



ELECTRICAL NOTES

1. CONTRACTOR SHALL CUT AND PATCH AS REQUIRED DURING THE COURSE OF INSTALLATION OR AS SPECIFIED ON THE DRAWINGS. ALL PATCHING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WHOSE TRADE CAUSED THE NEED. THE GENERAL CONTRACTOR SHALL BE RETAINED TO PERFORM PATCHING AND THE COSTS BORNE BY THE CONTRACTOR REQUIRING THE PATCH.
2. ALL NEW ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL OTHER LOCAL, STATE AND NATIONAL CODES WHICH APPLY AS INTERPRETED BY THE AHJ (AUTHORITY HAVING JURISDICTION).
3. ALL WORK IS TO BE COORDINATED WITH ALL OTHER TRADES ON THIS PROJECT AND ELECTRICAL WORK INSTALLED IN A NEAT AND ORDERLY FASHION. THE ELECTRICAL CONTRACTOR (E.C.) SHALL FURNISH AND INSTALL ALL ELECTRICAL SYSTEMS AND EQUIPMENT AS INDICATED ON THESE DRAWINGS UNLESS NOTED.
4. THE ELECTRICAL DRAWINGS ARE SCHEMATIC IN NATURE AND SHOW THE GENERAL ARRANGEMENT OF EQUIPMENT. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EQUIPMENT CONNECTION OR ROUGH-IN, REFER TO EQUIPMENT CUT-SHEETS AND RESPONSIBLE TRADES. COORDINATION OF OUTLETS SHALL BE MADE WITH MILLWORK AND CABINERY DETAILS SHOWN ON THE ARCHITECTURAL DRAWINGS.
5. ALL CONDUCTORS OF THE ELECTRICAL SYSTEM SHALL BE COPPER, 600V, THW/THWN.
6. ALL CONDUIT SHALL BE MINIMUM 1/2" TRADE SIZE, EMT AND FMC WHEN INSTALLED INDOORS IN DRY LOCATIONS, RMC WHEN INSTALLED OUTDOOR OR INDOORS IN DAMP/WET LOCATIONS, RMC AND LFMC WHEN EXPOSED OUTDOORS AND, RMC OR RNC-40 WHEN INSTALLED IN CONCRETE OR BELOW GRADE. FINAL CONNECTIONS TO ALL EQUIPMENT WHICH PRODUCE VIBRATION SHALL BE WITH FLEXIBLE METAL CONDUIT SUITABLE FOR THE SURROUNDING ENVIRONMENT. CONDUIT TURNING UP FROM BELOW GRADE OR FROM WITHIN CONCRETE SHALL BE RMC.
7. RACEWAY FILL, WHEN RACEWAY SIZE IS NOT SPECIFICALLY INDICATED, SHALL BE BASED ON APPLICABLE ARTICLES OF THE NEC.
8. CIRCUIT ROUTING, IN GENERAL, IS NOT SPECIFIED UNLESS SPECIFIC REQUIREMENTS EXIST WHERE ROUTING OF CIRCUITS WILL HAVE EFFECTS ON CIRCUIT VOLTAGE DROPS. THEREFORE, E.C. SHALL COORDINATE ROUTING LENGTH WITH CONNECTED LOAD AND ADJUST CONDUCTOR SIZE FOR A VOLTAGE DROP LESS THAN 3%.
9. ALL CONDUITS SHALL BE INSTALLED CONCEALED IN SPACES OF NEW CONSTRUCTION, WHICH ARE TYPICALLY OCCUPIED. E.C. SHALL COORDINATE THE LOCATION OF ALL EQUIPMENT TO MAINTAIN ACCESS REQUIRED BY THE N.E.C. AND EQUIPMENT MANUFACTURERS.
10. SERVICE VOLTAGE AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT SHALL BE VERIFIED BY THE E.C. PRIOR TO ELECTRICAL ROUGH-IN. DISCREPANCIES BETWEEN THE ELECTRICAL DRAWINGS AND EQUIPMENT REQUIREMENTS SHALL BE REPORTED TO THE ENGINEER BEFORE ANY ASSOCIATED WORK IS INSTALLED.
11. COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR ALL FIRE AND SMOKE RATED BARRIERS. E.C. SHALL FURNISH AND INSTALL APPROPRIATE AND LISTED SEALS FOR ALL PENETRATIONS MADE IN THESE BARRIERS AS REQUIRED FOR THE INSTALLATION OF THE ELECTRICAL AND SPECIAL SYSTEMS.
12. E.C. SHALL COORDINATE WITH THE G.C. AND PROVIDE THE REQUIRED SUPPORT OF LIGHTING FIXTURES AND BLOCKING NECESSARY TO SUPPORT ALL ELECTRICAL EQUIPMENT.
13. INDEXES OF ELECTRICAL PANELS SHALL BE COMPLETED FOR EACH CIRCUIT. DESCRIPTION SHALL INCLUDE ROOM NUMBER TO MATCH SIGNAGE AND SHALL BE APPROVED BY ARCHITECT AND OWNER. ARC-FLASH WARNING LABELS SHALL BE APPLIED ON ALL EQUIPMENT PER N.E.C. 110.16. LABELS AND TAGS AS DETAILED SHALL BE PLACED ON ALL PANELS, STARTERS, DISCONNECTS, AND ETC.
14. E.C. SHALL PROVIDE ALL LABOR AND MATERIAL TO CONNECT EQUIPMENT SPECIFIED AS PART OF THIS PROJECT AND SHALL REVIEW ALL PARTS OF THE CONSTRUCTION DOCUMENTS FOR LOCATION AND QUANTITIES.
15. E.C. SHALL REFERENCE THE PROJECT SITE PLANS FOR ELECTRIC, TELEPHONE AND CABLE T.V. UTILITIES. COORDINATE ALL REQUIRED WORK WITH ASSOCIATED UTILITIES BEFORE BIDDING AND INCLUDE ALL MATERIAL AND LABOR REQUIRED BY THE RESPECTIVE UTILITY AND DEEMED "THE OWNERS RESPONSIBILITY" BY THAT UTILITY COMPANY. IN CASE OF DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND UTILITY COMPANY REQUIREMENTS, THE REQUIREMENTS OF THE UTILITY COMPANY SHALL BE FOLLOWED AND THE COST THEREOF SHALL BE INCLUDED IN THE BID.
16. E.C. SHALL BE REQUIRED TO FABRICATE AND INSTALL ANY NECESSARY STANCHION MOUNTS FOR ALL ELECTRICAL EQUIPMENT THAT IS NECESSARY TO COMPLETE THEIR WORK.
17. E.C. SHALL SUPPLY, INSTALL AND CONNECT TIME CLOCK AND REQUIRED CONTACTOR LOCATED IN MECHANICAL ROOM. CONTRACTOR SHALL ROUTE ALL OUTSIDE LIGHT CIRCUITS THRU TIME CLOCK AND REQUIRED CONTACTOR.
18. E.C. SHALL BE RESPONSIBLE FOR RECEPTACLE HEIGHTS LOCATED IN CASEWORK/MILLWORK. REFERENCE ARCHITECTURAL DRAWINGS FOR CASEWORK/MILLWORK DETAILS.
19. E.C. SHALL COORDINATE WITH UTILITY COMPANY AND REWORK ELECTRICAL SERVICES AS REQUIRED AS SHOWN ON THE RISER DIAGRAM. E.C. SHALL FURNISH ALL MATERIAL AND LABOR TO DISCONNECT AND RECONNECT AS DETAILED.

VOICE AND DATA SYSTEMS GENERAL REQUIREMENTS

SCOPE OF WORK SHALL INCLUDE, BUT NOT NECESSARILY BE LIMITED TO, FURNISHING AND INSTALLING ALL VOICE AND DATA CABLING SYSTEMS WIRING AS SPECIFIED, DESCRIBED HEREIN AND ON THE PLANS. ALL DATA AND VOICE CABLING SYSTEM COMPONENTS SHALL BE U.L. LISTED AND CERTIFIED AS CATEGORY 5e COMPLIANT. ALL CABLING PRACTICES SHALL CONFORM TO THE REQUIREMENTS OF TIA/EIA TELECOMMUNICATIONS BUILDING WIRING STANDARDS, THE IEEE AND THE NATIONAL ELECTRICAL CODE. ANY COMPONENT NOT SPECIFICALLY MENTIONED HEREIN THAT IS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM SHALL BE INCLUDED.

GENERAL:

CABLES EXTENDING FROM THE EQUIPMENT RACK (MDF) LOCATED AT THE TELEPHONE BACK BOARD TO THE OUTLET SHALL BE ROUTED THROUGH THE BUILDING AND BE SUPPORTED BY A "D" RING SYSTEM ABOVE THE CEILING, OR IN CONDUIT WITHIN WALLS. CONDUIT SHALL BE 1" MINIMUM. CABLE SHALL BE RATED FOR THE SPACE IT IS INSTALLED IN AND SHALL BE SUPPORTED IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE AND ANY OTHER APPLICABLE CODES.

FACEPLATES AND JACKS SHALL BE COLOR MATCHED TO THE ELECTRICAL DEVICES IN THE AREA. ALL PATCH CABLES SHALL BE INCLUDED IN THIS PROJECT. THE INSTALLED LINK, INCLUDING PATCH CABLES, SHALL BE TESTED WITH A LEVEL 2 TSB40 COMPLIANT CABLE TESTER. A PRINTOUT OF THESE TEST RESULTS, AS WELL AS A REPRODUCIBLE DRAWING OF THE WORK PERFORMED SHOWING DEVICE LOCATION AND WIRE NUMBERING SCHEME, SHALL BE FURNISHED AT THE COMPLETION OF THE PROJECT. THIS DRAWING SHALL BE PROVIDED IN BOTH PRINTED AND ELECTRONIC FORMAT. THE ELECTRONIC FORMAT SHALL BE EITHER DXF OR DWG.

THE RACEWAY SYSTEM SHALL BE GROUNDED.

DATA AND VOICE CABLING:

DATA AND VOICE CABLES SHALL BE TERMINATED ON PATCH PANELS IN SERVER ROOM 110. PATCH PANELS AND EIGHT WIRE JACKS SHALL BE TERMINATED AT THE WORK STATION JACKS. DEVICES SHALL USE THE 568A WIRING SCHEME. DATA JACKS SHALL BE SUPERIOR MODULAR, ORTRONICS TRAC JACK SERIES OR LEVITON. THE PATCH PANELS SHALL BE SUPERIOR MODULAR, ORTRONICS OR LEVITON. THE QUANTITY AND SIZE OF THE PATCH PANEL(S) SHALL BE DETERMINED BY THE NUMBER OF OUTLETS TO BE CONNECTED. THE PATCH PANEL SHALL NOT EXCEED 48 PORTS.

TELEPHONE SYSTEM:

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED JACKS, CABLE, CONDUIT, PATCH PANELS, AND ETC. TO SUPPORT THE OWNER FURNISHED AND INSTALLED PHONE SYSTEM.

LABELS:

EACH DATA AND VOICE OUTLET SHALL BE LABELED AT THE FACEPLATE. THE LABEL SHALL CONSIST OF ONE ROW OF FOUR CHARACTERS AND ONE ROW OF TWO CHARACTERS. THE CHARACTERS FOR THE FIRST ROW ARE AS FOLLOWS: DIGIT ONE IS NUMERIC AND INDICATES THE WIRING CLOSET NUMBER. DIGIT TWO IS ALPHA AND INDICATES THE FUNCTION OF THE JACK ('D' FOR DATA, 'V' FOR VOICE). DIGITS THREE AND FOUR ARE NUMERIC AND INDICATE THE PATCH PANEL NUMBER. THE TWO DIGITS ON THE SECOND ROW ARE NUMERIC AND INDICATE THE PORT NUMBER ON THE PATCH PANEL OR 110 BLOCK. THERE SHALL BE A LABEL ATTACHED TO THE TOP LEFT HAND CORNER OF EACH PATCH PANEL DEPICTING THE WIRING CLOSET NUMBER, FUNCTION OF THE PATCH PANEL AND PATCH PANEL NUMBER. THE CHARACTERS SHALL BE A MINIMUM OF 3/16" HIGH.

POWER DEVICE LEGEND

SYMBOL	DESCRIPTION
Ⓢ	DUPLX RECEPTACLE
Ⓠ	QUAD RECEPTACLE
Ⓠ	FLOOR BOX QUAD RECEPTACLE
Ⓠ	GROUND FAULT RECEPTACLE
Ⓠ	GROUND FAULT RECEPTACLE/WEATHERPROOF COVER
Ⓠ	FUSED DISCONNECT
Ⓠ	NON-FUSED DISCONNECT
Ⓠ	JUNCTION BOX
Ⓠ	240V, 40A WELDING RECEPTACLE

SPECIAL SYSTEMS DEVICE LEGEND

SYMBOL	DESCRIPTION
▼V# D#	VOICE/DATA OUTLET (QUANTITY VOICE, QUANTITY DATA)
Ⓣ	TELEVISION (ONE COAX DROP REQUIRED AT EACH LOCATION)

LIGHTING DEVICE LEGEND

SYMBOL	DESCRIPTION
S	STANDARD SWITCH
S ₃	THREE-WAY SWITCH
S ₄	FOUR-WAY SWITCH
Ⓢ	WSD-PDT-(COLOR OPTIONS) WALL SWITCH DECORATOR SENSOR W/MICROPHONIC AND PIR DUAL TECHNOLOGY; 120/277V; 800/1200 W.
Ⓢ	CMR-PDT-9 CEILING MOUNT SENSOR W/MICROPHONIC AND PIR DUAL TECHNOLOGY 12 TO 24VDC/AC - FOR POWER PACK USAGE.
Ⓢ	WV-PDT WIDE VIEW SENSOR W/MICROPHONIC AND PIR DUAL TECHNOLOGY 12 TO 24 VDC/VAC-FOR POWER PACK USAGE. USE OPTION WV-BR FOR CEILING MOUNT.
Ⓢ	PP-20 POWER PACK UNIT FOR INTERCONNECTION TO 12/24V SENSOR - 120/277V; 20A RATED.

SENSOR AND LIGHTING AUTOMATION NOTE:

FURNISH AND INSTALL SENSORS, POWER PACKS AND ALL LIGHTING AUTOMATION DEVICES APPROXIMATELY AS INDICATED ON PLAN VIEW AND AS REQUIRED BY NUMBER OF CIRCUITS OF LIGHTING WITHIN THE SPACE. PLACEMENT OF SENSORS SHALL BE BASED ON ROOM GEOMETRY AND SHALL PROVIDE 100% COVERAGE OF THE SPACE - FIELD COORDINATE WITH MANUFACTURER'S RECOMMENDATIONS. ALL SYSTEM COMPONENTS SHALL BE WIRED PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL COORDINATE TIME AND SENSITIVITY SETTINGS OF EQUIPMENT WITH OWNER'S PREFERENCES. INFO ABOVE IS BASED ON SENSOR SWITCH OCCUPANCY SENSORS AND SENSOR SWITCH LIGHT AUTOMATION CONTROL SYSTEM AND MAY VARY, PENDING MANUFACTURER. MANUFACTURER SHALL PROVIDE A GUARANTEED LAYOUT TO THE CONTRACTOR AND SHALL ALSO SUBMIT LAYOUT IN SHOP DRAWINGS.

ELECTRICAL SPECIAL SYSTEMS OUTLINE

CONTRACT SYSTEM DESCRIPTION	RACEWAYS W/PULL STRING	CABLING INFRASTRUCTURE	DISTRIBUTION EQUIPMENT
VOICE (CAT 5E)	1	1	2
DATA (CAT 5E)	1	1	2
AUTOMATED LIGHTING CONTROLS	1	1	1

ABBREVIATION - DESCRIPTION:

1. CFCI - CONTRACTOR FURNISHED, CONTRACTOR INSTALLED - PER DRAWINGS.
2. OFOI - OWNER FURNISHED, OWNER INSTALLED.

**MARCUM
ENGINEERING, LLC**

800 SOUTH 17th STREET - PADUCAH, KENTUCKY 42002-0120
PHONE - 270.444.9274 FAX - 270.443.1904

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ELECTRICAL LEAD SHEET

**castleberry megregor
swinford
ARCHITECTS**

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of 13

DATE
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BENTON GAS SYSTEM