

A. SCOPE OF WORK

- 1. FURNISH ALL LABOR AND MATERIAL TO COMPLETE ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS
2. THE LISTING OF ARTICLE OR MATERIAL, OPERATION OR METHOD, REQUIRES THAT THE CONTRACTOR SHALL PROVIDE AND INSTALL, UNLESS NOTED TO BE SUPPLIED BY OTHERS...

- 3. THE ELECTRICAL CONTRACTOR SHALL SCHEDULE HIS WORK TO CONFORM TO THE PROGRESS OF THE OTHER TRADES AND CONTRACTORS EMPLOYED ON THIS PROJECT...

- A. PROVIDE ELECTRICAL SERVICE INCLUDING CONDUITS, CABLES, TERMINATIONS, METERING EQUIPMENT, ETC. IN ACCORDANCE WITH UTILITY REQUIREMENTS AND DRAWINGS

- B. PROVIDE LIGHTING FIXTURE AS SHOWN ON DRAWINGS. THIS SHALL INCLUDE ALL ASSOCIATED LAMPS, BOXES, SWITCHES, CONTRACTORS, AND BRANCH CIRCUIT WIRING AND MATERIALS REQUIRED FOR A COMPLETE INSTALLATION.

- C. PROVIDE DEVICES (RECEPTACLES, SWITCHES, ETC.) AS SHOWN ON DRAWINGS. THIS SHALL INCLUDE ALL ASSOCIATED BRANCH CIRCUIT WIRING AND MATERIAL REQUIRED FOR A COMPLETE INSTALLATION.

- D. POWER FEEDERS TO HVAC EQUIPMENT INCLUDING RTU'S, EXHAUST FANS, INCLUDING DISCONNECT SWITCHES, CONTROL DEVICES, STARTERS FOR MOTORS NOT PROVIDED BY OTHERS...

- E. PROVIDE POWER DISTRIBUTION EQUIPMENT (PANELBOARDS, DISCONNECT SWITCHES, CONTRACTORS, MOTOR STARTERS, ENCLOSED CIRCUIT BREAKERS, ETC.) AS SHOWN ON DRAWINGS OR AS REQUIRED FOR THIS PROJECT...

- F. PROVIDE FIRE ALARM SYSTEM ONLY IF REQUIRED BY FIRE MARSHALL OR LOCAL CODES. (E.C. MUST VERIFY REQUIREMENTS PRIOR TO BIDDING)

- G. PROVIDE TESTING OF ALL ELECTRICAL EQUIPMENT. H. PROVIDE TIMERS, PHOTOCELLS AND CONTRACTORS FOR CONTROL OF EXTERIOR LIGHTING AND HVAC EQUIPMENT.

- I. PROVIDE BACKSCOPES, PULLSTATIONS, AND CONDUIT TO ABOVE ACCESSIBLE CEILING FOR ALL VOICE AND COMMUNICATIONS OUTLETS.

- J. PROVIDE CONDUIT, JUNCTION BOXES, 115 VOLT FEEDERS, BACKBOXES, ETC. AS REQUIRED FOR SECURITY SYSTEM CAMERAS, ELECTRICAL DOOR STRIKES, ALARMS, REQUEST TO EXIT, MOTION SENSORS, CARD READERS, KEYPADS AND MAIN SECURITY PANEL AS SHOWN ON DRAWINGS OR AS DIRECTED BY OWNER OR ARCHITECT...

- K. PROVIDE EMERGENCY LIGHTING, BATTERY UNITS, REMOTE HEADS, EXIT LIGHTS AND ALL ASSOCIATED WIRING, CONDUIT, JUNCTION BOXES, CONNECTIONS, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION.

A. INSTALLATION

- 1. THIS CONTRACTOR SHALL VISIT THE JOB SITE TO DETERMINE PRESENT CONDITIONS AND VERIFY EXACT LOCATION OF EQUIPMENT AND LOCAL REGULATIONS PRIOR TO SUBMITTING BID.

- 2. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AN PATCHING OF EXISTING WALLS CEILING AND FLOOR SLABS NECESSARY FOR THE COMPLETION OF HIS WORK.

- 3. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL WORK AND MATERIAL SHOWN SHALL BE PERFORMED, FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

- 4. THE COMPLETE INSTALLATION SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND CITY CODES, RULES, REGULATIONS AND ORDINANCE. ALSO MAKE APPLICATION FOR AN NO PAY ALL FEES IN CONNECTION WITH ANY PERMITS, TESTS AND INSPECTIONS THAT MAY BE REQUIRED.

- 5. GUARANTEE ALL WORKMANSHIP, MATERIAL AND PERFORMANCE FOR PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE.

- 6. THE EXACT MOUNTING LOCATIONS OF APPARATUS, DEVICES, EQUIPMENT AND CONDUITS SHALL BE ASCERTAINED FROM OWNER OR THEIR REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY. SHOULD THE CONTRACTOR FAIL TO ASCERTAIN SUCH LOCATIONS, THE WORK SHALL BE CHANGED AT HIS OWN EXPENSE WHEN SO ORDERED BY OWNER, THE OWNER RESERVES THE RIGHT TO MAKE MINOR CHANGES IN THE LOCATION OF CABLE, CONDUIT AND EQUIPMENT INSTALLED BY THIS CONTRACTOR UP TO THE TIME OF INSTALLATION, WITHOUT ADDITIONAL COST.

- 7. ALL CONDUCTORS SHALL BE COPPER, THIN INSULATION UNLESS OTHERWISE NOTED. ALL WIRING SHALL BE IN EMT OR MC CABLE RUN CONCEALED IN FINISHED AREAS AND NOT SUBJECT TO PHYSICAL DAMAGE. RUN EMT IN UNFINISHED CEILING AREAS.

- 8. RUN ALL CONDUIT CONCEALED IN BLOCK WALLS AND RECESS ALL DEVICES IN BRICH WALLS TO THE EXTENT POSSIBLE AND/OR PRACTICAL.

B. DRAWINGS AND SPECIFICATIONS

- 1. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS OF EQUIPMENT AND PIPING. DIMENSIONS GIVEN ON THE PLANS SHALL BE VERIFIED IN THE FIELD. DRAWINGS MAY NOT BE SCALED TO OBTAIN EXACT DIMENSIONS.

- 2. THE EXACT LOCATIONS OF APPARATUS, FIXTURES, EQUIPMENT AND CONDUITS SHALL BE ASCERTAINED FROM THE OWNER OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY. SHOULD THE CONTRACTOR FAIL TO ASCERTAIN SUCH LOCATIONS, THE WORK SHALL BE CHANGED AT HIS OWN EXPENSE WHEN SO ORDERED BY THE OWNER.

- 3. THIS CONTRACTOR SHALL FURNISH SUCH LABOR AND MATERIALS AS HERE-AFTER SPECIFIED AND AS REQUIRED TO COMPLETE ALL ELECTRICAL CONNECTIONS IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT AND OWNER'S EQUIPMENT AS SHOWN AND/OR SPECIFIED.

D. VISITING TO THE SITE

- 1. THE CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING HIS WORK, AND THE SUBMISSION OF HIS PROPOSAL SHALL BE CONSIDERED AS INDICATING SUCH KNOWLEDGE, NO ADDITIONAL PAYMENT WILL BE MADE ON CLAIMS THAT ARISE FROM LACK OF SUCH KNOWLEDGE OF EXISTING CONDITIONS.

E. MATERIALS AND WORKMANSHIP

- 1. ALL WORK SHALL BE INSTALLED IN PRACTICAL AND WORKMANLIKE MANNER BY COMPETENT WORKMEN, SKILLED IN THEIR BRANCH OF THE TRADE.

- 2. UNLESS SPECIFICALLY SPECIFIED OR INDICATED ON THE DRAWINGS TO THE CONTRARY, ALL MATERIALS SHALL BE NEW AND FREE FROM DEFECTS, AND SHALL BE THE BEST OF THEIR SEVERAL KINDS.

- 3. ALL MATERIALS SHALL MEET OR EXCEED STANDARDS SPECIFIED BY UL, NEMA, ANSI AND IEEE WHEREVER SUCH STANDARDS HAVE BEEN ESTABLISHED.

- 4. THE CONTRACTOR SHALL REMOVE ALL DEBRIS AND EXCESS MATERIALS ASSOCIATED WITH HIS WORK AND LEAVE THE WORK AREA CLEAN AT THE END OF EACH WORK DAY.

- 5. ALL ELECTRICAL EQUIPMENT AND MATERIAL SHALL BEAR THE UNDERWRITER'S LABORATORIES LABEL.

F. DEFINITIONS

- 1. "INSTALL" SHALL MEAN TO PLACE, FIX IN POSITION, SECURE, ANCHOR, ETC. INCLUDING NECESSARY APPURTENANCES AND LABOR SO THAT THE EQUIPMENT OR INSTALLATION WILL FUNCTION AS SPECIFIED AND INTENDED.

- 2. "FURNISH" SHALL MEAN TO PURCHASE AND SUPPLY EQUIPMENT OR COMPONENTS.

- 3. "PROVIDE" SHALL MEAN TO "FURNISH AND INSTALL."

- 4. "OR APPROVED EQUAL" AND "OR EQUAL" SHALL MEAN EQUAL IN TYPE, DESIGN, QUALITY, ETC. AS DETERMINED BY THE OWNER AND APPROVED BY THE ENGINEER.

G. CODES, PERMITS, AND INSPECTIONS

- 1. INSTALL ALL WORK IN FULL ACCORDANCE WITH CODES, RULES, AND REGULATIONS OF MUNICIPAL CITY, COUNTY, STATE AND PUBLIC UTILITY AND ALL OTHER AUTHORITIES HAVING JURISDICTION OVER THE PREMISES. THIS SHALL INCLUDE ALL DEPARTMENT OF INDUSTRIAL RELATIONS, OSHA AND THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODES, AS INTERPRETED BY THE LOCAL INSPECTION DIVISION. ALL THESE CODES, RULES AND REGULATIONS ARE HEREBY INCORPORATED INTO THIS SPECIFICATION.

- 2. COMPLY WITH SPECIFICATION REQUIREMENTS WHICH ARE IN EXCESS OF CODE REQUIREMENTS AND NOT IN CONFLICT WITH SAME.

- 3. THE CONTRACTOR SHALL SECURE ALL PERMITS AND CERTIFICATED OR INSPECTION INCIDENTAL TO HIS WORK, REQUIRED BY THE FOREGOING AUTHORITIES. ALL SUCH CERTIFICATES SHALL BE DELIVERED TO THE OWNER IN DUPLICATE BEFORE FINAL PAYMENT ON CONTRACT WILL BE ALLOWED. THE CONTRACTOR SHALL PAY ALL FEES, CHARGES AND OTHER EXPENSES IN CONNECTION THEREWITH.

H. LABELING AND NAMEPLATES

- 1. PERMANENTLY LABEL PANELBOARDS, TIME SWITCHES, CONTRACTORS AND SAFETY SWITCHES INDICATING EQUIPMENT OR PANELS AND AREAS WHICH THEY SERVE. LABEL ALL PULL AND JUNCTION BOXES SERVING MECHANICAL EQUIPMENT.

- 2. LIGHTING AND APPLIANCE PANELS SHALL BE LABELED AS SHOWN ON DRAWINGS.

- 3. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL IDENTIFICATION FOR PULL OR JUNCTION BOXES FURNISHED BY HIM.

- 4. IDENTIFY AS TO USE ON FACE OF EQUIPMENT BY MEANS OF LAMINATED BLACK AND WHITE PHENOLIC LABEL WITH 1/2" LETTERS ENGRAVED THROUGH BLACK TO WHITE.

I. TESTS AND VOLTAGE RECORD

- 1. ELECTRICAL CONTRACTOR SHALL TEST ALL WIRING AND CONNECTIONS FOR CONTINUITY AND GROUNDS. WHEN THE INSULATION RESISTANCE TEST SHALL INDICATE THE POSSIBILITY OF FAULTY INSULATION, THE CONTRACTOR SHALL LOCATED THE POINTS OF SUCH FAULT INSULATION AND HE SHALL PULL OUT THE CONDUCTOR AT FAULT, REPLACE SAME WITH NEW, AND DEMONSTRATE, BY FURTHER TEST THE ELIMINATION OF SUCH FAULT.

- 2. RECORD FEEDER LOAD CURRENTS AND LINE VOLTAGES MEASURED AT EACH PANELBOARD. ADJUST SINGLE PHASE LOAD CONNECTIONS TO BALANCE FEEDER LOADS WITH 10% PROVIDE THE OWNER WITH A COMPLETE COPY OF ALL LOAD AND VOLTAGE RECORDS.

J. BRANCH CIRCUIT WIRING

- 1. PROVIDE A SYSTEM OF PANELS, CONDUITS, FITTING, BOXES, SUPPORTS AND ALL OTHER MISCELLANEOUS MATERIALS REQUIRED FOR EQUIPMENT INDICATED ON PLANS, COMPLETE AND READY FOR OPERATION BY THE OWNER.

- 2. HOME RUNS FROM 20A OUTLETS 125 FT. OR OVER AT 277 VOLTS, OR 90 FT. OR OVER AT 120 VOLTS SHALL BE #10 WIRE.

- 3. ALL FIXTURE AND BRANCH CIRCUIT WIRING CONNECTIONS OR SPICES SHALL BE MADE IN JUNCTION AND OUTLETS WITH U.L. LISTED PRESSURE TYPE. CONNECTORS AND LISTED FOR 600 VOLTS (1,000 VOLTS WHEN ENCLOSED IN FIXTURE). IDEAL INDUSTRIES WING NUTS AND/OR NUTS OR APPROVED EQUAL MAY BE USED FOR CONNECTIONS IN WIRE OF #8 GAUGE OR LESS.

K. CONDUCTORS

- 1. SIZES OF CONDUCTORS FOR FEEDERS ARE SHOWN ON THE DRAWINGS, AND NO WIRE SHALLER THAN #2 GAUGE SHALL BE USED FOR BRANCH LIGHTING AND POWER CIRCUITS. ALL WIRING SHALL HAVE THE U.L. LABEL, AND BE OF THE CONDUCTIVITY COPPER ALUMINUM WIRE OR ALUMINUM CABLE IS NOT ACCEPTABLE UNLESS SPECIFICALLY SHOWN ON DRAWINGS.

- 2. WIRE GAUGE: ALL WIRING SHALL BE IN ACCORDANCE WITH B & S STANDARDS.

- 3. ALL WIRE AND CABLE FOR BRANCH LIGHTING OR SMALL POWER CIRCUITS SHALL BE TYPE "THIN" #80 VOLT INSULATION.

- 4. WIRE AND CABLE ABOVE #8 GAUGE SHALL BE STRANDED TYPE "THIN" #80 VOLT INSULATION.

L. CONDUIT AND CABLES

- 1. ALL CONDUIT SHALL BE RIGID, THREADED, METAL CONDUIT OR ELECTRICAL METALLIC TUBING (EMT) UNLESS OTHERWISE SPECIFICALLY STATED HEREIN.

- 2. CONDUIT AND EMT SHALL BE DELIVERED TO THE BUILDING IN 10 FOOT LENGTHS AND EACH LENGTH SHALL HAVE THE APPROVED UNDERWRITER'S LABORATORIES LABEL.

- 3. CONDUIT SHALL BE RUN CONCEALED IN ALL FINISHED AREAS OF THE BUILDING AND MAY BE RUN EXPOSED IN UNFINISHED AREAS AT CEILING OF JOIST LEVEL. RUN CONCEALED IN BLOCK WALLS THE EXTENT THAT IS PRACTICAL.

- 4. EMT CONNECTORS AND COUPLERS SHALL BE RAIN TIGHT COMPRESSION TYPE (OR SET-SCREW WHERE ACCEPTABLE TO OWNER AND LOCAL CODES) MADE OF STEEL AS MANUFACTURED BY THOMAS & BETTS, STEEL CITY OF APPLINGTON. BENDS AND OFFSETS SHALL BE MADE WITH A HICKEY OR POWER BENDER WITHOUT KINKING OR DESTROYING THE SMOOTH BORE OF THE CONDUIT. PARALLELED CONDUITS SHALL RUN STRAIGHT AND TRUE WITH OFFSETS UNIFORM AND SYMMETRICAL. CONDUIT TERMINALS AT BOXES AND CABINETS SHALL BE RIGIDLY SECURED WITH LOCKWAS AND BUSHINGS AS REQUIRED BY THE NATIONAL ELECTRICAL CODE. INSULATED BUSHINGS SHALL BE USED ON ALL CONDUIT 1-1/4" TRADE SIZE AND LARGER.

- 5. CONDUIT SHALL BE SECURELY FASTENED IN PLACE AT NO MORE THAN 10 FT. CENTERS, AND HANGER, SUPPORTS, OR FASTENINGS SHALL BE PROVIDED AT EACH CONDUIT BOW AND AT THE END OF EACH STRAIGHT RUN TERMINATING AT A BOX OR CABINET. CONDUIT SHALL NOT BE SUSPENDED FROM THE CEILING OR CEILING SUSPENSION WIRES.

- 6. HORIZONTAL AND VERTICAL CONDUIT RUNS SHALL BE SUPPORTED BY ONE-HOLE MALLEABLE STRIPS OR THEIR APPROVED METAL DEVICE WITH SUITABLE BOLTS, OR BEAM CLAMPS FOR MOUNTING TO BUILDING STRUCTURE OR SPECIAL BRACKETS. CONDUIT SHALL BE SUPPORTED FROM STRUCTURAL STEEL OR JOIST AND INDEPENDENT OF OTHER PIPING. DO NOT SUPPORT CONDUIT FROM METAL ROOF DECK, OR ANY OTHER SUPPORT DEVICE OF ANOTHER TRADE.

- 7. NON-METALLIC SHEATHED CABLE (ROMEX) OR AC CABLE SHALL NOT BE USED IN TYPE MC CABLE MAY BE USED ONLY WHEN CONCEALED IN FINISHED WALLS OR ABOVE CEILING AND WHEN NOT SUBJECT TO PHYSICAL DAMAGE UNLESS ITS USE IS NOT APPROVED ABBEY OWNER OR LOCAL CODES.

- 8. ONLY SHORT RUNS OF FLEXIBLE METAL CONDUIT NOT OVER 30" IN LENGTH SHALL BE USED FOR TERMINAL CONNECTIONS TO MOTORS AND OTHER VIBRATING EQUIPMENT, AND ALSO FOR ELECTRICAL EQUIPMENT WHERE IT IS NOT PRACTICAL TO MAKE FINAL CONNECTION WITH RIGID CONDUIT. FLEXIBLE CONDUIT EXPOSED TO WEATHER SHALL BE "SEALITE" OR EQUAL.

- 9. CONDUIT SYSTEM SHALL CONFORM TO ALL THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND LOCAL CODES.

M. GROUNDING

- 1. THIS CONTRACTOR SHALL PROVIDE, INSTALL AND CONNECT A COMPLETE SYSTEM OF GROUNDING FOR ALL EQUIPMENT AND STRUCTURES A GOOD MECHANICAL AND ELECTRICAL CONNECTION SHALL BE MADE WITH APPROVED GROUNDING CONNECTORS.

- 2. ELECTRICAL SYSTEM AND EQUIPMENT GROUNDS SHALL COMPLY WITH ALL LOCAL, STATE AND NEC CODES AND REGULATIONS.

- 3. PANELS, CONDUIT SYSTEMS MOTOR FRAMES, LIGHTING FIXTURES AND OTHER EQUIPMENT THAT ARE PART OF THIS INSTALLATION SHALL BE SECURELY GROUNDED MECHANICALLY AND ELECTRICALLY IN ACCORDANCE WITH ALL CODES.

- 4. MAIN GROUNDING SYSTEM (WHEN APPLICABLE) SHALL BE SIZED TO CONFORM WITH TABLE 250-95 OF NATIONAL ELECTRIC CODE. PROVED CONDUIT TO PROTECT GROUND WIRE FROM DAMAGE TO ANY AREA 6 FEET ABOVE FLOOR.

- 5. DISTRIBUTION PANELS SHALL BE SQUARE TYPE "LINE" APPROVED EQUAL G.E., SIEMENS, OR CUTLER HAMMER.

- 6. 480/277V PANELS SHALL BE SQUARE "D" CO. TYPE "NODD" OR APPROVED EQUAL BY G.E., SIEMENS, OR CUTLER HAMMER. BREAKERS SHALL BE BOLTED TO BUS TYPE BREAK-BREAKERS. ALL BREAKERS SHALL BE INTERCHANGING ONE, TWO OR THREE POLE UNITS. MULTIPLE BREAKERS SHALL BE COMMON TRIP. SPARE BREAKERS IN EACH PANEL SHALL BE SHOWN. ALL BUSSES SHALL BE OF THE MINIMUM GAUGE COPPER, ALUMINUM OR ALUMINUM CONDUCTORS OF THE MINIMUM GAUGE ARE NOT ACCEPTABLE.

- 7. 208V PANELS SHALL BE "D" CO. TYPE "NODD" OR APPROVED EQUAL BY G.E., SIEMENS, OR CUTLER HAMMER WITH TYPE "QOB" BOLT-ON BRANCH BREAKERS.

- 8. SHORT CIRCUIT RATING OF NEW PANELS SHALL BE AS NOTED ON DRAWINGS, OR AS OTHERWISE SPECIFIED BY LOCAL UTILITY COMPANY. UL TESTED AND CERTIFIED SHORT CIRCUIT RATING ARE ACCEPTABLE WITH WRITTEN DOCUMENTATION SHOWING SEVERAL RATINGS BUT ONLY IF ACCEPTABLE TO OWNER OR LOCAL CODES.

- 9. METAL FRAMED CARDHOLDERS WITH TYPEWRITTEN CIRCUIT DIRECTORY MUST BE PROVIDED FOR EACH PANEL. DIRECTORY SHALL BE CLEAR AND DESIGNATION SHALL MATCH IDENTIFICATION ON EQUIPMENT. PANELBOARDS (POWER PANELS AND LIGHTING PANELS) SHALL BE WITH IDENTIFICATION LABELS ON SWITCH AND/OR PANEL DOOR. PROVIDE ENGRAVED LAMINATED PHENOLIC NAMEPLATE WITH 1/2" LETTERS.

- 10. ALL PANELS SAFETY SWITCHES, STARTERS AND IN GENERAL, ALL EQUIPMENT REQUIRING LUGS SHALL BE EQUIPPED WITH SOLDERLESS TYPE UL APPROVED LUGS.

- 11. PROVIDE ALL NECESSARY UNISTRUT, CHANNEL, BACKING AND SUPPORTS TO MOUNT PANELBOARDS SECURELY TO THE FOLLOWING EQUIPMENT:

- A. EMERGENCY, EXIT, SECURITY AND NIGHT LIGHTS.
- B. HEATING AND COOLING CONTROL CIRCUITS.
- C. ALL TIME SWITCHES.

P. TOGGLE SWITCHES AND RECEPTACLES

- 1. SINGLE POLE 1221 AND THREE(S) WAY #1223- SWITCHES SHALL BE RATED 20 AMPERE, 277/120 VOLTS. COLOR TO BE BID AS WHITE (FINAL SELECTION BY ARCHITECT) HUBBELL OR EQUAL. SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR TO CENTERLINE.

- 2. DUPLEX RECEPTACLES SHALL BE AS SPECIFIED ON DRAWINGS.

Q. DISCONNECT SWITCHES

- 1. AN APPROVED HORSEPOWER RATED, HEAVY DUTY, DISCONNECT SWITCH SHALL BE PROVIDED WITHIN SIGHT OF EACH MOTOR AND EACH HEATING UNIT. PROVIDE FUSED SWITCHES WHERE BRANCH CIRCUIT FUSES ARE NOT SIZED FOR OVERLOAD PROTECTION.

- 2. SWITCHES ON THE ROOF SHALL BE WEATHERPROOF MOUNTED ON UNISTRUT.

- 3. SWITCHES SHALL BE LABELED ON THEIR COVER IDENTIFYING THE EQUIPMENT TO BE PROTECTED.

R. MOTORS AND WIRING

- 1. FURNISH AND INSTALL DISCONNECT SWITCHES (EXCEPT WHERE SPECIFICALLY SPECIFIED BY OTHERS) AND RUN POWER CIRCUITS FROM THE POWER PANEL THROUGH DISCONNECT SWITCHES & CONTROL DEVICES TO MOTOR TERMINALS.

- 2. PROVIDE ALL STARTERS, CONTROLS AND PUSH BUTTON STATIONS ETC. NOT SUPPLIED BY MECHANICAL OR OTHER CONTRACTORS REQUIRED FOR THE PROPER AND INTENDED OPERATION OF MOTORS AND OR MOTORIZED EQUIPMENT SUPPLIED BY OTHERS.

- A. THE ABOVE ELECTRICAL EQUIPMENT SHALL BE MOUNTED SECURELY TO WALL OR FRAMES AND THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL NECESSARY BRACKETS, STRUCTURAL PIECES, EXPANSION BOLTS AND OTHER ACCESSORIES REQUIRED.

- B. WOODEN PLUGS SHALL NOT BE PERMITTED FOR ANCHORING.

- C. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER LUBRICATION OF ALL MOTORS.

- 3. REFER ALSO TO MECHANICAL SPECIFICATIONS FOR WORK BY MECHANICAL CONTRACTOR WHICH MAY RESULT IN ADDITIONAL WORK FOR THIS ELECTRICAL CONTRACTOR.

- 4. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WRING AN CONNECTIONS TO ALL HVAC EQUIPMENT.

- 5. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING AND CONNECTIONS TO ALL HVAC EQUIPMENT NOT PROVIDED BY OTHERS.

- 6. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONTROL EQUIPMENT (STARTERS, CONTRACTORS ETC.) NOT SUPPLIED BY HVAC CONTRACTOR BUT REQUIRED FOR THE INTENDED OPERATION OF HVAC EQUIPMENT

- 7. THE ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECT SWITCHES FOR ALL HVAC EQUIPMENT NOT SUPPLIED BY OTHERS.

- 8. REFER TO MECHANICAL SPECIFICATION AND DRAWINGS FOR ADDITIONAL ELECTRICAL WORK AND COORDINATION.

S. FUSES

- 1. REPLACE ALL FUSES BLOWN DURING CONSTRUCTION AND TESTING AND PROVIDE A COMPLETE SET OF FUSES IN ALL FUSE HOLDERS, SWITCHES, PANELS AND ALL OTHER DEVICES REQUIRING FUSES.

- 2. FUSES SHALL BE CURRENT LIMITING, DUAL ELEMENT TIME DELAY TYPE PROVIDE OWNER WITH ONE SET OF SPARE FUSES FOR EACH FUSED SWITCH.

T. GUARANTEE

- 1. IN ADDITION TO WARRANTIES OF EQUIPMENT BY MANUFACTURERS, THE SAME, THIS CONTRACTOR SHALL ALSO GUARANTEE EQUIPMENT PROVIDED BY HIM AND SHALL BE HELD FOR A PERIOD OF ONE (1) YEAR TO MAKE GOOD ANY DEFECTS IN MATERIAL OR WORKMANSHIP OCCURRING DURING THIS PERIOD, AT HIS SOLE EXPENSE. THE ONE (1) YEAR PERIOD SHALL START FROM DATE OF FINAL ACCEPTANCE BY OWNER.

U. FIELD DRAWING

- 1. KEEP ONE (1) SET OF WORKING DRAWINGS AND SHOP DRAWINGS AT THE JOB SITE FOR SOLE PURPOSE OF RECORDING ANY CHANGES MADE DURING CONSTRUCTION. AFTER COMPLETION OF THE WORK, BEFORE PROCEEDING WITH FINAL PAYMENT, THE ABOVE MENTIONED DRAWINGS SHALL BE DELIVERED TO THE OWNER.

- 2. WHENEVER ANY OTHER MATERIALS ARE SPECIFIED, IT IS WITH THE UNDERSTANDING THAT ANY ONE OF THE MATERIALS IS ACCEPTABLE TO THE OWNER. MATERIALS AND EQUIPMENT OTHER THAN THOSE SPECIFIED ARE NOT TO BE ASSUMED TO BE SATISFACTORY SUBSTITUTES WITHOUT PRIOR APPROVAL OF THE OWNER.

V. SHOP DRAWINGS

- 1. ONLY MANDATORY SHOP DRAWINGS AS LIMITED OUTLINE HEREIN SHALL BE SUBMITTED.

- 2. NO WORK SHALL BE INSTALLED UNTIL THE MANDATORY SHOP DRAWINGS HAVE BEEN APPROVED BY THE ARCHITECT/ENGINEER. THE ARCHITECT/ENGINEER SHALL REVIEW SUBJECT SHOP DRAWINGS BEFORE A COPY IS SUBMITTED TO THE OWNER FOR RECORD PURPOSES.

- 3. ONLY MATERIAL AND EQUIPMENT MANUFACTURERS OF PRODUCTS OR SYSTEMS LISTED BELOW SHALL FURNISH MANDATORY SHOP DRAWINGS FOR APPROVAL BY THE ARCHITECT/ENGINEER PRIOR TO CONTRACTORS PURCHASING EQUIPMENT. SHOP DRAWINGS ARE TO CONTAIN THE FOLLOWING:

- MANUFACTURER'S NAME, MATERIAL DESCRIPTION, SIZES AND DIMENSIONS AND OTHER PERTINENT INFORMATION TO CONFORM AS MINIMUM STANDARD FOR EQUIPMENT LISTED IN THE SCHEDULES ON THE DRAWINGS AND OR IN THE SPECIFICATIONS.

- 4. SUBMIT A COPY OF SEVEN (7) COPIES OF ALL REQUIRED ELECTRICAL SHOP DRAWINGS.

- 5. THE FOLLOWING SHOP DRAWING SUBMITTALS ARE A MANDATORY REQUIREMENT OF THE OWNER, IF THE FOLLOWING EQUIPMENT IS TO BE INSTALLED:

- * STEP DOWN TRANSFORMERS (480-120/208V) WHEN APPLICABLE
- * WIRING DEVICES (INCLUDING WEATHERPROOF RECEPTACLES)
- * LIGHTING FIXTURES & EMERGENCY LIGHTING FIXTURES
- * DISCONNECT SWITCHES
- * POWER/LIGHTING PANELS
- * MOTOR STARTERS
- * FIRE ALARM DEVICES

X. ALARM AND DETECTION SYSTEMS (BY VENDOR)

- 1. PROVIDE NECESSARY CONDUIT AND POWER FOR ALARM AND DETECTION SYSTEMS. THIS SHALL INCLUDE THE FOLLOWING:

- DEDICATED 20 AMP / 120 VOLT CIRCUIT (5).
- 3/4" CONDUIT (EMPTY) TO EACH TO DOOR CONTACT, SOUND DETECTION SILENT DURESS ALARM, FILM CAMERA, SUSPICION BUTTON, ETC. (REFER TO ARCHITECTURAL DOOR SCHEDULE)

- COORDINATE ALL LOCATIONS OF ALARM AND DETECTION SYSTEM WITH OWNER. THESE ITEMS ARE NOT SHOWN ON ELECTRICAL DRAWINGS.

Y. COMMUNICATION SYSTEMS

- 1. WORK INCLUDES: EMPTY CONDUIT WITH NYLON PULLWIRES AND BOXES FOR UTILITY TELEPHONE WIRING.

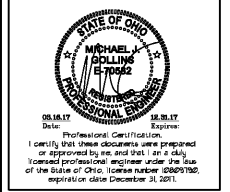
- 2. WORK BY COMMUNICATIONS CONTRACTOR:

- ALL WIRING FOR TELEPHONE INSTRUMENTS
- ALL TELEPHONE INSTRUMENTS

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Table with columns for Date Issue, Date, Revision, Name, and Project Name/Location.

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PROJECT NAME / LOCATION: COLONY SQUARE MALL, 3575 MAPLE AVENUE, ZANESVILLE, OH 43701

PROJECT INFORMATION: DATE: MARCH 22, 2017, PROJECT NO.: 170093, DELIVERY TYPE: V-BOX

DRAWN: CHECKED:

SHEET TITLE / NUMBER: ELECTRICAL SPECIFICATIONS

E4.0