.3.
- MATERIALS, WORKMANSHIP AND COMPLETE INSTALLATION SHALL CONFIRM TO THE 2011 NATIONAL ELECTRIC CODE, STATE, AND ALL APPLICABLE REGULATIONS. ALL EQUIPMENT SHALL BE U.L. LISTED FOR INTENDED APPLICATION.
- THE ELECTRICAL CONTRACTOR SHALL OBTAIN ANY NECESSARY PERMITS PRIOR TO BEGINNING WORK. AT THE COMPLETION OF THE JOB, THE ELECTRICAL CONTRACTOR SHALL FURNISH TO THE OWNER AN INSPECTION CERTIFICATE FROM A LICENSED INSPECTION AGENCY.
- TEST EQUIPMENT TO VERIFY THAT ITEMS ARE FREE FROM UNINTENDED GROUNDS, SHORT CIRCUITS, AND OPEN CIRCUITS AND THAT EQUIPMENT WILL OPERATE AS SPECIFIED. FURNISH LABOR AND MATERIAL FOR MAKING SUCH TESTS AND MAKE CORRECTIONS NECESSARY TO OBTAIN PROPER OPERATION.
- CONTRACTOR SHALL SUBMIT, TO THE OWNER FOR REVIEW, MANUFACTURERS CUT FOR ALL EQUIPMENT SPECIFIED. EQUIPMENT CUTS SHALL INDICATE MANUFACTURERS NAME AND MODEL NUMBER.
- ALL BRANCH CIRCUIT WIRING, JUNCTION BOXES, CONDUITS, PANELBOARDS, EQUIPMENT, DEVICES, ETC., SHALL BE GROUNDED IN ACCORDANCE WITH THE 2011 NATIONAL ELECTRIC CODE.
- BUSHINGS SHALL BE PROVIDED FOR ALL TERMINATION'S AT PANELS, JUNCTION BOXES, WIRING TROUGHS, EQUIPMENT, ETC.
- ALL CONDUIT AND WIRE SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE. CONDUIT AND WIRE SHALL NOT BE SUPPORTED FROM PIPING, DUCTWORK, ETC.
- PROVIDE EACH RACEWAY OR CABLE PASSING THROUGH A MASONRY OR CONCRETE WALL, FLOOR OR PARTITION WITH A SLEEVE MADE FROM STANDARD WEIGHT STEEL PIPE WITH SMOOTH EDGES, SECURELY AND NEATLY CEMENTED IN PLACE.
- WHERE SLEEVES OR CONDUIT PENETRATE FIRE RATED WALLS, FLOORS, PARTITIONS OR SLABS, FILL AND SEAL WITH FIRE SEALANT CREATING A FIRE STOP EQUAL TO OR EXCEEDING FIRE RATING OF CONSTRUCTION MATERIAL BEING PENETRATED. FIRE SEALANT SHALL PREVENT SPREAD OF FLAME, SMOKE, AIR AND WATER AND SHALL PASS A 3 HOUR TEST PER ASTM E814 AND UL 1479. FIRE SEALANT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
- PULL AND JUNCTION BOXES SHALL BE CODE GAUGE ZINC COATED SHEET STEEL CONFORMING TO THE 2011 NATIONAL ELECTRIC CODE AND AS REQUIRED TO FACILITATE INSTALLATION OF WIRES WITHOUT SHARP BENDS AND CROWDING CONDUCTORS AGAINST SIDES OR COVER. USE SCREW-ON AND/OR HINGED COVERS.
- SPLICING SHALL BE WITHIN OUTLET BOXES OR JUNCTION BOXES. NO SPLICING SHALL BE PERMITTED IN MAINS OR FEEDERS.
- WHEN OVERSIZED CONDUCTORS ARE INSTALLED, AND CONDUCTORS DO NOT FIT PROPERLY INTO THE DISTRIBUTION OF UTILIZATION EQUIPMENT PROVIDE JUNCTION BOX ADJACENT TO EQUIPMENT FOR TAP CHANGE OF CONDUCTOR SIZE FROM THE JUNCTION BOX TO THE EQUIPMENT TAP CONDUCTOR SHALL BE AS LARGE AS POSSIBLE, AND IN NO CASE SHALL ITS CURRENT CARRYING CAPACITY BE LESS THAN THAT REQUIRED BY THE NEC.
- WIRES WITHIN EQUIPMENT, SUCH AS PANEL BOARDS, SHALL BE NEATLY ARRANGED AND TIED WITH CABLE TIES.
- ALL BRANCH CIRCUIT CONDUITS SHALL CONTAIN NOT MORE THAN ONE CONDUCTOR OF EACH PHASE (A, B, C) AND NEUTRAL CONDUCTOR, ONE EQUIPMENT GROUNDING CONDUCTOR, AND ASSOCIATED SWITCH OR CONTROL WIRING, UNLESS INDICATED OTHERWISE.
- RACEWAYS INSTALLED EXPOSED OR IN ACCESSIBLE SPACES SHALL BE PLACED AT RIGHT ANGLES TO OR PARALLEL WITH THE BUILDING WALLS AND CEILINGS.
- CONDUITS SHALL BE INSTALLED WITH A MINIMUM SEPARATION OF 6 INCHES BETWEEN ELECTRICAL RACEWAYS AND WATER OR STEAM LINES. WHEN INSTALLED AT CLOSER DISTANCE, PROVIDE INSULATING PIPE COVERING ON THE WATER AND STEAM LINES.
- SWAB OUT AND MAKE RACEWAYS DRY. DO NOT INSTALL WIRE UNTIL THE AREA IS PROTECTED FROM THE WEATHER AND SWABBING OF RACEWAYS HAS BEEN COMPLETED.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATION/COORDINATION OF ALL FIXTURES, LIGHTS, SPRINKLER HEADS, AIR DEVICES AND ALL MPE & FP ITEMS.

THIS DRAWING AS AN INSTRUMENT OF SERVICE, IS THE PROPERTY OF THE ARCHITECTS, AND MAY NOT BE REPRODUCED WITHOUT THEIR PERMISSION AND UNLESS THE REPRODUCTION CARRIES THEIR NAME AS ARCHITECTS

DUO TO DISTORTION FROM REPRODUCTION PROCEDURES, DIMENSIONS SHALL NOT BE SCALED FROM THE DRAWING, ONLY DIMENSIONS AS SHOWN SHALL BE VALID

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE BEFORE PROCEEDING WITH THE WORK



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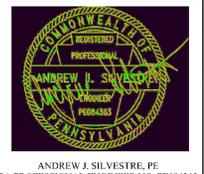
ELECTRICAL  
COVER SHEET

REVISIONS:

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**E0.1**



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