ELECTRICAL SPECIFICATIONS

DIVISION 26

ELECTRICAL

SECTION A: GENERAL ELECTRICAL REQUIREMENTS

1. THESE PLANS AND SPECIFICATIONS APPLY TO RETROFIT & RENOVATIONS FOR MADISON METHODIST CHURCH, MADISON, GEORGIA. THE WORK DESCRIBED BY THESE PLANS AND SPECIFICATIONS APPLY TO THE INDICATED PROJECT AND MAY NOT BE MODIFIED OR REUSED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
2. ALL WORK SHALL BE PERFORMED BY LICENSED ELECTRICAL CONTRACTOR WITH MINIMUM OF TWO YEARS OF EXPERIENCE. LIST OF PREVIOUS JOBS AND REFERENCES SHALL BE MADE AVAILABLE UPON REQUEST. CONTRACTOR SHALL PROVIDE ADEQUATE INSURANCE FOR PERSONNEL AND SHALL REPAIR ANY DAMAGE OCCURRING AS THE RESULT OF THIS PROJECT SITE AND RELATED PROPERTY.
3. ALL WORK SHALL BE PERFORMED IN A PROFESSIONAL MANNER IN ACCORDANCE WITH THE 2023 NATIONAL ELECTRICAL CODE, LIFE SAFETY CODE NFPA 101, ADA CODE, GA ACCESSIBILITY CODE, STATE OF GEORGIA ENERGY CODE AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
4. ALL PERMITS AND FEES SHALL BE OBATINED AND PAID FOR BY THE CONTRACTOR.
5. ALL EQUIPMENT, MATERIAL, AND DEVICES SHALL BE LISTED OR RECOGNIZED BY UNDERWRITER'S LABORATORY OR ELECTRICAL TESTING LABORATORY AND USED AND INSTALLED IN ACCORDANCE WITH IT'S LISTING.
6. ALL WORK PERFORMED SHALL BE WARRANTED FOR A PERIOD OF ONE YEAR FROM THE THE FINAL COMPLETION DATE EXCEPT FOR FUSES AND LAMPS IN LIGHT FIXTURES. UPON NOTIFICATION OF A PROBLEM, THE CONTRACTOR SHALL INVESTIGATE THE PROBLEM WITHIN 48 HOURS UNLESS A DIFFERENT TIME PERIOD IS AGREED TO. THE CONTRACTOR SHALL INVESTIGATE, REPAIR OR REPLACE ALL FAULTY EQUIPMENT WITHIN A REASONABLE TIME PERIOD WITHOUT CHARGE TO THE OWNER.
7. THE TERM "PROVIDE" SHALL BE UNDERSTOOD TO MEAN, OBTAIN THE ITEM DESCRIBED, INSTALL ITEM IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS, AND MANUFACTURER'S RECOMMENDATIONS.
8. ALL PENETRATIONS MADE IN FIRE RATED BUILDING PORTIONS SHALL BE SEALED WITH A LISTED RESISTANT MATERIAL SUITABLE FOR THE APPLICATION.
9. ALL INSTALLATIONS OF ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE COORDINATED WITH OTHER TRADES PRIOR TO INSTALLATION.
10. PLANS ARE DIAGRAMMATIC AND SHOW THE LOCATION OF THE EQUIPMENT, RACEWAY AND FIXTURES, AND ARE NOT TO BE SCALED. ALL DIMENSIONS SHALL BE VERIFIED AT THE BUILDING SITE.
11. CONTRACTOR SHALL VERIFY AND COORDINATE ALL EQUIPMENT AND DEVICE LOCATIONS WITH OWNER'S PROJECT MANAGER PRIOR TO INSTALLATION.

12. EQUIPMENT BREAKER AND WIRING REQUIREMENTS; THE CONTRACTOR SHALL SUBMIT FOR REVIEW A TABULATED SHEET OF BREAKER AND WIRING REQUIREMENTS FOR ALL MECHANICAL EQUIPMENT REQUIRING POWER AS SPECIFIED IN DIVISION 23. REQUIREMENTS SHALL BE IDENTIFIED BY HORSEPOWER OR KW, OPERATING AMPERAGE, REQUIRED VOLTAGE AND PHASE REQUIREMENTS, AND MANUFACTURERS SUGGESTED OVERCURRENT CIRCUIT PROTECTION DEVICE SIZE AND MINIMUM CIRCUIT AMPACITY SIZE. WHERE THE ELECTRICAL REQUIREMENTS SUBMITTED FOR MECHANICAL EQUIPMENT DIFFERS FROM THE BRANCH CIRCUITRY SHOWN ON THE ELECTRICAL DRAWINGS (WHEN USING THE BASIS OF DESIGN UNIT LISTED IN THE MECHANICAL SCHEDULES/SPECIFICATIONS OR A SIMILAR UNIT OF THE SAME SIZE FROM LISTED ALTERNATE MANUFACTURERS), THE CONTRACTOR SHALL MAKE THE NECESSARY ADJUSTMENTS TO THE BRANCH CIRCUITRY PER THE CURRENT NEC AT NO ADDITIONAL COST TO THE OWNER. WHEN CHANGES ARE MADE TO POWER REQUIREMENTS FOR EQUIPMENT DUE TO OWNER. ARCHITECT/ENGINEER APPROVED VALUE ENGINEERING CHANGES TO EQUIPMENT, THE COST MUST BE INCLUDED IN THE VALUE ENGINEERING OVERALL CHANGE ORDER COST. COSTS DUE TO ADJUSTMENTS IN BRANCH CIRCUITRY TO EQUIPMENT DUE TO VALUE ENGINEERING CHANGES WILL NOT BE ALLOWED AFTER THE OVERALL VALUE ENGINEERING CHANGE ORDER HAS BEEN APPROVED. IN ALL CASES, BREAKER AND WIRING REQUIREMENTS FOR MECHANICAL EQUIPMENT MUST BE PROVIDED TO THE ENGINEER BEFORE OR AT THE SAME TIME AS THE SHOP DRAWINGS FOR THE ELECTRICAL DISTRIBUTION GEAR OR EQUIPMENT. IN NO CASE SHALL THE ELECTRICAL DISTRIBUTION GEAR OR EQUIPMENT BE ORDERED OR BRANCH CIRCUITRY ROUGHED IN PRIOR TO ENGINEER REVIEW AND COMMENT ON THIS DOCUMENT. ANY EQUIPMENT ORDERED OR BRANCH CIRCUITRY ROUGHED IN ON THE JOBSITE WITHOUT THIS REVIEW AND COMMENT WILL BE TOTALLY AT THE CONTRACTORS RISK.

SECTION B: BASIC MATERIALS

1. ALL CONDUCTORS USED FOR 600 VOLTS OR LESS SHALL BE HIGH GRADE COPPER CONDUCTORS WITH 75 DEGREE C, THHN OR THWN THERMOPLASTIC INSULATION. ALL CONDUCTORS SHALL BE MADE IN THE USA. ALL CONDUCTORS ROUTED IN UNDERGROUND CONDUIT SHALL BE RATED FOR WET LOCATIONS.
2. ALL INTERIOR 120/277 VOLT, 20 AMP POWER AND LIGHTING WIRING SHALL BE INSTALLED IN ELECTRICAL METALLIC TUBING OR "MC" CABLE (IF NOT EXPOSED) FOR ALL INTERIOR CIRCUITS UNLESS OTHERWISE NOTED. IF "MC" CABLE IS USED, HOMERUNS SHALL BE IN 3/4 IN. EMT. POWER CIRCUITS FOR HVAC EQUIPMENT SHALL BE IN 3/4" ELECTRICAL METALIC CONDUIT MINIMUM. ALL CONDUIT SHALL BE SUPPORTED FROM BUILDING STRUCTURE. IT SHALL NOT BE SUPPORTED FROM DUCTWORK, PIPING, CEILING GRID OR CEILING GRID SUPPORTS, OR ANY OTHER NON-STRUCTURAL ITEM. CONDUIT SHALL BE SUPPORTED IN ACCORDANCE WITH THE NEC. CONDUIT IN EXPOSED STRUCTURE AREAS SHALL BE EMT. GALVANIZED RIGID STEEL CONDUIT SHALL BE USED IN AREAS WHERE IT WILL BE EXPOSED TO PHYSICAL DAMAGE.
3. CONDUIT UNDERGROUND SHALL BE SCHEDULE 40 PVC. IF MORE THAN ONE CONDUIT IS PROVIDED IN A SINGLE TRENCH, THE CONDUIT SHALL BE RACKED WITH SPACERS EVERY FOUR FEET TO MAINTAIN A MINIMUM SPACING BETWEEN CONDUIT OF TWO INCHES. BACKFILL USED FOR UNDERGROUND INSTALLATIONS SHALL BE FREE OF FOREIGN MATTER. WHERE EXPOSED TO WEATHER, CONDUIT SHALL BE GALVANIZED RIGID STEEL OR INTERMEDIATE METALLIC CONDUIT. THE CONDUIT SHALL BE TERMINATED WITH LISTED FITTINGS AND ALL CONDUIT ENDS SHALL BE REAMED AND SMOOTH. ALL CONDUIT ENDS IN BOXES SHALL BE PROVIDED WITH INSULATED BUSHINGS.
4. A #12 INSULATED COPPER GROUND CONDUCTOR SHALL BE INCLUDED IN ALL BRANCH CIRCUITS RATED 20 AMPERES. ALL OTHER CIRCUITS AND FEEDERS WILL BE PROVIDED WITH AN INSULATED COPPER CONDUCTOR SIZED AS NOTED OR IN ACCORDANCE WITH THE NEC, WHICHEVER IS GREATER.
5. THE MINIMUM SIZE OF ALL CONDUCTORS NOT OTHERWISE INDICATED IS #12 AND THE MINIMUM SIZE OF ALL CONDUIT UNLESS OTHERWISE INDICATED IS 1/2 IN.
6. ALL JUNCTION BOXES SHALL BE PROVIDED WITH COVERS AND ALL UNUSED OPENINGS SHALL BE PLUGGED. ALL JUNCTION BOXES SHALL BE INDEPENDENTLY SUPPORTED FROM STRUCTURE. COVERS OF BOXES SHALL BE LABELED WITH THE CIRCUIT NUMBER WITH A BLACK PERMANENT MARKER IN 3/4 IN. HIGH LETTERS (LEGIBLE HANDWRITTEN LETTERING IS ACCEPTABLE).
7. ALL OUTLET BOXES SHALL BE SQUARE METAL BOXES. PROVIDE PLASTER RINGS FOR ALL OUTLET BOXES CONTAINING DEVICES TO PROVIDE A FIRM MOUNTING SUPPORT FOR THE DEVICE.
8. ALL CONVENIENCE RECEPTACLES SHALL BE SPECIFICATION GRADE 20 AMP RECEPTACLES, OWNER TO SELECT COLOR. TAMPER RESISTANT (TYPE "TR").
9. ALL LIGHT SWITCHES SHALL BE SPECIFICATION GRADE 20 AMP TOGGLE SWITCHES FULL LOAD RATED FOR TUNGSTEN-HALOGEN LAMPS, OWNER TO SELECT COLOR.
10. PROVIDE FACEPLATES FOR ALL RECEPTACLES AND SWITCHES. COORDINATE STYLE AND COLOR WITH OWNER'S PROJECT MANAGER.
11. PROVIDE BETWEEN 12 AND 24 INCHES OF LIQUID TIGHT FLEXIBLE CONDUIT BETWEEN RIGID CONDUIT AND ANY EQUIPMENT CONTAINING MOTORS. THE FLEXIBLE CONDUIT SHALL BE SUPPORTED TO PREVENT THE CONDUIT FROM RESTING ON THE GROUND OR CONCRETE PAD.
12. PROVIDE WEATHERPROOF RECEPTACLE WITHIN 25 FEET OF EACH PIECE OF EXTERIOR EQUIPMENT. THIS RECEPTACLE SHALL BE MOUNTED HORIZONTALLY WITH METAL HINGED "IN USE" COVER MOUNTED TO OPEN UP. THIS OUTLET SHALL BE A GFCI RECEPTACLE. THIS RECEPTACLE SHALL BE BE MOUNTED IN DIE CAST NON CORRODING METAL BOX.
13. WHEN OUTLETS OR BOXES ARE INDICATED INSTALLED ON OPPOSITE SIDES OF THE SAME WALL. THE CONTRACTOR SHALL ADJUST THE LOCATION TO OFFSET THE OUTLETS WITH A WALL STUD PROVIDING SEPERATION.

SECTION C: DISTRIBUTION EQUIPMENT

1. CONTRACTOR SHALL PROVIDE CONDUCTORS AND CONDUIT FOR ALL FEEDERS IN ACCORDANCE WITH THE PLANS.
2. SEPERATELY MOUNTED CIRCUIT BREAKERS SHALL BE MOUNTED IN NEMA TYPE 1 ENCLOSURES IN INDOOR APPLICATIONS AND IN NEMA 3R ENCLOSURES IN EXTERIOR OR WET LOCATIONS. ALL CIRCUIT BREAKER ENCLOSURES SHALL BE PROVIDED WITH HINGED COVERS AND PROVISIONS FOR PADLOCKING THE COVERS.
3. ALL EQUIPMENT CONTAINING MOTORS SHALL BE PROVIDED WITH A DISCONNECTING MEANS WITHIN TEN FEET OF THE UNIT UNLESS OTHERWISE NOTED. THIS DISCONNECTING MEANS SHALL AS A MINIMUM BE A NON-FUSED SWITCH OR TOGGLE STARTER SIZED TO MATCH THE EQUIPMENT. PROVIDE OTHER DEVICES AS NOTED ON THE PLANS. PROVIDE NEMA TYPE 1 ENCLOSURES INDOORS AND NEMA 3R OUTDOORS.
4. PROVIDE GFCI CIRCUIT BREAKERS AND RECEPTACLES AS INDICATED ON THE PLANS AND IN THESE SPECIFICATIONS. THESE DEVICES SHALL BE CLASS A GFCI DEVICES.

5. PROVIDE PANELS AS SCHEDULED ON PLANS. CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC BREAKERS WITH A MINIMUM INTERRUPTING RATING OF 10,000 AIC FOR 120/208V AND 14,000 AIC FOR 277/480V OR AS INDICATED ON THE PLANS. BREAKERS SHALL HAVE 65/75 DEGREE C RATED TERMINATIONS. PANEL NOTED SHALL BE SERVICE ENTRANCE RATED. MOUNT PANELS WITH TOP OF PANEL 6 FT. ABOVE FLOOR, PROVIDE 3/4 IN., GREY PAINTED PLYWOOD BACKBOARD FOR ALL PANELS SECURED TO WALL WITH 1/4 IN. TOGGLE BOLTS. PANEL MANUFACTURERS: SQUARE D, GENERAL ELECTRIC (GE), SEIMENS, AND EATON. ALL CURRENT CARRYING PARTS SHALL BE COPPER.
6. SYSTEM COORDINATION: THE MANUFACTURER OF THE PANELBOARDS SHALL PROVIDE SERIES RATED EQUIPMENT BASED ON U.L. LISTED TEST RESULTS. THE CONTRACTOR SHALL VERIFY THE AVAILABLE SHORT CIRCUIT CURRENT AT THE SERVING TRANSFORMER.
7. PROVIDE EACH PANELBOARD WITH A TYPEWRITTEN CIRCUIT BREAKER DIRECTORY CARD INSIDE A PLASTIC COVERING (EVERY CIRCUIT AND CIRCUIT MODIFICATION SHALL BE LEGIBLY IDENTIFIED AS TO ITS CLEAR, EVIDENT, AND SPECIFIC PURPOSE OR USE. THE INDETIFICATION SHALL INCLUDE SUFFICIENT DETAIL TO ALLOW EACH CIRCUIT TO BE DISTINGUISHED FROM ALL OTHERS). THE DIRECTORY AND COVERING SHALL BE LOCATED INSIDE A STEEL FRAME PROVIDED INSIDE THE DOOR OF EACH PANELBOARD. THE DIRECTORY SHALL BE TYPED TO IDENTIFY THE LOAD FED BY EACH CIRCUIT BREAKER AND THE AREAS SERVED.
8. PROVIDE NAMEPLATES FOR ALL PANELBOARDS, DISCONNECT SWITCHES, ENCLOSED CIRCUIT BRAKERS, COMBINATION STARTERS, CONTACTORS, AND ALL OTHER ELECTRICAL DISTRIBUTION EQUIPMENT PANELS. MOUNT NAMEPLATES ON EXTERIOR OF THE DOOR OF ALL SURFACE MOUNTED PANELS AND EQUIPMENT. NAME PLATES SHALL BE LAMINATED PLASTIC PLATES WITH 3/16 IN. HIGH WHITE LETTERS ETCHED ON BLACK BACKGROUND. NAME PLATES SHALL BE INSTALLED PARALLEL TO EQUIPMENT LINES. THE NAME OR USEAGE OF EACH DEVICE OR BRANCH CIRCUIT SHALL BE ETCHED IN THE NAMEPLATE. CONTRACTOR TO COORDINATE EXACT EQUIPMENT IDENTIFICATION WITH THE OWNER. SECURE NAMEPLATES VIA EPOXY GLUE.

SECTION D: LIGHTING

1. TYPES AND SPECIFIC REQUIREMENTS ARE PROVIDED ON THE LIGHTING FIXTURE SCHEDULE ON THE PLANS. ALL LIGHT FIXTURES SHALL BE PROVIDED WITH LAMPS, DRIVERS, BALLASTS, AND FULLY FUNCTIONING AT COMPLETION OF PROJECT.
2. ALL LED FIXTURES SHALL BE U.L. LISTED AND HAVE A MINIMUM OF 5 YEAR ON-SITE REPLACEMENT WARRANTY FOR DEFECTIVE OR NON-STARTING LED SOURCE ASSEMBLIES, DRIVERS, AND FOR LUMINAIRES EXHIBITING INADEQUATE LUMEN OUTPUT. IT SHALL COVER MATERIAL, FIXTURE FINISH, WORKMANSHIP, AND SHIPPING. ON-SITE REPLACEMENT SHALL INCLUDE TRANSPORTATION, REMOVAL, AND INSTALLATION OF NEW FIXTURE.
3. RATED LUMINAIRE WATTAGE SHALL BE ACTUAL, ACCOUNTING FOR ANY REDUCTION IN EFFICIENCY DUE TO SUB-OPTIMAL LOADING OF DRIVERS.
4. DRIVERS SHALL BE CAPABLE OF ACCEPTING THE VOLTAGE INDICATED ON THE LIGHTING FIXTURE SCHEDULE AND CAPABLE OF DIMMING IF REQUIRED. DRIVERS SHALL HAVE A CLASS A RATING, TOTAL HARMONIC DISTORTION OF LESS THAN 20%, AND SHALL NOT CONTAIN ANY POLYCHLORINATED BIPHENYL (PCB).
5. ALL LED FIXTURES SHALL BE TESTED TO IES LM-79 AND IES LM-80 STANDARDS. OUTDOOR FIXTURES SHALL BE IP65 RATED. LED'S, DRIVERS AND ALL COMPONENTS SHALL HAVE A SYSTEM LIFETIME OF 50,000 HOURS OR MORE AT 25 DEGREES CELSIUS AND SHALL MAINTAIN A MINIMUM OF 85% OF INITIAL LUMEN OUTPUT AFTER 55,000 HOURS OF OPERATION. LED'S SHALL HAVE COLOR RENDERING INDEX (CRI) OF 80 OR GREATER.
6. ALL SURFACE MOUNTED FIXTURES SHALL BE INDEPENDENTLY SUPPORTED FROM STRUCTURE. ALL CEILING MOUNTED FIXTURES SHALL BE SUPPORTED FROM STRUCTURE AND BRACED TO PREVENT MOVEMENT IF IMPACTED.
7. ALL RECESSED FIXTURES IN LAY IN TYPE CEILINGS SHALL BE PROVIDED WITH GRID CLIPS TO FASTEN FIRMLY TO CEILING SUPPORT GRID. THE CEILING GRID SHALL BE SUPPORTED AT EACH CORNER OF A FIXTURE.
8. CONNECTION TO ALL FIXTURES IN LAYIN CEILING SHALL BE BY FLEXIBLE CONDUIT OF FOUR TO SIX FEET IN LENGTH. A GROUND CONDUCTOR WILL BE INCLUDED WITH THIS CONNECTION.
9. ALL LENSES ON FIXTURES SHALL BE 0.125 INCH THICK MINIMUM. ALL HOUSINGS SHALL BE 22 GAUGE STEEL MIN. AND HAVE A POST FABRICATION HIGH REFLECTIVE WHITE FINISH.

SECTION E: FIRE ALARM SYSTEM (FULL VOICE EVAC SYSTEM)

1. ACCEPTABLE MANUFACTURERS: NOTIFIER, FIRE LITE, EDWARDS, SIMPLEX, OR SILENT KNIGHT.
2. PROVIDE A COMPLETE OPERABLE VOICE EVAC FIRE ALARM SYSTEM FOR THIS PROJECT. THE MAIN PANEL SHALL BE LOCATED AS SHOWN. THE FIRE ALARM SYSTEM SHALL BE DESIGNED FOR CLASS B OPERATION. THE WIRING FOR THE FIRE ALARM SYSTEM SHALL BE INSTALLED IN 1/2 IN. ELECTRICAL METALLIC TUBING. PROVIDE INSULATED FITTINGS ON ALL CONDUIT ENDS. THE FIRE ALARM SHALL BE MADE IN THE USA AND BE UL LISTED. ALL WIRING AND DEVICES FOR THE SYSTEM SHALL BE SUPERVISED. COLOR CODE THE CONDUIT EVERY 24 IN. WITH RED MARKINGS (EXCEPT WHERE EXPOSED).
3. THE MAIN PANEL SHALL HAVE A BATTERY BACKUP AND BE SURGE PROTECTED. THE BATTERY SHALL BE CAPABLE OF PROVIDING NORMAL OPERATION FOR A PERIOD OF 24 HOURS WITH ENOUGH RESERVE TO ANNUCIATE A BUILDING ALARM FOR 90 MINUTES.
4. NEW DEVICES SHALL BE PROVIDED WITH RECESSED METAL BOXES. ALL DEVICES SHALL BE MOUNTED FLUSH WITH WALL EXCEPT FOR PULL STATIONS WHICH SHALL BE SEMI-FLUSH.
5. NEW HORN/STROBE DEVICES AND SPEAKER/STROBE DEVICES SHALL MEET THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT. THE SPEAKER SHALL PRODUCE A SOUND LEVEL OF 90 DECIBELS AND THE STROBE SHALL PRODUCE A FLASHING PULSE OF LIGHT OF 75 CANDELA. BOTH SOUND PRESSURE AND STROBE INTENSITY SHALL BE FIELD SELECTABLE AND ADJUSTABLE.
6. STROBE DEVICES SHALL PRODUCE A FLASHING PULSE OF LIGHT OF 75 CANDELLA.
7. NEW PULL STATIONS SHALL BE NON-GLASS-BREAK TYPE AND KEYED THE SAME AS THE FIRE ALARM PANEL.
8. THE SMOKE DETECTORS SHALL BE THE PHOTOELECTRIC TYPE POWERED FROM THE MAIN FIRE ALARM PANEL.
9. THE GENERAL BUILDING ALARM WILL SOUND WHEN ACTIVATED AT THE CONTROL PANEL, BY SMOKE OR HEAT DETECTORS, OR BY A PULL STATION. ALARM WILL ALSO SOUND WHEN ACTIVATED BY A DUCT SMOKE DETECTOR OR SPRINKLER.
10. THE MAIN PANEL SHALL PROVIDE INDICATION OF EACH INITIATING DEVICE LOCATION FOR ALARM, TROUBLE AND SUPERVISORY CONDITIONS. THE PANEL SHALL HAVE LAMP TEST, ALARM SILENCE, TROUBLE AND SUPERVISORY SILENCE, SYSTEM RESET, AND ALARM INITIATE CONTROLS. THE PANEL SHALL ALSO INDICATE VOLTAGE AND BATTERY TEST. THE PANEL SHALL ALSO INCLUDE AN LCD DISPLAY. PANEL SHALL BE IN A SURFACE MOUNTED ENCLOSURE WITH LOCKABLE, SEE THROUGH, HINGED FRONT COVER.
11. THE FIRE ALARM PANEL SHALL BE EQUIPPED WITH A DIGITAL TRANSMITTER AND CELLULAR COMMUNICATOR FOR OFF PREMISES REMOTE MONITORING (FIRE DEPARTMENT) DURING ALARM CONDITION. PROVIDE 3/4 IN. CONDUIT FROM FIRE ALARM PANEL TO TELEPHONE BACKBOARD. FIELD COORDINATE.
12. PROVIDE REMOTE ANNUNCIATOR PANEL AS SHOWN ON PLANS. THE ANNUNCIATOR PANEL SHALL BE PROVIDED WITH AN LCD DISPLAY AND COMPLETE CONTROL PUSH BUTTONS INCLUDING, BUT NOT LIMITED TO, ALARM ACKNOWLEDGE, ALARM SILENCE, RESET, ETC.
13. PROVIDE PHOTO ELECTRIC TYPE DUCT MOUNTED SMOKE DETECTORS WHERE SHOWN IN HVAC SUPPLY DUCT. UNIT SHALL HAVE SAMPLING TUBES THAT EXTEND THE WIDTH OF THE DUCT. PROVIDE REMOTE INDICATOR ACCESSIBLE IN NEAREST MECH/ELEC ROOM FOR EACH DETECTOR, WHICH WILL INDICATE WHICH DETECTOR IS ACTIVATED.
14. FLOW AND TAMPER SWITCHES SHALL BE PROVIDED AND INSTALLED UNDER DIVISION 25 AND CONNECTED TO FIRE ALARM UNDER DIVISION 26. POWER SUPPLY SHALL BE 24 V. DC. SUPPLIED BY FIRE ALARM SYSTEM. PROVIDE ADDRESSABLE MONITORING MODULE FOR ALL DEVICES / SWITCHES.
15. NEW HEAT DETECTORS SHALL BE COMBINATION TYPE, RATE OF RISE AND FIXED TEMP. SET INITIALLY TO MINIMUM 135 DEGREES F, AND SHALL BE RATED FOR 200 DEGREES F.
16. VOICE EVACUATION CONTROL FUNCTIONS ARE TO BE INTEGRATED INTO THE OVERALL FIRE ALARM CONTROL PANEL, AND SHALL PROVIDE MICROPHONES / HANDSETS, AMPLIFIERS, POWER SUPPLIES, SWITCH CONTROLS, AND STATUS INDICATION. THE VOICE EVACUATION CONTROLS SHALL HAVE CAPABILITY AND FUNCTIONALITY TO HAVE AUTOMATED VOICE MESSAGES AS WELL AS LIVE MESSAGING. AUTOMATED MESSAGING SHALL HAVE CAPABILITY TO STORE AND PRIORITIZE UP TO 16 AUTOMATED MESSAGES IN STANDARD MEMORY. SWITCH CONTROLS SHALL ALLOW FOR SELECTION OF INDIVIDUAL SPEAKERS, SPEAKER CIRCUITS, ZONES, OR GROUPS OF DEVICES FOR ANNUNCIATION.
17. SEE FIRE ALARM SUBCONTRACTOR SUBMITTAL TO AUTHORITY HAVING JURISDICTION ON SHEET E0.1 FOR ADDITIONAL REQUIREMENTS. FIRE ALARM SUBCONTRACTOR IS RESPONSIBLE FOR ALL ADDITIONAL DEVICES AND EQUIPMENT AS REQUIRED TO MEET ALL NFPA, IBC, GEORGIA STATE, AND LOCAL CODES.
18. PROVIDE FUEL GAS DETECTOR WHERE SHOWN ON PLANS. DETECTOR MUST BE NFPA 715 COMPLIANT, UL 2075 LISTED, AND MUST BE SAME MANUFACTURER OR COMPATIBLE WITH MANUFACTURER OF FIRE ALARM SYSTEM. DETECTOR SHALL TRIGGER AT OR BELOW 25% OF THE LOWER EXPLOSIVE LIMIT OF THE FUELD GAS, AND MUST BE DISTINGUISHABLE FROM FIRE AND CO ALARM. DETECTOR MUST HAVE A FUEL GAS DETECTION CONTROL UNIT (FGDCU) TO RECEIVE SENSOR SIGNALS, INTERPRET THEM, AND INITIATE OUTPUTS, AND THE CONTROL UNIT MUST HANDLE SUPERVISORY SIGNALS, TROUBLE SIGNALS, AND MUST HAVE SELF-DIAGNOSIS CAPABILITIES.

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SECTION F: TELEPHONE/DATA/CATV SYSTEMS

WORK INCLUDED:

1. WORK SHALL INCLUDE PROVISIONS FOR A COMPLETE TELEPHONE/DATA CABLING SYSTEM INCLUDING: TELEPHONE/DATA COMBINATION OUTLETS, CABLING, CONDUIT, BOXES, TELEPHONE AND DATA PATCH PANELS, AND PLYWOOD BACKBOARDS.

SCOPE OF PROJECT, STANDARDS, AND DESCRIPTION:

1. THE CABLING AND WIRING PLACED FOR VOICE AND DATA COMMUNICATIONS ON THIS UNDERTAKING SHALL BE "UNSHIELDED TWISTED PAIR" TYPE AND CONFORM TO THE REQUIREMENTS CONTAINED IN THE LASTEST EDITIONS OF THE NATIONAL ELECTRIC CODE (NEC) AND THE LASTEST EDITIONS OF THE FOLLOWING AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) SPECIFICATIONS:
A. EIA-TIA-568 COMMERCIAL BUILDING TELECOMMUNICATIONS WIRING.
B. STANDARD B. EIA-TIA-569 COMMERCIAL BUILDING STANDARD FOR TELECOMM, PATHWAYS AND SPACES.
C. TIA/EIA-606 ADMINSTRATION STANDARD FOR THE TELECOMM. INFRASTRUCTURE OF COMMERCIAL BUILDINGS.
D. TIA/EIA-607 COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS.
E. SUPPLEMENTS TO EIA/TIA-568 TECHNICAL SYSTEMS BULLETINS.
F. TSB-36 ADDITIONAL TRANSMISSION SPECIFICATIONS FOR UNSHIELDED TWISTED PAIR CABLES.
G. TSB-40 ADDITIONAL TRANSMISSION SPECIFICATIONS FOR UNSHIELDED TWISTED PAIR HARDWARE.

WORKMANSHIP:
1. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER. ARCHITECT, ENGINEER, AND/OR OWNER MAY OBSERVE THE WORK PROCEDURES AND WORKMANSHIP OF THE CONTRACTOR BUT SUCH OBSERVATION WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR PERFORMANCE.

WARRANTY:
1. THE CONTRACTOR SHALL FURNISH A WRITTEN WARRANTY THAT DESCRIBES THE EQUIPMENT SUPPLIED UNDER THESE SPECIFICATIONS WILL BE FREE FROM DEFECTS OF MATERIALS AND WORKMANSHIP FOR A PERIOD OF FIVE YEARS AND THE CABLE PLANT/LABOR WILL BE FREE FROM DEFECTS OF MATERIALS AND WORKMANSHIP FOR A PERIOD OF FIVE YEARS FROM THE DATE OF FINAL ACCEPTANCE UNLESS OTHERWISE SPECIFIED AND THAT ALL DEFECTS OCCURING WITHIN THAT PERIOD SHALL BE CORRECTED IN A TIMELY MANNER AT NO COST TO THE OWNER.

CONTRACTOR'S QUALIFICATIONS:
1. CONTRACTOR SHALL BE REQUIRED, BEFORE AWARDING OF CONTRACT, TO DEMONSTRATE TO THE COMPLETE SATISFACTION OF THE ARCHITECT THAT HE HAS THE NECESSARY FACILITIES, ABILITY AND FINANCIAL RESOURCES TO EXECUTE THE WORK IN A SATISFACTORY MANNER AND WITHIN THE TIME SPECIFIED; THAT HE HAS HAD EXPERIENCE IN CONSTRUCTION WORK AS SAME OR SIMILAR NATURE; THAT HE HAS PAST HISTORY AND REFERENCES WHICH WILL ASSURE THE OWNER OF HIS QUALIFICATIONS FOR EXECUTING THE WORK.
2. CONTRACTOR SHALL SUBMIT A COPY OF A VALID LOW-VOLTAGE LICENSE (LOW-VOLTAGE GENERAL, LOW-VOLTAGE TELECOMMUNICATIONS OR LOW-VOLTAGE UNRESTRICTED AS ISSUED BY THE STATE CONSTRUCTION INDUSTRY LICENSING BOARD OF LOW-VOLTAGE CONTRACTORS).
3. CONTRACTOR SHALL SUBMIT A COPY OF BICSI (BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL) CERTIFIED RCDD (REGISTERED COMMUNICATIONS DISTRIBUTIONS DESIGNER) CERTIFICATE.
4. COMPREHENSIVE LIST OF REFERENCES: ATTACH A DETAILED LIST OF REFERENCES ALONG WITH CONTACT PERSON, DATES OF WORK, MAILING ADDRESS, TELEPHONE NUMBERS.
5. CONTRACTOR MUST PROVIDE PROOF OF INSTALLATION IN A MINIMUM OF FIVE SITES USING AN CATEGORY 6E STRUCTURED CABLING WITH 100 OR MORE ACTIVE (WORKING) NODES INSTALLED.

SUBMITTALS:
1. SUBMIT PRODUCT DATA CONSISTING OF MANUFACTURER'S PUBLISHED LITERATURE AND AS SPECIFIED FOR:
A. LITERATURE FOR EACH SEPARATE TYPE OF EQUIPMENT BEING PROVIDED. INDICATE MODEL NUMBER ON CUTSHEET.
B. ONE LINE SCHEMATIC OF COMPLETE SYSTEM SHOWING A FLOOR PLAN TO SCALE. SHOW LOCATIONS AND THE TYPE OF OUTLETS, AS WELL AS ALL RACK LOCATIONS, AND CABLING TYPE.
C. DOCUMENTATION OF TESTING ON ALL WIRING AND TERMINATIONS AS PER EIA/TIA STANDARDS.

MAUFACTURERS:

1. ACCEPTABLE MANUFACTURERS FOR EACH TYPE OF EQUIPMENT SPECIFIED SHALL BE AS NOTED THROUGHOUT THIS SPECIFICATION SECTION.
2. THE ACCEPTABLE MANUFACTURERS NOTED SHALL BE INSTALLED BY THE AUTHORIZED LOCAL FACTORY DEALER/ REPRESENTATIVE FOR THAT PRODUCT.
3. THE CONTRACTOR SHALL HOLD A CURRENT LOW VOLTAGE CONTRACTOR'S LICENSE AND RCDD CERTIFICATE. ANY OTHER INTERESTED PARTIES SHALL SUBMIT A COMPANY RESUME SHOWING YEARS IN BUSINESS, CERTIFICATION STATING THAT HE IS AN AUTHORIZED REPRESENTATIVE FOR THE MANUFACTURER OF THE EQUIPMENT HE IS SUBMITTING FOR APPROVAL AND THAT HE MAINTAINS A FULLY EQUIPPED AND STOCKED SERVICE SHOP AND SHALL RESPOND TO SERVICE CALLS WITHIN 12 NORMAL WORKING HOURS, LIST OF KEY PERSONNEL, COPIES OF APPROPRIATE LICENSES AND LIST OF RECENTLY COMPLETED JOBS.

TELEPHONE/DATA JACK AND OUTLET SPECIFICATIONS:

1. LOCATIONS SHOWN ON DRAWINGS WILL BE EQUIPPED WITH A CONSISTENT ARRANGEMENT OF LAN COMMUNICATIONS OUTLETS. PROVIDE JACKS IN OUTLETS (AS DETAILED ON DRAWING). PROVIDE COLORED ICONS AS INDICATED ON DRAWINGS.
2. OUTLET FACEPLATE FOR THIS ARRANGEMENT SHALL BE CONFIGURED IN THE FOLLOWING FASHION:
A. THE JACKS USED SHALL FIT PROPERLY IN THE OUTLET OPENINGS OF THE OUTLET FACEPLATE. THE JACKS USED ALSO CONFORM TO PARAMETERS SET IN EIA/TIA 568, TSB36 AND TSB40A.
B. IN A PROPERTY INSTALLED CATEGORY 6E UTP WIRING ARRANGEMENT. C. THE WIRING ARRANGEMENT OF THE JACK SHALL CONFORM TO THE EIA/TIA 568, TSB36 AND TSB40A.
3. THE JACK SHALL POSSESS THE FOLLOWING CHARACTERISTICS:
A. THE EIGHT (8) POSITION/ EIGHT (8) CONDUCTOR JACK SHALL BE CAPABLE OF SUPPORTING THE PREVIOUSLY DEFINED DATA RATES AS WELL AS VOICE (INCLUDING ISDN).
B. UTILIZATION OF 110 TYPE OR EQUIVALENT INSULATION DISPLACEMENT HARDWARE FOR HORIZONTAL WIRE ATTACHMENT AND ACCEPTANCE OF 22 OR 24 AWG CONDUCTORS.
C. THE JACK WIRES SHALL CONSIST OF 50 MICRO-INCH LUBRICATED GOLD PLATING OVER 100 MICRO-INCH NICKEL UNDERPLATING.
D. ANY VACANT FACEPLATE POSITION SHALL BE RESERVED FOR FUTURE GROWTH AND SHOULD HAVE A DUST COVER/BLANK INSERTED.
4. ACCEPTABLE MANUFACTURER'S: ORTRONICS, SERIES 11568 B JACKS AND HUBBELL.
5. WIRELESS ACCESS POINTS SHALL HAVE A BISCUIT JACK AT THE CEILING WITH TWO CAT 6E CABLES AND JACKS.

TELEPHONE/DATA HORIZONTAL WIRING SPECIFICATIONS: (BERK-TEK LANMARK 1000 (CAT 6E) CABLE)

1. THIS SECTION COVERS THE CABLE FROM THE COMMUNICATIONS OUTLETS TO THE PUNCH DOWN BLOCK. THESE CABLES SHALL BE AS INDICATED ON DRAWINGS UNSHIELDED TWISTED PAIR CABLE. EACH CABLE SHALL BE PLACED IN A POINT "POINT-TO-POINT" FASHION FROM THE OUTLET TO THE WIRING CLOSET FOR EACH COMMUNICATIONS OUTLET NEEDED. THERE SHALL BE NO INTERMEDIATE SPLICES OR CROSS CONNECTS IN THESE CABLES. PROVIDE ONE (1) CABLE FOR EACH JACK. SEE DRAWINGS FOR NUMBER OF JACKS IN EACH OUTLET. CABLE SHALL BE BLUE IN COLOR. CABLE SHALL BE PLENUM RATED.
2. THE CHARACTERISTICS OF THE HORIZONTAL CABLE ARE AS FOLLOWS:
A. CABLE CONSISTING OF FOUR (4) PAIR OF 23 AWG BARE SOLID COPPER CONDUCTORS INSULATED WITH A PLENUM RATED MATERIAL. THE INSULATED CONDUCTORS ARE TIGHTLY TWISTED INTO PAIRS AND JACKETED WITH FLOUROPOLYMER. NO TYPE OF SHIELD IS REQUIRED IN THE SHEATH.
B. EACH SHEATH SHALL CONTAIN FOUR (4) UNSHIELDED COPPER PAIRS. EACH PAIR SHALL HAVE A DIFFERENT TWIST PER RATIO PER FOOT RANGING FROM 12 TO 24 TWISTS PER FOOT. NO MORE THAT 1/2 INCH MAY BE UNTWISTED AND THE SHEATH MAY NOT BE STRIPPED BACK MORE THAN 1/2 INCH AT THE JACK DURING INSTALLATION.
3. THE CABLE SHALL MEET OR EXCEED THE FOLLOWING REQUIREMENTS:
A. EIA/TIA 568 "COMMERCIAL BUILDING WIRING STANDARD," HORIZONTAL CABLE SECTION.
B. EIA/TIA TSB-36 "TECHNICAL SYSTEM BULLETIN ADDITIONAL CABLE SPECIFICATIONS FOR UNSHIELDED TWISTED PAIR CABLES, "CATEGORY 6E".
C. PROPOSED ANSI X3T9.5 REQUIREMENTS FOR UTP AT 100 MBPS.
D. CERTIFIED LEVEL 6E CABLE UNDER UL'S LAN CABLE CERTIFICATION PROGRAM.
E. IEEE 802.3
F. ICEA S80-576
G. UL SUBJECT 444
H. PUB 48007
I. TA-TS000133
J. NATIONAL ELECTRIC CODE - ARTICLE 800

4. THE CABLES SHALL MEET THE FOLLOWING REPRESENTATIVE ELECTRICAL AND TRANSMISSION CHARACTERISTICS:
A. MUTUAL CAPACITANCE (PF/FT.): 14 (NOM.)
B. IMPEDANCE Z (OHMS FROM 1-25 MHZ): 100 (=/-15%)
C. DC RESISTANCE - MAX . - (OHMS/1000 FT.): 28.6
D. ATTENUATION - MAXIUM: FREQUENCY (MHZ) - DB/1000 FT. - DB/100 M.
1 - 6.3 - 2.1
4 - 13 - 4.3
10 - 20 - 6.6
16 - 25 - 8.2
20 - 28 - 9.2
25 - 32 - 10.2
31.25 - 36 - 11.8
62.5 - 52 - 17.1
100 - 67 - 21.9
(TEST TO 400 MHZ AT LEVELS PROVIDED BY MFG.)
E. WORST PAIR-TO-PAIR NEAR END CROSSTALK: FREQ. (MHZ) - WORST PAIR NEXT - (DB)
1 - 62
4 - 53
10 - 47
16 - 44
20 - 42
25 - 41
31.25 - 40
62.5 - 35
100 - 32
(TEST TO 400 MHZ AT LEVELS PROVIDED BY MFG.)

DATA PATCH PANEL SPECIFICATIONS:

1. THIS SECTION COVERS THE TERMINATION HARDWARE LOCATED ON THE WALL DATA BACKBOARD. THE TERMINATION HARDWARE SHALL PROVIDE THE CAPABILITY TO BE ABLE TO PATCH CONNECTIONS BETWEEN PORTS ON THE LAN HARDWARE (ELECTRONICS BY OTHERS, N.I.C.) AND HORIZONTAL CABLES TO THE OUTLETS.
2. THE PATCH PANELS SHALL BE CATEGORY 6E MODULAR JACK PANELS (ORTRONICS CAT 6E OR HUBBELL).
3. THE TERMINATION HARDWARE SHALL BE LOCATED ON 19 IN. WALL MOUNTED CABINET. THE CONFIGURATION OF THE PATCH PANELS SHALL BE IN AN AGREEMENT THAT MINIMIZES PATCH CORD LENGTHS. PROVISIONS FOR CABLE MANAGEMENT AND PATCH CORDS (ORGANIZATION OF HORIZONTAL CABLE AND PATCH CORDS) ON THE RACK SHOULD BE INCLUDED.
4. POTENTIAL HORIZONTAL CABLES TO THE OUTLETS WILL BE DIRECTLY CONNECTED TO 110 INSULATION DISPLACEMENT HARDWARE OR EQUIVALENT ASSOCIATED WITH EACH JACK ON THE PATCH PANEL. THE JACKS ON THE PATCH PANEL SHALL BE WIRED TO THE EIA 568B WIRING STANDARD.
5. CATEGORY 6E, FACTORY BUILT, MANUFACTURE TESTED PATCH CORDS SHALL BE PROVIDED FOR EACH HUB/SWITCH-PORT PROVIDED.

FIBER OPTIC BACKBONE: (SERVICE TO BUILDING BY SERVING UTILITY)

TELEPHONE CABLES SHALL BE THE SAME AS DATA TERMINATIONS AT OUTLET AND PATCH PANEL.

CONDUIT, RACEWAY, AND BACKBOARDS:

1. PROVIDE 1 IN. EMT FROM EACH OUTLET TO 12 INCHES ABOVE ACCESSIBLE CEILING. PROVIDE 4 IN. SQUARE BACKBOX WITH SINGLE GANG PLASTER RING FOR EACH TELEPHONE/DATA OUTLET. ALL CONDUIT SHALL BE CONCEALED. PROVIDE FACEPLATE WITH MODULAR JACKS. PROVIDE PULL STRING IN ALL EMPTY CONDUITS.
2. WHERE PLASTER OR UNACCESSIBLE CEILINGS ARE PRESENT, PROVIDE 1 IN. EMT FROM EACH OUTLET TO TELEPHONE BACKBOARD OR TELEPHONE CONNECTION POINT AS DESCRIBED IN THE CONTRACT DOCUMENTS. PROVIDE 4 IN. SQUARE BACKBOX WITH SINGLE GANG PLASTER RING FOR EACH TELEPHONE/DATA OUTLET. ALL CONDUIT SHALL BE CONCEALED. PROVIDE FACEPLATE WITH MODULAR JACKS. PROVIDE PULL STRING IN ALL EMPTY CONDUITS.
3. SERVICE CONDUIT: PROVIDE (2) 3 INCH CONDUIT AND CABLE IN LOCATIONS NOTED ON DRAWINGS. FROM D-MARK POINT OUTSIDE BUILDING TO COMM ROOM. FIBER SERVICE BY SERVING UTILITY COMPANY.
4. BACKBOARD: PROVIDE PLYWOOD BACKBOARD AS DESCRIBED UNDER "SUPPORTING DEVICES" IN THESE ELECTRICAL SPECIFICATIONS.

CABLE MANAGEMENT PANEL:
1. PAINTED STEEL PANEL FOR STANDARD 19 IN. RACK MOUNTING, WITH FIVE HORIZONTAL 3 IN. X 4 IN. CABLE MANAGEMENT RINGS.

UNINTERRUPTIBLE POWER SUPPLY FOR DATA RACK:
1. THE NETWORK HUB/SWITCH UNIT SHALL BE PLUGGED INTO AN UNINTERRUPTABLE POWER SUPPLY WHICH OPERATES IN A HOT STANDBY STATE WHEN THE AC POWER IS PRESENT, PROVIDING POWER OF CONSISTENT QUALITY. ALSO, THE SWITCH TIME MUST NOT BE MORE THAN 3.5 MICROSECONDS. UPS SHALL BE RACK MOUNTED AND BE A MINIMUM OF 1000 VA CAPACITY.

PULL AND JUNCTION BOX COVER IDENTIFICATION:
1. SEE EQUIPMENT IDENTIFICATION IN THIS ELECTRICAL DIVISION OF THE SPECIFICATIONS.

LABELING:

1. SYSTEM SHALL BE COMPLETELY LABELED, WITH CIRCUIT NUMBERS INDICATED ON THE PATCH PANEL, OUTLET JACKS, AND BOTH ENDS OF THE CABLE. PROVIDE A LIST INDICATING CIRCUIT NUMBERS INSTALLED TO EACH SPACE.

TESTING AND CERTIFICATION:
1. TESTING COPPER DISTRIBUTION SYSTEMS ARE CRUCIAL IN ASSURING THE OVERALL INTEGRITY AND SATISFACTORY PERFORMANCE OF THE NETWORK. TEST RESULTS QUANTIFY SYSTEM QUALITY, IDENTIFY SYSTEM FAULTS, AND ESTABLISH THE BASELINE ACCOUNTABILITY PERFORMANCE OF THE SYSTEM. PROPER TESTING ALSO MAXIMIZES THE LONGEVITY OF THE SYSTEM, MINIMIZES DOWNTIME AND MAINTENANCE, AND FACILITATES SYSTEM UPGRADES OR RECONFIGURATION.
2. THE CONTRACTOR SHALL PROVIDE PROOF OF COMMUNICATIONS WIRING SYSTEMS CERTIFICATION AND TESTING CERTIFICATION.
3. ALL DATA WIRING AND TERMINATIONS SHALL BE TESTED AND MUST PASS EIA/TIA STANDARDS FOR CATEGORY 6E WIRING. ALL WIRING AND TERMINOLOGY FOR VOICE CABLE SHALL BE TESTED FOR CONTINUITY. ALL FAULTS SHALL BE CORRECTED.
4. ALL TEST RESULTS MUST BE PRINTED AND SHOW THE FOLLOWING RESULTS:
IMPEDANCE (TDR), CABLE LENGTH, ATTENUATION, NEAR END CROSS TALK (NEXT), LINE MAPPING, DC OHMS, OTDR.

GUARANTEES:

1. ALL COMMUNICATION OUTLETS WIRED AND SERVICEABLE MUST BE TESTED AND CERTIFIED IN COMPLIANCE WITH THE ANSI/IEEE 802.3 AND EIA/TIA 568 CATEGORY 6E SPECIFICATIONS. TESTING MUST BE "END-TO-END". TEST RESULTS SHALL BE FORWARDED TO ARCHITECT A MINIMUM OF ONE WEEK PRIOR TO FINAL INSPECTION.

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ELECTRICAL SPECIFICATIONS

Retrofit & Renovations for
Madison Methodist Church
1091 Confederate Highway
Madison, Georgia 30650

JOB NO.:	02405		
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DESCRIPTION:	ISSUE		
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