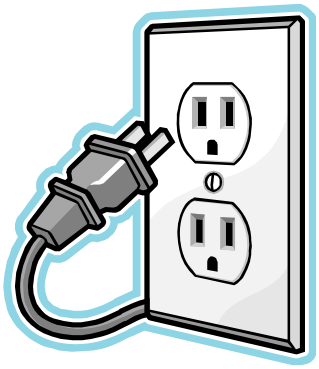

SPECIAL GUIDELINES FOR ELECTRICAL INSTALLATION

****** New Contact and Fax Telephone Numbers, Page 3 ******
Effective October 1 , 2011

CITY OF BRENTWOOD

PLANNING AND CODES DEPARTMENT

BRENTWOOD, TENNESSEE

Updated October 1, 2011

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UPDATEOCTOBER 1, 2011

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Overview

Brentwood is in the unique position of being served electrically by two separate power suppliers; Nashville Electric Service (NES) and Middle Tennessee Electric Membership Corporation (MTEMC). The purpose of this pamphlet is to acquaint you and your subcontractors as to requirements for these two power suppliers and what is expected by the City of Brentwood pertaining to electrical inspections, maintenance of temporary services, and other guidelines.
We would like to advise you at this time that this pamphlet may have amendments to it and it will be your responsibility to keep abreast of changes as they occur. Brentwood is receptive to any comments or constructive ideas regarding changes or additions to electrical codes.

Pursuant to authority granted by T.C.A. § 6-54-502, and for the purpose of providing practical minimum standards for the safeguarding of persons and of buildings and their contents from hazards arising from the use of electricity for light, heat, power, radio, signaling, or for other purposes, the National Electrical Code, 2008 edition, as prepared by the National Fire Protection Association (NFPA), is hereby adopted and incorporated by reference as a part of this Code and is hereinafter referred to as the electrical code; provided further that the electrical code shall incorporate all modifications employed by the Office of the State Fire Marshal, Department of Commerce and Insurance, State of Tennessee and the "Special Guidelines for Electrical Installation" of the City of Brentwood. The 2008 National Electrical Code, as adopted, and including all modifications referred to in this section, supersedes any conflicting provisions concerning electrical standards that may be contained within other adopted building codes.

State Electrical Inspections & Permits

Electrical services cannot be provided to the customer until an approved electrical inspection is made. Electrical power suppliers require a rough-in and final inspection. After obtaining a permit, it is the responsibility of the permit holder to request an inspection. Inspections are not required on minor repair work such as replacement devices to suitable receptacles which have been permanently installed or the addition of one phone line. **IMPORTANT NOTE: An electrical inspection is not automatically requested when obtaining a permit; permit holder shall call and request the follow-up inspection.**
A copy of the Electrical Installation Requirements from the State of Tennessee/Department of Commerce and Insurance can be obtained at http://www.tennessee.gov/sos/rules/0780/0780-02/0780-02.htm

Permits

(Tennessee Code Annotated 68-102-143)

Permit costs for temporary services, pools, service releases and finals are based upon the amperage of the metered service. The permit fee schedule must be obtained from a permit issuing agent. Permits are required for low voltage inspections which include telephone, fire alarm, cable television, intercoms, security systems, central vacuum, computer cable, music door bell, environmental air controls, garage door openers, irrigation, and satellites. It is the responsibility of the permit holder to request an inspection. No electrical wiring on which an inspection is required by this Chapter shall be installed without securing an electrical permit from the power distributor, local building official or other issuing agent authorized by the State Fire Marshal. **In the event of rejection of an electrical installation by the inspector, a new electrical permit must be applied for and obtained**.

Any person may perform electrical work (for which an inspection is required) upon his own residence provided he first applies for and obtains a property owner's electrical permit. This permit shall extend to the applicant and members of his immediate family only; and shall not authorize assistance by any other person not duly registered in accordance with Tennessee Code Annotated, Section 68-102-150. A property owner's permit shall automatically expire upon completion of the work for which the permit was issued. All work done under such permit shall be subject to regular inspection requirements and fees, and other applicable laws and regulations. Only one property owner's permit may be obtained within a twelve-month period, unless the property owner can establish damage of home by fire, windstorm, etc.

Every permit for electrical services not exceeding 225- ampere capacity shall expire two years from the date of issue, unless the inspector determines that substantial progress has been made in the work authorized by the permit. No electrical work for which a permit is required shall be commenced in any building or premises until a permit to do such work is obtained.

Required Inspections

1. New services or changes in services to existing installations.
2. Additions and/or change-outs to existing installations, such as central air conditioning and heating equipment, swimming pools, motors, and electrical wiring installations must be inspected prior to concealment.
3. Conductors or raceways installed in and outside all structures. An inspection is required prior to the concealing of such conductors or raceways by wall covering materials, insulations or dirt.
4. Low Voltage installations.
5. Modular office additions or relocation of cubicles.
6. Grinder Control boxes and conduit in ditches

Temporary Service (including Tents and special events)

1. Meter base shall not be higher than six (6) feet of grade.
2. Pole base shall be structurally sound and unable to push or pull over by hand.
3. Triplex shall be attached at the weather head and a length long enough to touch the ground left attached so that either power supplier does not have to leave the ground to make their attachment.

4. All dead covers on T/S will stay intact while T/S is energized. No splicing will be allowed outside of the disconnect.
5. T/S shall be terminated and a re-inspection of electrical installation will be required for any T/S found in a hazardous condition.
6. Extension cords shall not be located in a pedestrian walkway for tents and special events.
7. All 110- volt outlet and lighting shall be GFCI.

Emergency Situations

1. **Power suppliers** "may" energize services under emergency conditions resulting from windstorm, earthquakes or other catastrophic occurrences.
2. **Emergency repairs:** Where equipment replacements and repairs must be performed in an emergency situation, the permit application shall be submitted within the next working business day.
3. **Occupied buildings requiring change-out services:** Electrician shall contact the Power Company for a date and time for cut-out and will give the electrical inspector 24 hours notice of the time the inspector should arrive to have power restored.

Barns & Outbuildings

1. All lighting fixtures in barns and other outbuildings shall be of the non-conductor type directly fastened to the outlet box. Drop lights shall not be installed in barns or other buildings, unless specifically approved for the purpose used. All convenience receptacles in outbuildings shall be at least three (3) feet above floor level. Wiring in hay lofts shall be installed in conduit or otherwise protected against mechanical injury.

Swimming Pools

1. Conductors serving swimming pools which originate at a dwelling unit service equipment or sub-panel located on the interior of the dwelling unit may be installed utilizing the appropriate wiring methods contained in Chapter 3 of the adopted National Electrical Code. The wiring method shall comply with Article 680, adopted National Electrical Code regarding that portion of the installation on the exterior of the dwelling unit.
2. The State Electrical Inspector will not complete the bonding inspection until the City of Brentwood has approved the permanent or temporary barricade/enclosure. Consult the area Building Inspector when special conditions exist.

Meter Location

Statutory Authority: TCA Sections 68-17-113 and 68-17-150. 0780-2-1.08

1. The meter base shall be located not less than (5) feet and not more than six (6) feet above grade.
2. In all installations, the power supplier must be contacted to determine the physical location of the meter base.
3. For multi-occupancy structures, metering equipment shall be identified to indicate the suite or address served by a permanently attached method.

Workspace Required For Electrical Equipment

Statutory Authority: TCA Sections 68-17-113 and 68-17-150. 0780-2-1.13 Workspace- Electrical Equipment

1. Where equipment requires examination, adjustment, renewal, or repair, adequate working space shall be provided and maintained. This work space shall not be less than thirty (30) inches in width and head room shall not be less than four (4) feet six (6) inches. Doorways providing access to equipment shall not be less than twenty-four (24) inches wide and three (3) feet six (6) inches high. There shall also be a clearance of three (3) feet in front of the equipment.
2. There shall be a vertical clearance of at least three (3) feet for use by those conducting necessary examination, adjustment, renewal, or repair of equipment located in accessible attics. In addition, there shall be a walkway running from the attic opening to the unit, with no obstruction (such as ducts used for the purpose of circulating air, etc.)
3. Adequate space shall be provided for removal of all electrical and heating/cooling equipment from all locations (including under houses and in attics), should a breakdown requiring replacement or major repair of equipment occur.

MTEMC-Requirements

Website: http://mtemc.com/

In addition to the National Electric Code, MTEMC has local electrical installation requirements:

1. Grounding – Minimum No. 4 copper ground wire shall be run unspliced from neutral conductor at service head or meter base to driven ground rod.
2. Entrance -
    a) Place weather-head at point marked by MTEMC but not less than twelve (12) feet nor more than thirty (30) feet above ground (see article 230-24 of National Electrical Codes) and within eighteen (18) inches of point of service attachment.
    b) Install eye bolt for MTEMC Service.
    c) Use service mast on low buildings.
    d) Two- and one-half (2 ½) inch galvanized conduit is the minimum mast size and must be fastened with two clamps bolted through the wall.
    e) IMC is not acceptable as service entrance conduit.
3. Underground Services – Installation specifications are available when meter base is picked up.
4. Clearance - There must be a minimum of eighteen (18) feet clearance on commercial and industrial accounts. All other clearances must comply with National Electric Code regulations.
5. Temporary Service - See attached drawings at MTEMC website.
6. Middle Tennessee will energize service releases for 225- amp and above on residential buildings.

NES Requirements

Website: http://nespower.com

1. NES allows service releases when service is made up and there are two (2) branch circuits that are completed and labeled as to their location. (225- amp and above)
2. Underground Services - On the left hand side (left bottom) of meter base, there will be no exit or entry of conduit.
3. Temporary Services
   a) See MTE-TS drawing minus pig tails and #4 grounds, #6 will do.
   b) NES requires a 220- volt GFIC receptacle along with the 110- volt ground fault receptacle.

Residential Requirements

1. All lots shall be marked by lot number visible fifty (50) feet from the street.
2. Finished roof shall be on structure, prior to rough-in inspection.
3. A forty-five (45) day time limit will be given with all service releases. Special authorization for extensions will be given if the inspector or authority is notified.
4. No electrical inspection will be conducted, if the premises are occupied or not energized for final inspection.
5. A final electrical and rough-in shall be completed and approved prior to the City of Brentwood inspections.
6. Kitchens - Small appliance circuits shall have only two receptacles outlets at countertop level per circuit. This circuit may feed other receptacles not at counter level.
7. Separate 20- amp circuits shall be required for trash compactors, dishwashers, garbage disposals, microwaves, instant hot water, or any other stationary appliance using 12- amps or more.
8. In attic or crawl spaces where any mechanical or electrical equipment are present, a light shall be installed where it shall shine upon each piece of equipment and a receptacle shall be located within ten (10) feet of one piece of equipment. In attics this receptacle shall be within one (1) foot of walkway.
9. Smoke detectors required - Smoke detectors shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms not more than fifteen (15) feet from the bedroom door and on each additional story of the dwelling, including basements, garages, and cellars but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels, a smoke detector needs to be installed only on the upper level, provided the lower level is less than one full story below the upper level. All detectors shall be interconnected such that the actuation of one alarm will actuate all the alarms in the individual unit and shall provide an alarm which will be audible in all sleeping areas. All detectors shall be approved and listed and shall be installed in accordance with the manufacturer's instructions. All detectors boxes shall be painted "orange" for rough-in inspection. **CLARIFICATION: Smoke detectors shall be installed in each sleeping room. Smoke detectors shall be listed in accordance with UL 217 and shall be installed in accordance with the manufacturer's instructions and the provisions of the International Residential Code, 2006 edition.** (Review 2006 IRC/Section R313)
10. All electrical wiring including low voltage shall not come in contact with water lines. Water pipe grounds must be attached to cold water line at hot water heater. Hot and cold water lines shall be bonded together.

11. Raceways in wet locations above grade. All ***conductors*** in conduits in wet locations must be approved for wet locations.
12. Tamper resistant receptacles required in ***Dwelling*** units.
13. Remodeling projects shall be upgraded to present day electric code standards in areas where substantial improvements are completed.
14. Outside boxes for wall lighting will be metal octagon.

Commercial Requirements

1. Brentwood Requirement. 230-62 Service Equipment - is amended by adding the following provision: Unenclosed guarded service equipment shall be limited to mandatory disconnects and metering equipment. All other service equipment shall be placed in an enclosed area of a structure. This rule has been added to limit the electrical equipment attached to the exterior of commercial buildings, and eliminate any unsightly cluttered appearance to the structure exterior. The main disconnect and master meter are allowed to be located on the exterior of the building. It would also include individual tenant space disconnects and meters. However, it does not allow for wire-ways and other electrical equipment that is not part of disconnect or metering equipment.
2. All new services will be underground unless prior written approval has been granted by the City of Brentwood.
3. A forty-five (45) day time limit will be given with all service releases. Special authorization for extensions will be given if the inspector or authority is notified.
4. All commercial electrical and low voltage permits shall be posted at job entry (copy is acceptable).
5. Scheduling of commercial inspections shall be coordinated with the City of Brentwood Building Codes Section.
    a. (Rough-in, above ceiling, life safety and final inspection)
6. Phased Projects: Phasing of commercial projects will require permitting and inspections per phase.
7. Finished roof shall be on structure prior to rough-in inspection.
8. To obtain a service release, the electrical contractor shall request inspection and provide electrical permit number.
9. All commercial finals shall be given access to panel rooms; ladder to be provided.
10. Emergency egress lighting (emergency electrical system) shall be provided in the main electrical panel room for building(s) and public bathroom(s) servicing multiple tenants.
11. All penetration in firewalls shall be sleeved with UL listed materials.
12. Rating of walls and partitions will be stenciled above drop ceilings as to Fire Rating (1 hr.), (2 hr.), etc.
13. Raceways in wet locations above grade. All ***conductors*** in conduits in wet locations must be approved for wet locations.
14. No circuits shall extend into another different tenant space.
15. For multi-occupancy structures, metering equipment shall be identified to indicate the suite or address served by a permanently attached method.
16. Services 600- amp or more shall be megged.

Low Voltage Requirements

All Low Voltage contractors will permit their own work. Security and fire alarm installers will be asked for their current copy of a State License before they obtain a permit. Permits for Low Voltage those being, for example, Music, Vac, Telephone, Cable TV, CCTV, Satellite, Intercom. etc. All State License Holders for a specific license shall obtain a permit individually for that license. Photo electric panels, along with Solar will be an evolving process that will have the 2008 NEC as a base guide line. All Licensed Installers will leave a copy of the programming UL guide taped to the inside cover of the panel equipment. A label shall be attached to the front of the equipment cover noting that the programming guide is inside. Those that have Zones shall mark and list what is in that ZONE.

1. Lock off device is required for that circuit feeding a Fire Alarm Panel.
2. All LV wiring shall be eighteen (18) inches off the ceiling, if the structural ceiling will allow it.
3. A 110 volt outlet is required within twelve (12) inches of an outlet for Cable or Phone.
4. A 110 volt outlet is required at the interface box for Cable / TV/ Satellite / Security.
5. All outlets to be homerun to within two (2) feet of meter base outside.
6. All cable tails internal and external to be a minimum of twelve (12) inches in length.
7. Ground block to be attached six (6) inches below cable exit conduit.
8. Cable to be grounded by means of:
    a. #4 split bolt attached to #6 power ground.
    b. Conduit clamp or #1 strap attached to electric panel conduit.
    c. Conduit clamp for attaching to ground block.
    d. Pipe clamp or #1 strap attached to metal water pipe.
9. All cables shall be run with two (2) inch separation of line voltage and low voltage.
10. All fire-rated assembly penetrations shall be sleeved and sealed with approved materials.
11. All EMT wall stubs and the like shall have approved connectors at each end.
12. Manufacturer's Installation Instructions shall be followed.
13. Irrigation ditches and outside lighting shall be a minimum of six (6) inches deep.

For online access to this document, ***GUIDELINES FOR ELECTRICAL INSTALLATION***, you may visit the City of Brentwood's website at: http://www.brentwood-tn.org/Departments/planning/Forms.htm

A copy of the Electrical Installation Requirements from the State of Tennessee/Department of Commerce and Insurance can be obtained at http://www.tennessee.gov/sos/rules/0780/0780-02/0780-02.htm

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