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ELECTRICAL SYSTEM GROUNDING & BONDING

6HERADIZED AT LEAST & NOTED, BOXES SHALL BE STANDARD GALVANIZED OR SHERADIZED AT LEAST & NOHES DEEP OR AS NOTED IN PLANS, OF METAL AT LEAST 11/6 INCH THICK! SIZED TO ACCOMMODATE DEVICES AND CONDUCTORS AS PER NEC ARTICLE 310, COORDINATE DEPTH WITH WALL CONSTRUCTION. BOXES USED WITH EXPOSED CONDUIT SHALL BE 4-INCH SQUARE UTILITY BOXES. EXTERIOR BOXES SHALL BE GALVANIZED CAST-IRON WITH GASKETS AND APPROPRIATE FITTINGS, BOXES SHALL BE PROVIDED WITH APPROVED 3/8" FIXTURE STUDS WHERE REQUIRED, EXCEPT WHERE LOCATED IN CONCRETE BLOCK, SWITCH AND RECEPTACLE BOXES SHALL BE 4" SQUARE FOR SINGLE GANG INSTALLATION, APPROPRIATE GANG BOXES SHALL BE 4" SQUARE MOUNTING GANGED SWITCHES. **16. PUSES** * CLASS RX-1 TIME DELAY FUSE FOR PROTECTING CIRCUIT BREAKERS, BUSSMAN LIMITRON OR EQUAL. CLASS RX-5 TIME DELAY FUSE FOR PROTECTION OF MOTORS AND TRANSFORMERS, BUSSMAN FUSETRON OR EQUAL. 200X AIC AT RATED VOLTAGE.

18. WIRING DEVICESSUITCHES SHALL BE AC. TYPE AS MADE BY LEVITON. RECEPTACLES SHALL BE HUBBELL, BRYANT, P & S, G. SHALL BE SELECTED BY THATE FINISH SCHEDULE, PROVIDE MATE PURPOSE RECEPTACLES WHEN REQUIRED FOR CONNECTING EQUIREOPTACLES IN TOILETS, WITHIN 6 FT. OF SINKS, IN COMMERCI, EXTERIORS LOCATIONS SHALL BE GFI TYPE, EXTERIOR RECEPTACLES WEATHERPROOF AND GASKETED COVERS, ALL RECEPTACLES BE TAMPERPROOF. 3Y HUBBELL, P 4 5, G.E. OR
G.E. OR LEVITON. COLOR
TCHING PLUGS FOR SPECIAL
QUIPMENT, ALL
CIAL KITCHENS AND IN
PTACLES SHALL HAVE
IN GUEST ROOMS SHALL

WITH THERMAL MAGNETIC CASE CIRCUIT BREAKERS WITH FRAME AND TRIP RATINGS AS SHOWN ON THE SCHEDULE. CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, THERMAL MAGNETIC TRIPS INDICATING AND SHALL BE QUICK-MAKE, QUICK-BREAK, THERMAL MAGNETIC TRIPS INDICATING AND SHALL BE QUICK-MAKE, QUICK-BREAK, THERMAL MAGNETIC TRIPS INDICATING AND SHALL BE QUIT ON. TERMINALS FOR FEEDER CONDUCTORS TO THE PANELBOARD MAINS AND NEUTRAL SHALL BE ULLISTED AS SUITABLE FOR THE TYPE OF CONDUCTOR SPECIFIED, TERMINALS FOR BRANCH CIRCUIT WIRING, BOTH BREAKER AND NEUTRAL, SHALL BE ULLISTED AS SUITABLE FOR THE CONDUCTOR SPECIFIED. PANELBOARDS NOT SHOWN TO BE RATED FOR SERVICE ENTRANCE SHALL BE EQUIPPED WITH AN ISOLATED NEUTRAL AND A GROWNDING BUSS. THE PANELBOARD FRONT SHALL BE OF HINGED FRONT TYPE WITH DOORS EQUIPPED WITH FRONT OF THE DOOR PULLS. THE FLUSH LOCKS SHALL NOT PROTRUDE BEYOND THE FRONT OF THE DOOR PULLS. THE FLUSH LOCKS SHALL BE KEYED ALIKE. A CIRCUIT DIRECTORY FRAME AND CARD WITH CLEAR PLASTIC COVERING SHALL BE PROVIDED ON THE NSIDE OF THE DOOR PANELBOARDS SHALL BE RATED FOR USE AS SERVICE BUTRANCE EQUIPPENT WHERE REQUIRED BY NEC. FOR ALL FLUSH INSTALLED FANELBOARDS SHALL BE BY GENERAL ELECTRIC, SQUARE D, OR CULTER-HAMTER. LOAD CENTERS SHALL NOT BE USED UNLESS INDICATED ON PLANS.

3. INTERPERENCE: IN THE EVENT THAT INTERPERENCES OR CONFLICTS DEVELOP, THE ARCHITECT SHALL DECIDE WHICH EQUIPMENT SHALL BE RELOCATED AT NO COST TO OWNER REGARDLESS OF WHICH WAS FIRST INSTALLED.

4. CUITING AND PATCHING PROVIDE CUTTING AND PATCHING, UNDER THE SUPERVISION OF THE GENERAL CONTRACTOR, AS REQUIRED FOR ELECTRICAL WORK, COORDINATE WITH OTHER TRADES AS WORK PROGRESSES SO CUTTING AND PATCHING WILL NOT BE REQUIRED OR BE MINIMAL.

5. SUBMITIALS; WITHIN TWENTY (20) DAYS AFTER AWARD OF CONTRACT, SUBMIT SIX (6) COPIES OF MANUFACTURER'S DRAWINGS TO THE ARCHITECT FOR REVIEW OF THE FOLLOWING ITEMS; PANELBOARDS, LIGHT FIXTURES, DISCONNECT SWITCHES, FIRE ALARM SYSTEM (COMPLETE WITH PLAN SHOWING WIRING/CONDUIT).

, IESTING, UPON COMPLETION OF THE WORK, CONDUCT A THOROUGH TEST IN THE RCHITECT'S PRESENCE, AND SHOW THE ENTIRE SYSTEM TO BE IN PERFECT WORKING ONDITION.

GUARANTEE; GUARANTEE THAT ALL WORK EXECUTED UNDER THESE SPECIFICATIONS ID PLANS WILL BE FREE FROM DEFECTS OF WORKMANSHIP AND MATERIALS FOR A ERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THIS WORK.
ROMPTLY REPAIR, REPLACE, OR OTHERWISE MAKE GOOD, UPON NOTIFICATION, ANY EFECT BECOMING APPARENT DURING THIS PERIOD, AT NO COST TO THE OWNER.

2. COORDINATION.COORDINATE WORK SO AS TO CONFORM TO THE PROGRESS OF THE WORK OF THE OTHER TRADES, AND COMPLETE THE ENTIRE INSTALLATION AS SOON AS THE CONDITION OF THE BUILDING PERMITS. SOME SAFETY DISCONNECT SWITCHES MAY BE PROVIDED BY THE MECHANICAL CONTRACTOR BUT INSTALLED AND CONNECTED BY THE ELECTRICAL CONTRACTOR. THE WORK SHALL BE COORDINATED BY THE ELECTRICAL CONTRACTOR.

20, SAFETY SUITCHES/DISCONNECTS, SAFETY SUITCHES AND DISCONNECT SUITCHES
SHALL BE TYPE HD BY CUTLER HAMMER, SQUARE "D" OR GENERAL ELECTRIC, LOCATE
DISCONNECTS ADJACENT TO EQUIPMENT ON SUITABLE STRUCTURE. A DISCONNECT
SHALL NOT BE REQUIRED OTHER THAN THE CB WHICH PROVIDES POWER TO EQUIPMENT
WHEN THE EQUIPMENT IS WITHIN SIGHT AND NOT GREATER THAN 50 FEET FROM CB,
VERIFY DISCONNECT SIZE FROM EQUIPMENT NAMEPLATE DATA, MOUNT DISCONNECTS
FOR OUTSIDE HVAC UNITS NO HIGHER THAN HEIGHT OF UNIT, PROVIDE CLEARANCES AS
REQUIRED BY NEC 11026.

23, <u>OUTLET BOX MOUNTING HEIGHTS</u>UNLESS OTHERWISE NOTES, (GENERAL): 48" AFF, RECEPTACLES: 18" AFF, TELEPHONE WALL THERMOSTATS: 48" AFF, 22. COLOR CODING OF CONDUCTORSCOLOR CODE CONDUCTORS IN ACCORDANCE WITH THE NEC AND WITH STANDARD AND ACCEPTED TRADE PRACTICES. 21. GROUNDING: ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH LOCAL REGULATIONS AND NATIONAL ELECTRICAL CODE, INSTALL A GREEN EQUIPMENT GROUNDING CONDUCTOR IN ALL RACEWAYS. WALL SWITCHES
OUTLETS: 48" AFF

24. QUILETS AND CONDUIT FOR OTHER TRADESPROVIDE CONCEALED 4" SQUARE (OR SMALLER WHEN REQUIRED) OUTLET BOXES WITH EMPTY PLUMBING CONTRACTORS, COORDINATE REQUIREMENTS WITH EACH CONTRACTOR, WHETHER SHOWN ON PLANS OR NOT, PROVIDE A WP, GFI RECEPTACLE LOCATED WITHIN 25" OF ALL EXTERIOR HYAC EQUIPMENT. 25, YERREY:THE WORD "YERREY" WHEN USED IN PLANS SHALL MEAN TO YERREY LOCATION AND WIRING REQUIREMENTS BEFORE CIRCUITING AND CIRCUIT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND IN COMPLIANCE WITH NEC.

WERFY THAT THE LOCATION, ARRANGEMENT, VOLTAGE, PHASE AND CONTRACTOR TO VERFY THAT THE LOCATION, ARRANGEMENT, VOLTAGE, PHASE AND CONNECTIONS TO UTILITY SERVICE, AS WELL AS THE REQUIRED METERING EQUIPMENT, ARE COORDINATED WITH AND IN ACCORDANCE WITH REQUIREMENTS OF THE LOCAL POWER COMPANY, IF THE REQUIREMENTS ARE AT VARIANCE WITH THESE DRAWINGS OR SPECIFICATIONS, THE CONTRACT PRICE SHALL INCLUDE ANY ADDITIONAL COST NECESSARY TO MEET THOSE REQUIREMENTS WITHOUT EXTRA COST TO THE OWNER AFTER THE CONTRACT IS ENTERED INTO, NOTIFY ARCHITECT OF ANY CHANGES REQUIRED BEFORE PROCEEDING WITH WORK, ANY CHARGES BY THE UTILITY COMPANY FOR THE ELECTRICAL SERVICE TO THE FACILITY SHALL BE INCLUDED IN THE BID PRICE.

26, <u>Not used</u>; not used - deleted

<u>SITE YSIT</u>BEFORE SUBMITTING A BID, VISIT THE SITE AND VERIFY ALL EXISTING ONDITIONS, MAKE SUCH ADJUSTMENTS TO WORK AS REQUIRED BY THE ACTUAL ONDITIONS ENCOUNTERED.

30. UNDERGROUND INSTALLATIONS WHERE CONDUIT IN INSTALLED BELOW GRADE, THE MINIMUM BURIAL DEPTH SHALL BE 24" UNLESS INSTALLED UNDER BUILDING SLAB (WHERE THERE IS NO MINIMUM BURIAL DEPTH). WHERE RIGID CONDUIT IS INSTALLED BELOW GRADE, COAT CONDUIT AND COUPLINGS WITH (2) COATS OF ASPHALTUM PAINT. UNDERGROUND PRIMARY CONDUIT INSTALLED IN COORDINATION WITH POWER COMPANY SHALL BE INSTALLED AT DEPTH AS DIRECTED BY POWER COMPANY. AVOID ALL EXISTING UTILITIES, ANY EXISTING UTILITIES DAMAGED SHALL BE REPAIRED AT CONTRACTORS EXPENSE AND AS DIRECTED BY ARCHITECT, RESTORE ANY DAMAGE PAVING TO MATCH EXISTING. 29. EXTERIOR ENCLOSURESALL EXTERIORS ENCLOSURES OR EMOIST CONDITIONS SHALL BE RATED NEMA 3R OR RATED FOR CONDITIONS AS EACH CASE REQUIRES. **28, NEC**2 "NEC" REFERS TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE WHICH HAS BEEN ADOPTED INTO LOCAL BUILDING CODE BY AGENCIES AND AUTHORIZES HAYING JURISDICTION. 21. DATA, CABLE TV. TELEPHONE FOR CABLE TV OUTLETS, DATA OUTLETS AND TELEPHONE OUTLETS THE WIRING, JACKS, AND FACEPLATES WILL BE PROVIDED BY OTHERS UNLESS OTHERWISE NOTED, MOUNT INDIVIDUAL DATA OUTLETS, TELEPHONE OUTLETS AND CABLE TV OUTLETS AT EXACTLY THE SAME HEIGHT AS RECEPTACLES UNLESS NOTED OTHERWISE, NCLOSURES EXPOSED TO

32, <u>CLEANING UP</u>DURING THE PROGRESS OF WORK, KEEP THE OWNER'S PREMISE IN A NEAT AND ORDERLY CONDITION, FREE FROM ACCUMULATION OF DEBRIS RESULTING FROM THIS WORK, AT THE COMPLETION OF THE WORK, REMOVE ALL MATERIAL, SCRAP, ETC. NOTA PART OF THIS CONTRACT. 33. OPERATING 4 MAINTENANCE INSTRUCTIONS TURN OVER TO THOSE ALL EQUIPMENT CATALOGS AND MAINTENANCE DATA, EXPLINE ELECTRICAL SYSTEMS TO OWNER AND/OR OWNER'S REPRE HE ARCHITECT ONE SET AIN AND DEMONSTRATE SENTATIVE. EPLATES PERMANENTLY FRONT OF ALL DISCONNECT

THE EXACT TYPE CEILING, TYPE FIXTURE MOUNTING AND TRIM, AND RECESSING DEPTH OF ALL RECESSED FIXTURES PRIOR TO PURCHASING ANY FIXTURES, REGARDLESS OF PART NUMBERS IDENTIFIED ON THE LIGHT FIXTURE SCHEDULE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE PROPER OPERATING VOLTAGE OF LIGHT FIXTURES ACCORDING TO THE PLANS PRIOR TO PURCHASING ANY FIXTURES, EQUIVALENT FIXTURES SUBSTITUTES BY LITHONIA, COOPER LIGHTING, AND HUBBELL WILL BE ACCEPTED, PROVIDE LAMPS FOR ALL FIXTURES, LAMPS SHALL BY MANUFACTURED BY GE, OSRAM-SYLVANIA, OR PHILLIPS, FLUORESCENT BALLASTS SHALL BY MANUFACTURED BY GE, OSRAM-SYLVANIA, OR PHILLIPS, FLUORESCENT BALLASTS SHALL BE HIGH FREQUENCY ELECTRONIC TYPE BY MARRANTY, BF SHALL BE GREATER THAN 33, HID LAMP SHALL BE LESS THAN 20%, OF GREATER THAN 33, HID LAMP BALLASTS SHALL BE HIGH FROVIDE ALL MOVER A 5 YEAR 11A OR GREATER) TYPE, HID LAMPS SHALL BE CERAMIC TYPE, PROVIDE AND WALLWASHERS ON CEILING TILE.

4. CONDUIT: ALL WIRING SHALL BE IN RACEWAYS, MINIMUM 12" DIAMETER, USE ENT FOR GENERAL INTERIOR WORK RIGID GALVANIZED STEEL OR INTERMEDIATE METAL CONDUIT SHALL BE USED IN FLOOR SLABS, WHERE EMBEDDED IN CONCRETE, AREAS EXPOSED TO MOISTURE, AREAS IN DANGER OF MECHANICAL INJURY AND HAZARDOUS AREAS, PYC SCHEDULE 40 (3/4" MINIMUM DIAMETER) SHALL BE USED BELOW GRADE WITH STEEL TRANSITIONS THRU SLABS, USE FLEXIBLE METAL CONDUIT CONNECTIONS TO MOTORS, TRANSFORMERS AND OTHER VIBRATING EQUIPMENT. EXTERIOR FLEW SHALL BE LIQUIDTIGHT. EMT CONDUIT FITTINGS SHALL BE SET-SCREW TYPE, ALL EXPOSED CONDUIT SHALL BE PAINTED TO MATCH SURFACE UPON WHICH IT IS INSTALLED, INTERIOR WIRING AS SHOWN ON PLANS WILL TYPICALLY BE CONCEALED IN CEILINGS WALLS OR FLOORS EXCEPT IN MECHANICAL / ELECTRICAL ROOMS, JANITOR CLOSETS, UNFINISHED ROOMS AND OTHER SUCH ROOM WHERE CONDUITS ARE TYPICALLY EXPOSED, WHERE NO RACEWAY SIZES OR WIRE SIZES ARE SHOWN ON PLAN PROVIDE AND INSTALL AS

TYPE "XHUW" COPPER SHALL BE USED EXTERIOR OR UNDERGROUND, CONDUCTORS #Ø AND #12 SHALL BE SOLID, LARGER SIZES SHALL BE STRANDED, CONTROL AND SIGNAL WIRE SHALL BE TYPE "TH" COPPER, MINIMUM SIZE #6. JOINTS AND SPLICES IN WIRE SHALL BE MADE WITH SOLDERLESS CONNECTORS, AND COVERED SO THAT INSULATION IS EQUAL TO CONDUCTOR INSULATION. WIRE NUTS SHALL NOT BE USED FOR CONDUCTORS & AND CONDUIT SHALL BE FULLED INTO CONDUIT, BOTH CONNECTORS AND CONDUIT SHALL BE CONTINUOUS FROM OUTLET TO OUTLET, ALL CONDUITS SHALL HAVE BUSHING WITH SMOOTH BEVELED THROATS INSTALLED AT BOTH ENDS PRIOR TO INSTALLING CONDUCTORS. CIRCUITS MAY BE COMBINED IF CONDUIT SIZES ARE ADJUSTED WHERE NECESSARY AND NEC DERATING FACTORS ARE OBSERVED, BRANCH CIRCUIT WIRE GAUGES SHALL BE INCREASED AS REQUIRED FOR A MAXIMUM OF 3% VOLTAGE DROP, TYPE MC CABLE MAY BE USED AS PERMITTED BY ARTICLE 330 OF NEC.

GROUND ROD - UNDERGROUND WATER PIPE SIZE PER N.E.C. MAIN SERVICE EQUIPMENT ¥ _NEUTRAL 3. EQUIPMENT GROUNDING CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS MAY BE A COPPER OR CORROSION RESISTANT CONDUCTOR, RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT, ELECTRICAL METALLIC TUBING, OR THE METALLIC SHEATH OR COMBINED METALLIC SHEATH AND GROUNDING CONDUCTORS OF TYPE MC CABLE, 4. WHERE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IT SHALL BE SIZED IN ACCORDANCE WITHE ARTICLE 250-122 OF THE N.E.C. AND THE FOLLOWING TABLE: 2. THE MAIN BONDING JUMPER AT THE MAIN SERVICE EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH ARTICLE 250-102 OF THE N.E.C. AND AS SHOWN ON THE ADJACENT SKETCH, I, THE GROUNDING ELECTRODE CONDUCTOR AT THE MAIN SERVICE EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH ARTICLE 250-50 OF THE N.E.C. AND AS SHOWN ON THE ADJACENT SKETCH.

Richard

Molenaar

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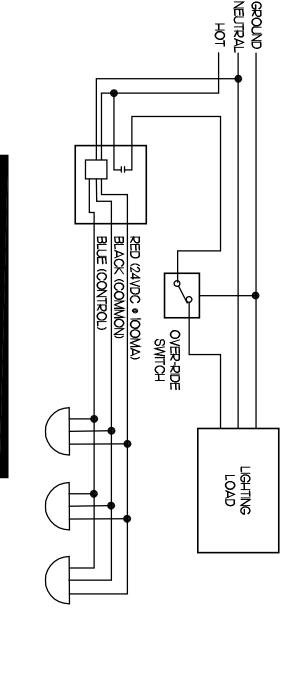
I T E C

BONDING JUMPER SIZE PER NEC,

WINCH SCHOOL STEELS STE

5. GROUND SERVICE TO WATER PIPE, GROUND ROD, AND CONCRETE ENCASED ELECTRODE WITH ARTICLE 250 OF THE N.E.C.

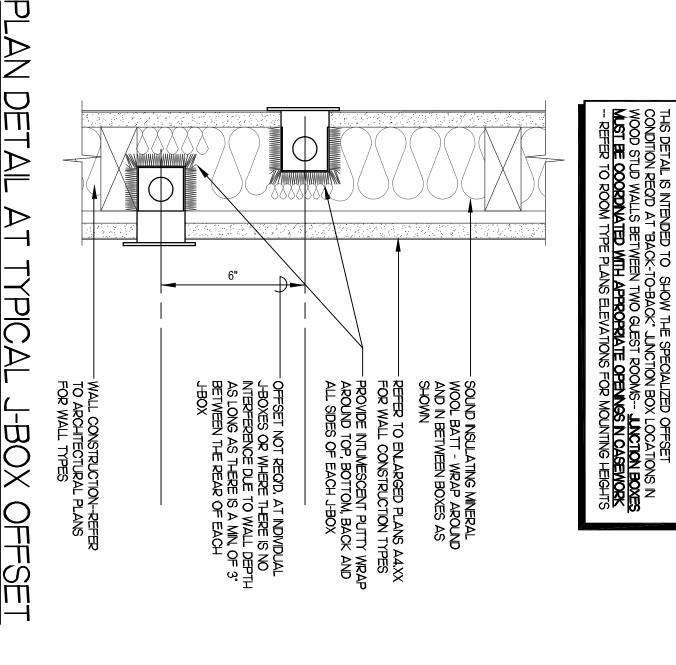
ECTRICAL SYSTEM GROUNDING NOT TO SCALE AND BONDING

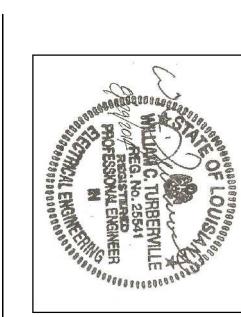


TYPICAL OCCUPANCY SENSOR WIRING DIAGRAM
SCHEMATIC - NO SCALE

WIRE IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN RECCOMMENDATIONS, FOR SITUATION WITH DIFFERENT TYPES OF CIRCUITING, SEE LIST OF ADDITIONAL WIRING DIAGRAMS AT:

www.hubbellautomation.com/tools.html#Wiring_Diagrams







ELECTRICAL DETAILS & SPECIFICATIONS W Mane Street West Monroe, Lousiana

CHECKED BY: LATEST REVISION: LRD N S

DRAWN BY: SMJ

PROJ#

E404

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NO SCALE