



ELECTRICAL SPECIFICATIONS

PART 1 - GENERAL

- A. THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL NEW ELECTRICAL WORK INDICATED. CONSTRUCTION SHALL BE IN ACCORDANCE WITH DRAWINGS AND APPLICABLE SPECIFICATIONS. IF A PROBLEM IS ENCOUNTERED IN COMPLYING WITH THIS REQUIREMENT, CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AS SOON AS POSSIBLE AFTER DISCOVERY OF THE PROBLEM AND SHALL NOT PROCEED WITH THAT PORTION OF THE WORK UNTIL ARCHITECT/ENGINEER HAS DIRECTED CORRECTIVE ACTION TO BE TAKEN.
- B. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO BID AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATIONS INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF.
- C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION) AND ALL CODES AND ORDINANCES OF THE AUTHORITY HAVING JURISDICTION. THE SPECIFICATION, CODES AND STANDARDS LISTED BELOW ARE UTILIZED IN THIS PROJECT.
1. NATIONAL ELECTRICAL CODE (NFPA-70)
 2. CODE FOR SAFETY TO LIFE (NFPA-101)
 3. STANDARD FOR THE INSTALLATION, MAINTENANCE AND USE OF LOCAL PROTECTIVE SIGNALING SYSTEMS (NFPA-72)
 4. UNDERWRITERS' LABORATORIES (UL)
 5. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
 6. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
 7. FEDERAL SPECIFICATION (FED. SPEC.)
 8. INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
 9. FLORIDA BUILDING CODE, 2010 EDITION
 10. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
 11. CITY OF WEST PALM BEACH BUILDING CODE. (AMMENDMENTS TO FLORIDA BUILDING CODE 2010)
 12. ADDITIONALLY, DESIGNS, WORK PRACTICES AND CONDITIONS MUST CONFORM WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (OSHA)
- D. DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATION OF ALL EQUIPMENT. CONFIRM WITH OWNER'S REPRESENTATIVE.
- E. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
- F. CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FROM A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE.
- G. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED THERE BY.
- H. ALL REQUIRED INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- I. CONTRACTOR SHALL PAY FOR ALL PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR TO OBTAIN PERMIT AND APPROVED SUBMITTALS PRIOR TO BEGINNING WORK OR ORDERING EQUIPMENT.
- J. THE TERM "PROVIDE" USED IN THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS SHALL MEAN THAT THE CONTRACTOR IS TO FURNISH, INSTALL AND CONNECT COMPLETE.

PART 2 - PRODUCTS

- A. MINIMUM WIRE SIZE SHALL BE #12 A.W.G. (EXCEPT AS NOTED OTHERWISE FOR CONTROL WIRING). ALL CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER WITH "THHN-THWN" INSULATION UNLESS OTHERWISE NOTED.
- B. ELECTRICAL METALLIC TUBING (EMT) SHALL BE OF BEST QUALITY STEEL, SMOOTH INSIDE AND OUT AND SHALL BE HOT-DIPPED GALVANIZED.
- C. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET OR DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.
- D. RIGID NONMETALIC CONDUIT SHALL BE SCHEDULE 40 PVC.
- E. ALL MATERIALS SHALL BE NEW AND BEAR UNDERWRITERS' LABELS WHERE APPLICABLE.
- F. PANELBOARDS:
1. CURRENT CARRYING BUSES SHALL BE COPPER. GROUND BUS BARS SHALL BE COPPER.
 2. ALL CIRCUIT BREAKERS SHALL BE BOLT ON. PLUG-IN BREAKERS ARE NOT ACCEPTABLE.
 3. CIRCUIT BREAKERS USED AS SWITCHES IN FLUORESCENT OR HID LIGHTING CIRCUITS SHALL BE LISTED AND MARKED "SWD".
 4. ALL CIRCUIT BREAKERS FEEDING MECHANICAL EQUIPMENT SHALL BE HACR TYPE.
 5. A.I.C. RATINGS SHALL BE AS INDICATED ON PANELBOARD SCHEDULES.
 6. ALL PANELBOARDS SHALL BE FURNISHED WITH PLASTIC LAMINATE NAMEPLATES WITH 1/4" ENGRAVED LETTERING FOR PANEL IDENTIFICATION.
 7. ALL PANELBOARDS SHALL BE PROVIDED WITH TYPE-WRITTEN DIRECTORY OF BRANCH CIRCUIT DESIGNATIONS.
- G. DISCONNECT SWITCHES SHALL BE H.P. RATED, HEAVY DUTY, QUICK-MAKE, QUICK-BREAK. ENCLOSURES SHALL BE NEMA-1 FOR INDOOR LOCATIONS, NEMA 3R FOR OUTDOOR LOCATIONS OR AS OTHERWISE NOTED.
- H. MOTOR STARTERS SHALL BE MANUAL OR MAGNETIC AS INDICATED ON THE ELECTRICAL DRAWINGS, WITH OVERLOAD RELAYS IN EACH PHASE.
- I. WIRING DEVICES (GENERAL PURPOSE RECEPTACLES AND WALL SWITCHES) COLOR SHALL BE COORDINATED WITH CLIENT.

PART 3 - EXECUTION

- A. COLOR CODING OF CONDUCTORS SHALL BE AS FOLLOWS:
1. 208/120 VOLTS, 3 PHASE, 4-WIRE SYSTEM: UNGROUNDED CONDUCTORS: 1 BLACK, 1 RED AND 1 BLUE, GROUNDED (NEUTRAL) CONDUCTOR: WHITE. GROUNDING CONDUCTORS SHALL BE GREEN.
 2. 480/277 VOLT, 3-PHASE, 4-WIRE SYSTEM: UNGROUNDED CONDUCTORS: 1 BROWN, 1 YELLOW, AND 1 PURPLE, GROUNDED (NEUTRAL) CONDUCTORS: GREY. GROUNDING CONDUCTORS SHALL BE GREEN.
 3. BRANCH CIRCUIT WIRING (#6 AND SMALLER) SHALL BE COLOR CODED BY CONTINUOUS INSULATION COLOR AND FEEDERS AND SERVICES (#4 AND LARGER) SHALL BE CODED AT ALL JUNCTION OR PULL POINTS (EXCEPT LB'S OR LBD'S) USING COLOR MARKERS OR PLASTIC TAPE MANUFACTURED FOR THE PURPOSE.
- B. WIRING METHODS
1. ALL CONDUCTORS SHALL BE INSTALLED IN ELECTRICAL METALLIC TUBING (EMT) UNLESS OTHERWISE NOTED, SPECIFIED OR AS SPECIFICALLY PROHIBITED BY THE AUTHORITY HAVING JURISDICTION. ALL FITTINGS AND COUPLINGS FOR EMT CONDUIT SHALL BE ALL STEEL RAIN TIGHT COMPRESSION TYPE OR ALL STEEL CONCRETE TIGHT SET SCREW TYPE.
 2. SCHEDULE 40 PVC CONDUIT, WITH FITTINGS AND COUPLINGS APPROPRIATE FOR THE USE, SHALL BE INSTALLED UNDERGROUND OR BELOW SLABS ON GRADE.
 3. TYPE MC CABLE WITH ALUMINUM ARMOR AND INTERNAL GROUND IS ACCEPTABLE FOR USE AS GENERAL BRANCH CIRCUIT WIRING FOR CIRCUITS 20 AMPERES OR LESS AND CONCEALED IN WALLS OR ABOVE SUSPENDED CEILING AND AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.
- C. ELECTRICAL SYSTEM SHALL BE COMPLETE AND EFFECTIVELY GROUNDED AS REQUIRED BY THE LATEST EDITION OF THE N.E.C. AND LOCAL CODES.
- D. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTED BY ENGINEER/ARCHITECT.
- E. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
- F. THE ELECTRICAL INSTALLATION SHALL MEET ALL STANDARD REQUIREMENTS OF POWER AND TELEPHONE COMPANIES, AND SHALL BE FULLY COORDINATED WITH THEM PRIOR TO COMMENCEMENT OF WORK.
- G. PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES, AND WIRING DEVICES, FOR ALL OUTLETS AS INDICATED.
- H. MATERIALS, PRODUCTS, AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SUCH AS APPEAR ON THE UL LIST OF APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF NEC, NEMA, AND IEEE.
- I. CONTRACTOR SHALL SUBMIT AT LEAST FIVE (5) SETS OF SHOP DRAWINGS OR CUT SHEETS OF LIGHTING FIXTURES, SWITCHES, AND OTHER ELECTRICAL ITEMS FOR APPROVAL BY ENGINEER/ARCHITECT.
- J. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED OF HIS WORK.
- K. ALL LAY-IN LIGHTING FIXTURES SHALL BE SECURED TO THE SUSPENDED CEILING GRID AT EACH CORNER.
- L. CONTRACTOR SHALL COORDINATE WITH MECHANICAL DRAWINGS AND PROVIDE ALL NECESSARY CONTROL WIRING.
- M. ALL ELECTRICAL POWER WIRING FOR THE HVAC SYSTEM INCLUDING WIRING THRU LINE VOLTAGE CONTROL DEVICES SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
- N. CONDUCTORS FOR BRANCH CIRCUITS SHALL BE INCREASED FROM SIZES INDICATED ON PANEL SCHEDULES TO PREVENT VOLTAGE DROP EXCEEDING 3% AT THE FARTHEST DEVICE. LOADS FOR DETERMINING CONDUCTOR SIZE SHALL BE BASED ON ACTUAL CONNECTED LOAD OR 80% OF BREAKER SIZE, WHICHEVER IS GREATER. CONTACT ENGINEER OF RECORD FOR ALL RUNS IN EXCESS OF 100 FT. FOR DETERMINATION OF WIRE SIZE FOR BID PURPOSES, INCREASE WIRE BY ONE (1) WIRE SIZE FOR RUNS 100 FT. TO 200 FT. AND TWO (2) WIRE SIZES FOR RUNS OVER 200 FT.
- O. FEEDER CONDUCTORS SHALL BE INCREASED FROM SIZES INDICATED ON RISER DIAGRAM TO PREVENT VOLTAGE DROP EXCEEDING 2%. LOADS FOR DETERMINING CONDUCTOR SIZE SHALL BE BASED ON ACTUAL CONNECTED LOAD OR 80% OF BREAKER SIZE, WHICHEVER IS GREATER.
- P. THE CONTRACTOR SHALL CONFIRM WITH THE ELECTRICAL UTILITY COMPANY ANY AND ALL REQUIREMENTS SUCH AS: METERING EQUIPMENT REQUIREMENTS AND METERING EQUIPMENT LOCATION, TRANSFORMER SIZE AND LOCATION OR SERVICE POINT, CONDUIT ENTRY AND LUG SIZE RESTRICTIONS. THE CONTRACTOR SHALL SCHEDULE ALL REQUIRED DOWN TIME FOR THE OWNERS CONFIRMATION.
- Q. ANY CONFLICTS AND DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH ANY WORK.
- R. PER NEC 210.8(D)(3) ALL 15- AND 20-AMPERE, 125-VOLT RECEPTACLES IN NONDWELLING-TYPE KITCHENS TO BE GFCI PROTECTED.

ELECTRICAL SHEET INDEX

E0.1	ELECTRICAL NOTES, LEGEND & INDEX
E2.1	LIGHTING PLAN
E3.1	POWER PLAN
E5.1	ELECTRICAL RISER DIAGRAM

ELECTRICAL LEGEND

- ▽ TELEPHONE OUTLET WITH 3/4" CONDUIT STUBBED OUT FROM WALL 6" ABOVE CEILING. MOUNT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS OTHERWISE NOTED.
- ▼ DATA OUTLET WITH 3/4" CONDUIT STUBBED OUT FROM WALL 6" ABOVE CEILING. MOUNT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS OTHERWISE NOTED.
- ↕ TELEPHONE/DATA OUTLET WITH 3/4" CONDUIT STUBBED OUT FROM WALL 6" ABOVE CEILING. MOUNTED ABOVE COUNTER, SEE ARCHITECTURAL DRAWING FOR SPECIFIC REQUIREMENTS.
- ▽ TELEPHONE/DATA OUTLET WITH 3/4" CONDUIT STUBBED OUT FROM WALL 6" ABOVE CEILING. MOUNT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS OTHERWISE NOTED.
- ☑ TELEPHONE/DATA OUTLET WITH 3/4" CONDUIT RUN TO THE NEAREST STUD WALL AND STUBBED OUT FROM WALL 6" ABOVE CEILING. PROVIDE BRASS COVER PLATE AND CARPET FLANGE.
- TV TELEVISION OUTLET WITH 3/4" CONDUIT STUBBED OUT FROM WALL 6" ABOVE CEILING. MOUNT AT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS OTHERWISE NOTED.
- ⊙ 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R) MOUNTED AT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS NOTED OTHERWISE.
- ⊕ 20 AMP QUADRUPLX RECEPTACLE (NEMA 5-20R) MOUNTED AT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS NOTED OTHERWISE.
- ⊕ GFI 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R) WITH GROUND FAULT CIRCUIT INTERRUPTER, MOUNT AT 18" A.F.F. TO CENTER LINE OF OUTLET. UNLESS NOTED OTHERWISE.
- ⊕ 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R) MOUNTED ABOVE COUNTER SEE ARCHITECTUAL DRAWINGS FOR SPECIFIC REQUIREMENTS.
- ⊕ 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R) WITH ISOLATED GROUND, MOUNT AT 18" A.F.F. TO CENTERLINE OF OUTLET UNLESS OTHERWISE NOTED.
- ⊕ 20 AMP QUADRUPLX RECEPTACLE (NEMA 5-20R) WITH ISOLATED GROUND, MOUNT AT 18" A.F.F. TO CENTERLINE OF OUTLET UNLESS OTHERWISE NOTED.
- ⊕ 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R), RECESS FLOOR MOUNTED. PROVIDE BRASS COVER PLATE AND CARPET FLANGE.
- ⊕ 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R), CEILING MOUNTED.
- SPECIAL-PURPOSE RECEPTACLE
- ⊙ JUNCTION BOX
- ⊙ SINGLE GANG JUNCTION BOX FOR POWER CONNECTION TO MODULAR FURNITURE SYSTEM. INSTALL IN EXACT MANNER AS DIRECTED BY FURNITURE SUPPLIER.
- ⊙ 1/2 DOUBLE GANG JUNCTION BOX FOR TELEPHONE/DATA CONNECTION TO MODULAR FURNITURE SYSTEM. INSTALL IN EXACT MANNER AND LOCATION AS DIRECTED BY FURNITURE SUPPLIER. EXTEND (2) 3/4" EMPTY CONDUITS FROM JUNCTION BOX TO ABOVE CEILING AND TERMINATE WITH INSULATING BUSHING 6" FROM WALL.
- TELE/POWER POLE FOR TELEPHONE/DATA/POWER CONNECTION TO MODULAR FURNITURE 8 WIRE SYSTEM (SEE DETAIL THIS SHEET). INSTALL IN EXACT MANNER AND LOCATION AS DIRECTED BY FURNITURE SUPPLIER, WIREMOLD CATALOG # 25DTP-4D W/IVORY FINISH.
- ⊕ SPECIAL PURPOSE RECEPTACLE MOUNTED BELOW RAISE FLOOR.
- ⊕ EXHAUST FAN. SEE MECHANICAL DRAWINGS FOR SPECIFICATIONS.
- \$ SINGLE POLE, 20 AMP, SWITCH. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS OTHERWISE NOTED.
- \$ 3-WAY, 20 AMP, SWITCH. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS OTHERWISE NOTED.
- \$ SINGLE POLE, 20 AMP, SWITCH WITH DIMMER. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS OTHERWISE NOTED.
- \$w MOTOR RATED SWITCH
- \$b MOTION DETECTOR SWITCH, OSW-DT-0601-MV-X, COOPER CONTROLS.
- \$ TWO POLE, 30 AMP SWITCH. MOUNT ADJACENT EQUIPMENT TO BE CONTROLLED.
- ⊕ FACTORY MOUNTED DISCONNECT/STARTER (SEE MECHANICAL SCHEDULE)
- ⊕ FUSIBLE DISCONNECT SWITCH A = POLES, B= FRAME SIZE, C= FUSE RATING
- ⊕ FUSIBLE MOTOR STARTER DISCONNECT SWITCH A = POLES, B= NEMA SIZE, C= FUSE RATING
- ⊕ GROUNDING ELECTRODE & CONDUCTOR SYSTEM
- ⊕ TRANSFORMER
- ELECTRICAL PANELBOARD
- TELEPHONE WOOD BACKBOARD
- WP WEATHERPROOF
- T/C TIME CLOCK
- RE RELOCATED
- E EXISTING TO REMAIN
- A.F.F. ABOVE FINISH FLOOR
- ⊕ CARD READER.
- ▲ INDICATES EMERGENCY FIXTURE WITH BATTERY BACK UP.

Bd

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PROJECT NUMBER NP21

REVISIONS

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ELECTRICAL
NOTES

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ISSUED FOR REVIEW	
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