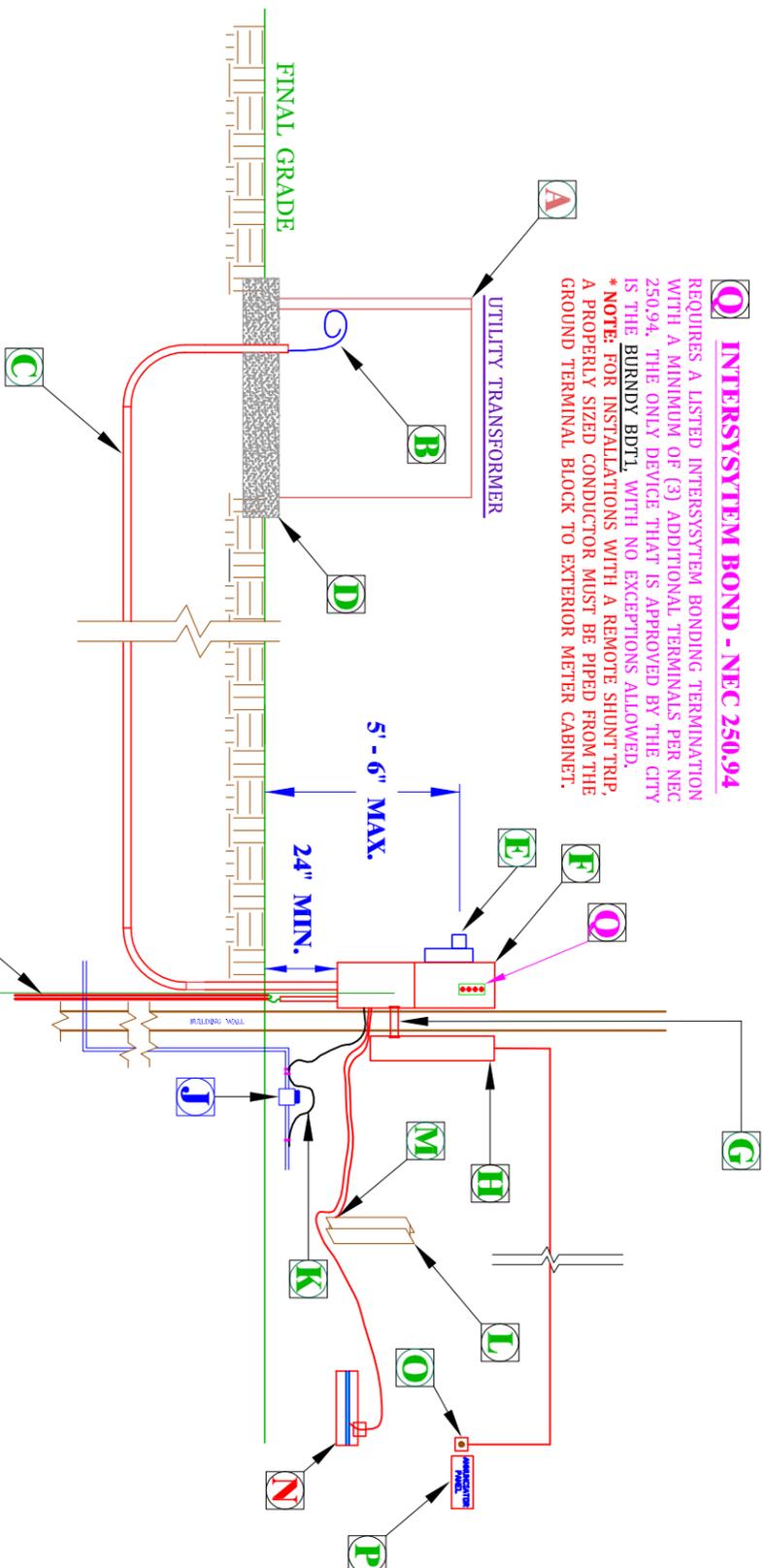
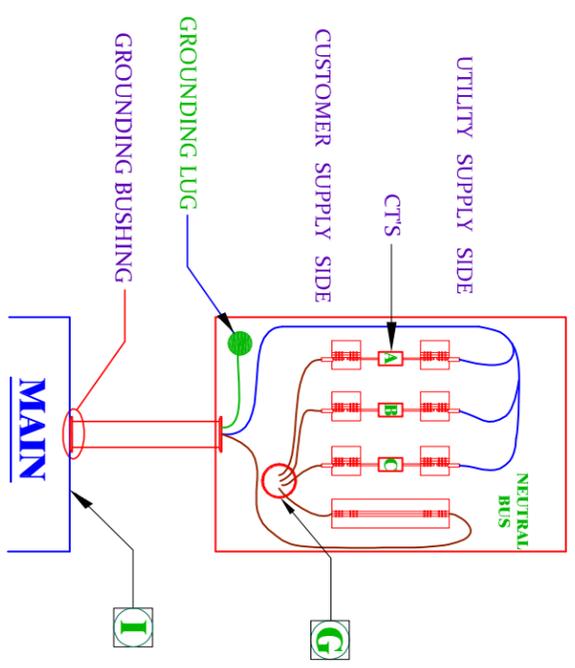


INTERSYSTEM BOND - NEC 250.94
 REQUIRES A LISTED INTERSYSTEM BONDING TERMINATION WITH A MINIMUM OF (3) ADDITIONAL TERMINALS PER NEC 250.94. THE ONLY DEVICE THAT IS APPROVED BY THE CITY IS THE **BURNNDY BDT1**, WITH NO EXCEPTIONS ALLOWED.
 * NOTE: FOR INSTALLATIONS WITH A REMOTE SHUNT TRIP, A PROPERLY SIZED CONDUCTOR MUST BE PIPED FROM THE GROUND TERMINAL BLOCK TO EXTERIOR METER CABINET.



CURRENT TRANSFORMER "CT" CABINET DETAIL



UFER GROUND - NEC 250.52(3)
 THIS IS REQUIRED ON ALL NEW OR UPGRADED SERVICE INSTALLATIONS THE UFER GROUND CONSISTS OF #4 AWG COPPER CONNECTED TO: 20 FT. OF MIN. 1/2" DIAMETER REBAR USING A LISTED CONNECTOR OR

#4 AWG COPPER RUN TO FOOTING DEPTH THEN CONTINUOUS AS 20 FT. OF #4 AWG COPPER WIRE RUN HORIZONTALLY IN THE CONCRETE FOOTING. THE UFER GROUND SHALL BE COVERED BY A 2" MIN. OF CONCRETE ON ALL SIDES. THE UFER GROUND WIRE IS NOT REQUIRED TO BE INSTALLED IN CONDUIT UNLESS IT IS EXPOSED ABOVE GRADE. THE UFER CONNECTS AT THE FIRST POINT OF DISCONNECT.

GROUND WIRE TO BE CONTINUOUS FROM GROUNDING ELECTRODE CONDUCTOR TO NEUTRAL BUS IN MAIN DISCONNECT (FIRST POINT OF DISCONNECT). THE GROUND WIRE IS NOT TO BE NEUTRAL BONDED AT THE CT CABINET UNLESS THE WATER PIPE, UFER AND BUILDING STEEL GROUNDS ARE ALSO GROUNDED AT THE CT LOCATION.
 * IF NO MAIN EXISTS AT THE CT CABINET, THE GROUND ROD SHOULD BE PIPED DIRECT TO THE MAIN DISCONNECT PANEL AND NOT PASS THROUGH THE CT CABINET. THIS REQUIRES A CT ENCLOSEURE SUPPLY SIDE BONDING JUMPER - BACK TO THE MAIN BONDING POINT, EITHER IN A FEEDER OR SEPARATE METALLIC CONDUIT WITH HUBS, AND RACEWAY AT THE MAIN SUPPLY SIDE HAS TO HAVE GROUND BUSHINGS WITH SUPPLY SIDE BONDING JUMPERS. BOTH ARE REQUIRED AS PER NEC 250.102(C)

NOTE:

FOR MULTI-TENANT BUILDINGS, ADDITIONAL REQUIREMENTS APPLY. PLEASE CONTACT THE ELECTRIC ENGINEERING OFFICE FOR INSTRUCTIONS/APPROVAL.

CHECKLIST AND LEGEND: REVISION DATE: 5/17/2016

- A** THREE PHASE PAD MOUNTED TRANSFORMER THAT IS PROVIDED BY ST. CHARLES MUNICIPAL ELECTRIC UTILITY.
- B** CONDUCTORS FOR SECONDARY CONNECTION TO CUSTOMER'S SERVICE ENTRANCE EQUIPMENT ARE TO BE SUPPLIED AND INSTALLED BY THE CUSTOMER'S ELECTRICAL CONTRACTOR. THE COLOR CODE SHALL BE: FOR 120/208V AND 120/240V BLACK, RED & BLUE, NEUTRAL AS WHITE (RED IS THE HIGH PHASE ON ALL THE 240V, 4 WIRE SERVICES) NOTE: ON 120/240V, 4 WIRE SERVICES INSTALL THE HIGH PHASE ON THE RIGHT SIDE AT THE METER SOCKET & CT CABINET AND IN CENTER AT THE MAIN PANELBOARD. 277/480V BROWN, ORANGE & YELLOW, NEUTRAL AS WHITE.
- C** SECONDARY CONDUCTORS ARE TO BE OF NUMBER & SIZE CONSISTENT WITH SECTION 310 OF THE 2014 NEC CODE INCLUDING DERATING OF CONDUCTORS TO ACCOUNT FOR SECONDARY DUCT CONFIGURATIONS OR FOR PRESENCE OF ANY HEAT SOURCES.
- D** ALL SERVICE, FEEDER, GROUND AND BRANCH CIRCUIT CONDUCTORS ARE REQUIRED TO BE MADE OF COPPER.
- E** THE CONTRACTOR SHALL PROVIDE SUFFICIENT SLACK IN THE CONDUCTOR TO PERMIT THE SCMEU CREW TO INSTALL THE CONDUCTORS ON ANY OF THE TRANSFORMER'S SECONDARY BUSINGS PLUS AN ADDITIONAL 6" OF SLACK CONDUCTOR. SCMEU WILL PROVIDE THE SECONDARY CONNECTORS AND THE LABOR INSTALLATION OF ALL THE SECONDARY CONNECTIONS AT THE TRANSFORMER, INCLUDING THE NEUTRAL CONDUCTOR. ON SERVICES LARGER THAN 800 AMPS, THE CONTRACTOR CAN PULL SECONDARY CONDUCTORS ONLY AFTER THE SCMEU CREWS HAVE INSTALLED THE TRANSFORMER. CONTRACTOR TO PULL THE SECONDARY CONDUCTORS TO THE TOP OF THE TRANSFORMER CABINET CUT AND TAPE THE ENDS.
- F** THE SECONDARY DUCT MUST BE CONCRETE ENCASED RGS OR PVC CONDUIT. THE DUCT MUST BE INSTALLED IN A MANNER CONSISTENT WITH SCMEU'S INSTALLATION REQUIREMENTS FOR PAD MOUNTED TRANSFORMERS. ALL OF THE CONDUIT THAT IS ABOVE GROUND IS TO BE INSTALLED AS RGS. ALL CONDUIT ELBOWS ARE REQUIRED TO HAVE A RADIUS OF 36". ANY RGS (STEEL) CONDUITS/ELBOWS MUST BE TERMINATED WITH GROUNDING BUSHINGS.
- G** THE CONCRETE REINFORCED TRANSFORMER PAD IS TO BE INSTALLED IN A MANNER CONSISTENT WITH THE ST. CHARLES SPECIFICATION THAT IS TITLED "INSTALLATION REQUIREMENTS FOR PAD MOUNTED TRANSFORMERS".
- H** FOR SERVICES UP TO 200 AMPS AND AT 240 VOLTS OR LESS, THE METER SOCKETS ARE TO BE AN ERICKSON TYPE SMP-SMCR-SU, OR AN APPROVED SCMEU EQUIVALENT, WHICH IS SUITABLE FOR SERVICE ENTRANCE EQUIPMENT. THE METER SOCKET SHALL BE INSTALLED ON THE OUTSIDE OF THE BUILDING SO THAT THE CENTER OF THE METER IS HIGHER THAN 4'-0" AND LESS THAN 5'-6" ABOVE THE FINAL GRADE.
- I** FOR THREE-PHASE SERVICES GREATER THAN 200 AMPS AND SINGLE-PHASE SERVICES GREATER THAN 400 AMPS, THE METER SOCKETS SHALL BE PART OF A UNITTED AND PRE-WIRED METER SOCKET/CURRENT (CT) AND POTENTIAL (PT) TRANSFORMER CABINET. CURRENT TRANSFORMER CABINET IS TO BE INSTALLED SO THAT THE CENTER OF METER ON SERVICE ENTRANCE EQUIPMENT SOCKET IS HIGHER THAN 4'-0" AND LESS THAN 6'-0" ABOVE THE FINAL GRADE. NOTE: SCMEU REQUIRES METER WIRING TO CONSIST OF #12 AWG FOR POTENTIALS AND #10 AWG FOR CURRENTS. THE CT CABINET SHOULD INCLUDE APPROVED TEST SWITCHES.
- J** EACH TENANT/PREMISE MUST HAVE A READILY ACCESSIBLE MAIN DISCONNECT WHICH IS INTERPRETTED AS A MAIN DISCONNECT INSIDE THE TENANT SPACE/PREMISE, UNLESS GIVEN EXCEPTION BY THE CITY OF ST. CHARLES ELECTRIC OR BUILDING AND CODE ENFORCEMENT DEPARTMENTS.
- K** THE CURRENT TRANSFORMER ("CT") CABINET FOR 3-PHASE SERVICES GREATER THAN 200 AMPS AND 1-PHASE SERVICES GREATER THAN 400 AMPS, THE CT CABINET IS TO BE AN ERICKSON TYPE CECT-93, OR SCMEU APPROVED EQUIVALENT. THE CT CABINET IS TO BE FINISHED AND INSTALLED BY THE CONTRACTOR WITH AN APPROVED 13-TERMINAL METER SOCKET WITH TEST SWITCHES & SHALL INCLUDE A PRE-WIRED HARNES. THE CABINET IS TO BE INSTALLED SO THAT THE CENTER OF THE METER AND METER COMBINATION IS HIGHER THAN 4'-0" AND LESS THAN 5'-6" ABOVE THE FINAL GRADE. THE BOTTOM OF THE CT CABINET MUST BE AT LEAST 24" ABOVE THE FINAL GRADE ALTHOUGH SOME EXCEPTIONS ARE ALLOWED UPON APPROVAL OF THE ST. CHARLES ELECTRIC & METER DEPARTMENTS. THE CONTRACTOR IS TO VERIFY WITH SCMEU THE PROPER BUS MOUNTING DIMENSIONS FOR THE CURRENT TRANSFORMERS. ON UNDERGROUND SERVICES 1200 AMPS OR GREATER, BOTTOM FEED CT'S MAY BE ALLOWED PENDING THE APPROVAL FROM THE CITY OF ST. CHARLES ELECTRIC DEPARTMENT. INDOOR CT CABINETS ARE ACCEPTABLE. HOWEVER, THE METER SHALL BE ON THE OUTSIDE OF THE BUILDING AND THE CONTROL WIRES SHALL BE INSTALLED IN A CONTINUOUS 1" MAXIMUM RGS PIPE (NO BOXES OR CONDUITS ARE ALLOWED) BETWEEN THE CT'S & THE REMOTE METER.
- L** THE CONDUIT SHALL BE RGS OR IMC, UNLESS A BREAKER IS INSTALLED ON THE SOURCE SIDE OF THIS CONDUIT. IF A BREAKER IS INSTALLED ON THE SOURCE SIDE, THEN THE CONDUIT MAY BE EMT. IF THE MAIN DISTRIBUTION PANEL IS MORE THAN 5' AWAY FROM THE METER SOCKET/CT CABINET, THEN AN EXTERNAL MAIN BREAKER IS REQUIRED. THE BONDING BUSHINGS, WITH JUMPERS SIZED PER NEC ARE TO BE INSTALLED. IF THERE IS AN INTERNAL MAIN BREAKER INSTALLED, THEN SUPPLY SIDE BONDING JUMPERS SHALL BE REQUIRED.
- M** THE MEANS OF DISCONNECTION OF SERVICE SHALL BE PROVIDED EITHER OUTSIDE THE BUILDING OR VIA A REMOTE SHUNT TRIP CONTROL AT THE FIRE CONTROL CABINET AND SHALL HAVE PROVISIONS TO ALLOW THE SERVICE TO BE LOCKED OPEN. IF THE OPTION TO INSTALL AN EXTERNAL DISCONNECT IS CHOSEN, THE DISCONNECT IS REQUIRED TO BE A BREAKER OR FUSED DISCONNECT. A MAIN BREAKER IS ALSO REQUIRED AT THE MAIN PANEL REGARDLESS OF WHETHER AN EXTERNAL BREAKER IS PRESENT OR NOT.
- N** IF THE OPTION TO REMOTE CONTROL FROM THE FIRE PANEL IS CHOSEN, THE SERVICE ENTRANCE SHALL INCLUDE A SHUNT TRIP MAIN BREAKER WITH THE TRIP COIL POWERED BY AN IN-LINE FUSE FROM THE LINE SIDE OF THE MAIN DISCONNECT TO PERMIT REMOTE TRIPPING OF THE MAIN CIRCUIT BREAKER FROM A KEYSWITCH LOCATION THAT IS DESIGNATED PER THE CITY FIRE DEPARTMENT'S REQUEST. THE SERVICE ENTRANCE EQUIPMENT SHALL BE BRACED FOR THE MAXIMUM ALLOWABLE SHORT CIRCUIT CURRENT.
- O** THE INSULATED GROUNDING ELECTRODE CONDUCTOR IS TO BE SIZED AND INSTALLED PER SECTION 250.52 OF THE 2014 NEC. THE GROUNDING ELECTRODE SHALL BE INSTALLED TO PERMIT THE INSPECTION OF GROUND CONNECTION AT ALL TIMES. THE COPPER GROUND CONDUCTOR SHALL BE SIZED PER NEC AND PROTECTED BY USE OF METAL/NEUTRAL BUS AT THE FIRST POINT OF DISCONNECT BY USE OF COMPRESSION TYPE SPADE-LUG CONNECTORS OR FACTORY INSTALLED TERMINALS. THE GROUND CONDUCTOR IS TO BE BONDED TO THE CURRENT TRANSFORMER CABINET. CONNECTIONS TO GROUNDING ELECTRODES TO BE MADE BY THE USE OF EXOTHERMIC CONNECTIONS OR UL LISTED IRREVERSIBLE CONNECTOR. A MINIMUM OF TWO (2) GROUNDING ELECTRODES SPACED A MINIMUM OF 6 FEET APART ARE REQUIRED PER 2014 NEC. SEE THE GROUNDING DETAILS ON DRAWINGS FOR ANY ADDITIONAL INFORMATION. THE MAIN WATER METER.
- P** CONNECT THE INSULATED GROUNDING ELECTRODE CONDUCTOR TO THE CITY'S INCOMING METAL WATER PIPE. IT SHALL INCLUDE A BONDING JUMPER PERMANENTLY INSTALLED ACROSS THE WATER METER AND SIZED PER 2014 NEC 250.66
- Q** THE EXPOSED INTERIOR BUILDING STRUCTURAL STEEL COMPONENT, IF NEC LISTED AS A GROUNDING ELECTRODE.
- R** CONNECT THE GROUNDING ELECTRODE CONDUCTOR TO THE EXPOSED BUILDING STRUCTURAL STEEL MEMBER AS REQUIRED BY SECTION 250.104(D)(2) OF 2014 NEC. THE GROUNDING ELECTRODE CONDUCTOR IS TO BE COPPER, INSULATED AND SIZED PER TABLE 250.66 OF THE 2014 NEC. THE CONDUCTOR IS TO BE TERMINATED BY USE OF COMPRESSION TYPE SPADE LUG CONNECTOR OR AN EXOTHERMIC WELD.
- S** THE CONCRETE ENCASED ELECTRODE IS SIZED AND INSTALLED PER 250.52(A)(3) OF THE 2014 NEC. THE CONDUCTOR IS TO BE NON-INSULATED COPPER. THIS IS ALSO REFERRED TO AS THE "UFER GROUND CONDUCTOR".
- T** WHERE THE REMOTE CONTROL AT THE FIRE CONTROL PANEL OPTION IS USED, A SHUNT TRIP ACTUATOR IS INSTALLED ADJACENT TO THE FIRE ALARM ANNUNCIATOR PANEL (FAAP) AND IN CONFORMANCE WITH THE REQUIREMENTS SET BY THE CITY OF ST. CHARLES FIRE DEPARTMENT.
- U** THE FIRE ALARM ANNUNCIATOR PANEL (FAAP).

NEC & NESC PRESCRIBE MINIMUM CLEARANCE FOR SERVICE

