



# City of Santa Monica Building and Safety Division

## **Rough Electrical – Residential - Checklist**

***This is to be used as a general checklist; it is not inclusive of all code requirements and inspection criteria.***

### **General requirements**

- Verify that address on permit matched Address, Description and Approvals:
- Verify that shown on plans.
- Verify that work performed matches that shown on permit
- Verify that valuation matches scope of work performed
- Inspection card to be on site with approved plans

### **Temporary Power Pole Installation:**

- Minimum 100 amp. Service as outlined in N.E.C.
- 2-20 amps GFCI protected receptacles, with additional 220-volt receptacle w/handle tie (30,40 or 50 amp breaker).
- All receptacles and breakers to be in proper working order and installed in accordance with manufactures specifications.
- Services enclosure and all subsequent equipment to be bonded and grounded in accordance with N.E.C 250-81 & 250-72 (a-e). In addition an 8'ground rod ia to be installed, with a #8 grounding electrode conductor attached with an approved/listed clamp, the grounding electrode conductor must be protected physical damage in an approved manner.
- Arch-fault circuit interrupters required for receptacle circuit feeding bedrooms

### **Underground Conduit Installation:**

- Underground Installation and Services requirements: 100amps.Minimum.
- Use only those materials listed for direct burial,(P.V.C., Direct burial cable or liquid tight or as specified by N.E.C.) other materials subject to listing and approval.
- For minimum burial depths see table 300-5 N.E.C.,(Remember this will be measured from the



## City of Santa Monica Building and Safety Division

### **Rough Electrical – Residential - Checklist**

top of circuit NOT bottom of trench)

- All joints and conduit bodies to comply with 300-5 & 710-4 (b) remain exposed for inspection, all conduit bodies use as pull boxes must remain open so inspector can verify wire size and conduit fill requirements have been met. As to further requirements approved/ listed joint cement or compound must be used.
- Where schedule 40PVC is used it must be protected from 18" below grade to 8' above per N.E.C. 300-5 (d) protection from physical damage. Note if using schedule 80 this requirement does not apply.
- Underground service feed are required on all new buildings or remodels exceeding 50% valuation

#### **Service Riser (mast)/Main Service overhead:**

- Mast is required to be minimum 1 ¼" ridged metal. (230-28) Supported with in 36" of the service enclosure. (346-12)
- Mast to extend above roof a minimum of 18" with in 4' of edge, (230-24a(except-3) no support couplings above roof line. (P.G.E.) Support mast over 24" above roof line in a approved manor. (P.G.E.)

#### **Service Conductors:**

- Service entrance conductors shall be sized per tables 70-195 and 316 N.E.C.
- Neutral conductors shall be identified at either end with a white or neutral gray color .200-6b
- Minimum Clearance for S.E.C., shall be 8' for roofs > 4in12; 3' for <4in12. (230-24a/230-24a exception2)
- Minimum clearance to a window shall be not less than 3'. 230-24a
- Clearances over walks, driveways, streets and parking lots per 230-24B N.E.C.
- Clearance over swimming pools shall be per 680-8 N.E.C.

#### **Meter/Main:**

- 100 Amp minimums for all single family residences (#4 copper service conductor) dependant



# City of Santa Monica Building and Safety Division

## Rough Electrical – Residential - Checklist

on load served. 230-42b/Tbl. 310-16 and the ampacity tables.

- Minimum working clearance of 30" wide and 36" deep to be maintained at service enclosure. (110-16)
- Maximum height 6'6" for breakers. 380-8A (44" to 66" meter head per SCE)
- Number of primary disconnects not to exceed 6 at any service enclosure. (Six movements of the hand) 230-71

### Receptacle locations:

- All walls over 2' in length and located so that no point along any wall is greater than 6 feet from any opening or obstruction or more than 12' between receptacles in bedrooms, living rooms and dens.
- In kitchens receptacles are required to be spaced not more than 2 feet from any opening or obstruction or more than 4' apart all counter spaces 12" or wider have at least one outlet. Note all outlets with-in 6' feet of water are required to be GFCI protected. All kitchen counter top receptacles to be GFCI protected.
- Peninsulas are required to have a minimum of one receptacle.
- Island counter tops are required to have a minimum of one receptacle.
- Exteriors are required to have at least one GFCI protected receptacle at the front and rear of all dwelling units.
- Bathrooms are required to have one GFCI protected receptacle located adjacent to each lavatory; additionally these receptacles are required to be on their own 20 amp. Breaker.
- Note see Sec. 210-52 N.E.C. for other specific requirements.
- Lights, (where required) switching, clearance and support:
- Lighting required in:
  - All Bathrooms
  - Kitchens
  - Hallways
  - Stairs
  - At every entrance to: garages, dwelling units and storage areas where (electrical service is available).
  - Attics, basements and equipment areas. (Hvac, A/C, F.A.U. and water heaters located other than in attics, basements and garages). Additionally a service receptacle is required within 25' of all equipment for servicing.



## City of Santa Monica Building and Safety Division

### **Rough Electrical – Residential - Checklist**

- At least one switch controlled outlet in every habitable room, See N.E.C. 210-70 (a) for specific locations.

#### **Clearance to combustibles and adjacent boxes:**

- Recessed lighting (non-I.C. rated) 3" insulation, and ½" to combustibles, per 410-66 (b)
- Recessed lighting with (I.C.,I.P. rated) 0" clearance to Insulation and combustibles, or per manufactures specifications.
- Ceiling fans must be installed in an approved manor not be supported by standard electrical boxes. See 370-27 for more details.
- All fixtures assemblies to be installed in an approved manor/per manufactures installation instructions.
- Title 24 California Energies Code requires primary lighting in kitchens and bathrooms to be florescent or other approved type. (Energy efficient) these fixtures to be controlled by first switch.
- All boxes fixtures and hardware must be listed by recognized listing agency
  - o 110 N.E.C.

#### **Service cable and conduit specifications:**

- Specifics for Romex:
- Protect Romex from physical damage to 8' above floor, (where exposed).
- Maintain minimum 1¼" clearance from stud face, where bored framing members have been bore.1 ¼" to face provide nailing protection. 336-6(b)
- Bends in Romex must be a minimum of 5 diameters. 336-16
- Protection of Romex is required with in 6' of attic accesses. 333-12 (a)
- Sheathing of Romex to penetrate box minimum ¼" but not more than 1"
  - o 370-17©
- Romex must be stapled to stud with in 8" of single gang boxes and 12" of multi-gang boxes; support shall be at intervals not exceeding 54" for horizontal runs parallel to framing members.



# City of Santa Monica Building and Safety Division

## Rough Electrical – Residential - Checklist

### Sub-panels and boxes:

- Working clearance and breaker heights at sub-panels are the same as service enclosures. 110-16a/380-8
- Sub-panels shall not be located in close closets or bathrooms. 240-24 (d) (e)
- Grounding at sub-panels to be isolated from neutral buss. 250-23a/250-6b
- Installation of all electrical equipment and hardware to be per manufactures installation instructions.
- Boxes must remain accessible. 370-21
- Wire fill of boxes to be per table 370-16b, minimum services loop in box to be 6". 370-14
- All metal boxes must be grounded (aluminum flex approved for ground up to 100' residential use only/commercial is limited to 6')
- Boxes installed in non-combustible walls may set back ¼" maximum, flush in combustible wall surfaces. 370-20

### Grounding/bonding Requirements:

#### UFER grounding:

- UFER ground shall be either #4 bare copper continuous in length suspended from the bottom reinforcing bar inside the footing and within 2' of soil, it shall be a 20' continuous length at the suspended portion or #4 Rebar shall be a 20' continuous length at the suspended portion and extend above footing or stem wall.
- The grounding conductor shall be attached with an approved clamp and remain accessible. (Sized per table 250-94)
- Ground rods of copper or copper clad aluminum shall be 8' in length and completely driven. 250-83 (c3) For other made electrodes see 250-83
- Grounding electrode conductors sized #6 or smaller shall be protected from physical damage in an approved manor. 250-94a



## City of Santa Monica Building and Safety Division

### **Rough Electrical – Residential - Checklist**

#### **Bonding:**

- All electric service require cold water bond within 5 ft. of entering the building
- Gas and water piping shall be bonded
- All pool heaters; pumps and equipment shall be bonded.
- Spas, whirlpool baths and hydro-massage equipment shall be bonded; this equipment also requires GFCI protection.