



City of Auburn
Home of Auburn University

DATE: December 1, 2022

TO: All Contractors

FROM: John R. Hoar
Inspections Services Director/Building Official

RE: Updated Fire Codes Effective Date January 1, 2022

On January 1, 2022, the City of Auburn will place into effect the 2021 edition of the International Code Council updated code changes. The new code standards which will be followed are the 2021 Residential, Building, Plumbing Mechanical, Gas, and Fire Codes. We have also adopted the 2020 NEC (National Electrical Code) and 2017 ICC A117.1 Accessibility Code. Any residential permits submitted on or after January 1, 2022 will fall under the 2021 Residential Code.

The following are some of the significant changes associated with the adoption of the 2020 Electrical Code. We hope to make this an easy transition for everyone by giving you information on some of these significant changes.

National Electrical Code Changes

- **Disconnect Identification**-Along with identifying the purpose of a disconnecting means, in other than one and two family dwellings, the marking shall include the identification of the circuit source that supplies the disconnecting means.
- **Large Equipment entrance and egress from working space**-The change here is that open equipment doors cannot impede the entry to or egress from the working space.
- **Dwelling Units**-All 125-volt thru 250-volt receptacles installed in 210.8 (A) (1) thru (A) (11) single phase circuits 150-volts to ground or less shall be GFCI protected.
- **Basements**-GFCI protection required throughout the basement, not just unfinished areas of a basement.

- **Other than Dwelling Units**-GFCI protection required in kitchens or areas with a sink and permanent provisions for either food preparation or cooking.
- **Specific Appliances, & (E) Equipment Requiring Servicing**-GFCI protection required for receptacles for specific appliances (422.5 (A)) when not already protected by one of the methods in 422.5 (B), and receptacles specific to the equipment outlined in 210.63 shall be GFCI protected.
- **Outdoor Outlets**-All outdoor outlets for dwellings, other than those covered in 210.8 (A) (3), Exception to (3), that are supplied by branch circuits rated 150 volts to ground or less, 50-amp or less, shall have ground fault circuit interrupter protection for personnel. (Example would be an A/C unit)
- **AFCI in Nursing Homes and Limited Care**-AFCI protection required in Guest Rooms and Guest Suites, and Patient Sleeping Rooms of Nursing Homes and limited Care Facilities.
- **Branch Circuit Extensions or Modifications in Dwelling units, Dormitory units, Guest Rooms and Guest Suites**-Where the branch circuit wiring for any areas in 210.12 (A) (B) or (C) is replaced, modified or extended it shall be AFCI protected. The exception for the extensions not over 6ft in length and not including any additional outlets or devices is still applicable.
- **Island and Peninsular Countertops and Work Surfaces.**-(a) At least one receptacle shall be installed for the first 9sqft or fraction thereof, of the countertop or work surface, and an additional receptacle for each additional 18sqft or fraction thereof. (b) At least one receptacle outlet shall be installed within 2ft of the outer end of a peninsular countertop or work surface. Additional outlets required, shall be permitted to be located as determined by the installer, designer or owner.
- **Habitable Rooms**-The change here is that the required wall mounted control device for lighting outlets in habitable rooms must be located near the entrance on a wall. (Already common practice)
- **Common Supply Equipment**-Where feeder conductors originate in the same panel board, switchboard, switchgear, or distribution equipment, and each feeder terminates in a single disconnecting means, not more than six feeders shall be permitted. Where more than one feeder is installed, the disconnect shall be grouped in the same location.
- **Effective January 2023**, -All pressure connectors and devices for splices or taps installed on service conductors are to be Listed and Marked as "Suitable for use on the line side of the service equipment or equivalent".
- **Surge Protection**-All services supplying dwelling units shall be provided with a surge-protective device. Must be Type 1 or Type 2 SPD. Applies to service equipment being replaced.
- **Maximum Number of Disconnects (6 Handle Rule).**-The change here is that 6 separate service disconnects only allowed in separate enclosures or separate compartments.
- **Emergency Disconnects**-For one and two family dwellings units, service conductors shall terminate in a service rated disconnecting means at a readily accessible location outdoors. Each disconnecting means shall be marked "Emergency Disconnect Service Disconnect"
- **Arc Energy Reduction (Fuses).**-Reminder that Arc Energy Reduction is now required where fuses are employed and rated 1200-amp or higher. (C) is new in the 2020 NEC requiring the arc energy reduction system testing by primary current injection or other approved method when first installed on site.(Some exceptions apply)
- **Arc Energy Reduction (Breakers)**-Breakers rated 1200 – Amp or higher must utilize one of the methods of reducing arc energy, and documentation shall be provided showing that the method chosen to reduce the clearing time is set to operate at a level below the available arcing current. Temporary adjustment of the instantaneous trip setting to achieve arc energy reduction shall not be permitted. (C) Is new in the 2020 NEC requiring the arc energy reduction system testing by

primary current injection or other approved method when first installed on site (Some exceptions apply)

- **Grounding Electrode Conductor and Bonding Jumper Connections to Grounding Electrodes**-The change here is that rebar (UFER) cannot be used as a conductor to connect other electrodes in the system.
- **Sizing Equipment Grounding Conductors**-When ungrounded conductors are increased in size for any reason other than as required by 310.15
- **Exit Enclosures (Stair Towers)**-(B) or 310.15 (C), wire type EGC's shall be increased in size proportionately to the increase in circular mil area of the ungrounded conductors.
- **Article 310 Changes**-Revised with new table designations. MV cable and conductors have been relocated to new Article 311. Table 310.15 (B) (16) has been renamed Table 310.16, and new Table 310.12 for dwelling unit ampacities for services and feeders is back when no de-rating is required
- **Boxes at Ceiling Suspended Paddle Fan Outlets**-Outlet boxes in the ceilings of habitable rooms in a location acceptable for the installation of a suspended paddle fan shall be either: 1) Listed for the sole support of a suspended paddle fan, or 2) a standard outlet box providing access to structural framing capable of supporting a suspended paddle fan bracket or equivalent.
- **Receptacle Orientation**-Receptacles shall not be installed in a face up position in countertops or work surfaces unless listed for countertop and work surface applications. (2) Under Sinks. Receptacles shall not be installed in a face up position in the area below a sink.
- **Bathtub and Shower Space**-Receptacles shall not be installed within a zone measured 3ft horizontally and 8ft vertically from the top of the tub rim or shower stall threshold. This is all encompassing and shall include the space directly over the tub or shower.

Exception: In bathrooms with less than the required zone the receptacle(s) shall be permitted to be installed opposite the bathtub or shower stall on the farthest wall within the room.
- **Tamper Resistant Devices**-TR devices for all 15 and 20-amp 125 and 250 volt receptacles are now required to be installed in common areas of multifamily dwellings, common areas of hotel and motels, Dormitory units, and Assisted living facilities.
- **Short Circuit Current Rating**-In other than one and two family dwellings, the available fault current and the date the calculation was performed shall be field marked on each Switchboard, switchgear, and panel board.
- **Overcurrent Protection**.-This was a companion section to 230.71 dealing with the 6 handle rule.
- **Installation in Fire Resistive Construction** Recessed Luminaires not Listed for use in Fire Resistant Rated Construction shall not be installed in fire resistive rated construction unless it satisfies one of the following conditions: 1) shall be listed for use in Fire Resistant Rated Construction. 2) The luminaire shall be installed in or used with a luminaire enclosure that is listed for use in a Fire Resistant Rated Construction. 3) The luminaire is listed and shall be installed in accordance with a tested Fire Resistant Rated Assembly.
- **Access to Other Boxes**.-Luminaires recessed in ceilings, floors, or walls, shall not be used to access outlet, pull or junction boxes or conduit bodies unless the box or conduit body is an integral part of the luminaire.
- **Special Provisions for Horticultural Lighting Equipment**.-This new Part has requirements for the Listing, installation and use of luminaires that are listed and identified for horticultural use to include locations not permitted, type of connections, fittings, GFCI protection etc.
- **Ground Fault Circuit Interrupter (GFCI) protection for Personnel**.-The list of appliances requiring GFCI protection has been increased and is required regardless of being cord and plug connected or hard wired.

- **Built in Dishwasher and Trash Compactors**-The cord of a dishwasher or trash compactor passing thru an opening shall be protected by a bushing, grommet or other approved means. (Bushing or grommet required)
- **Grounding and Bonding**.-Where HVAC equipment is located outdoors on a roof, an equipment grounding conductor of the wire type shall be installed in outdoor portions of metallic raceway systems that use compression fittings.
- **Emergency Shutdown in One and Two Family Dwelling Units**.-For other than cord and plug connected portable generators, an emergency shutdown device shall be located outside the dwelling unit at a readily accessible location.
- **Ventilation**-Transformer top surfaces that are horizontal and readily accessible shall be marked to prohibit storage.
- **DC Disconnect Methods**-These are new requirements for disconnecting stationary battery systems. (B) Specifically for single family and two family dwellings, a disconnect or remote control for a stationary battery system shall be located at a readily accessible location outside the building for emergency use and shall be labeled "Emergency Battery Disconnect". (C) deals with disconnecting means exceeding 240-volts dc, and (G) is specific to the labeling and Identification of Power Sources on the premises.
- **Ground Fault Circuit Interrupter Protection for Personnel**.-GFCI for personnel shall be in accordance with 210.8 (B). (Commercial Garages)
- **Ground Fault Circuit Interrupter Protection for Personnel**-GFCI for personnel shall be in accordance with 210.8 (B). (Aircraft Hangars)
- **Illumination**.-Illumination shall be provided for all working spaces about fixed service equipment, switchboards, switchgear, panel boards, motor control centers installed outdoors that serve assembly occupancies. Control by automatic means only shall not be permitted.
- **Relocatable Structures**-Completely new section dealing with Relocatable Structures. Outlines requirements for power supplies, disconnecting means, grounding, identification, GFCI protection etc.
- **GFCI protection. (TIA 20-8)**-Ground fault circuit interrupter protection shall be provided as required by 210.8 (B). GFCI protection shall not be required for other than 125-volt 15 and 20 amp receptacles used in the recreational vehicle site equipment.
- **Signs with a Retrofitted Illumination Systems**-Signs with a retrofitted illumination system shall contain the following: (1) Sign shall be marked that the illumination system has been replaced. (2) The marking shall include the kit providers and installers name, logo, or unique identifier. (3) Signs with tubular LED lamps powered by the existing sign sockets shall include a label alerting the service personnel that the sign has been modified. The label shall meet the requirements of 110.21 (B). The label shall also include a warning not to install fluorescent lamps and shall also be visible during re-lamping.
- **Remote Location**-The disconnecting means, if located remote from the sign, sign body, or pole, shall be mounted at an accessible location available to first responders and service personnel. The location of the disconnect shall be marked with a label at the sign location as the disconnect for the sign or outline lighting system. The label shall comply with 110.21 (B). (To meet this requirement, a disconnect will be required outdoors that shuts power off to the sign, and if not at the sign, a label on the sign indicating its location will be required)
- **Protection against Physical Damage**-If subject to physically damaged, conductors shall be protected and installed in accordance with 300.4. All through-wall penetrations shall be protected by a listed bushing or raceway. (This applies to Class 2 wiring on the load side of a driver or transformer)

- **Selective Coordination**-Where more than one driving machine disconnecting means is supplied by the same source, the overcurrent protective devices in each disconnecting means shall be selectively coordinated with any other supply side over current protective devices.
- **Signage**.-Equipment enclosures containing selectively coordinated overcurrent devices shall be legibly marked in the field to indicate that the overcurrent devices are selectively coordinated. The marking shall meet the requirements of 110.21 (B), shall be readily visible, and shall state the following: "CAUTION: OVERCURRENT DEVICES IN THIS ENCLOSURE ARE SELECTIVELY COORDINATED. EQUIVALENT REPLACEMENTS AND TRIP SETTING ARE REQUIRED"
- **GFCI Protection**-Outlets supplying all pool motors on branch circuits rated 150 volts or less to ground and 60-amperes or less, single or 3 phase, shall be provided with Class A GFCI protection.
- **Pool Pump Motor Replacement**-Where a pool pump motor in 680.21 (C) is replaced for maintenance or repair, the replacement pump motor shall be provided with GFCI protection.
- **Other Equipment** -At least one GFCI protected 125-volt 15 or 20-amp receptacle on a general purpose circuit shall be located within a pool equipment room, and all other receptacles supplied by branch circuits rated 150- volts or less to ground within a pool equipment room shall be GFCI protected.
- **Storable and Portable Immersion Pools**-This is a new section with all the specific requirements for Storable and Portable Immersion Pools.
- **Supply Conductors**-The supply conductors within the fire pump room shall not be required to meet 230.6 (1) or (2).
- **Identification of Power Sources**-A label indicating multiple power sources located on the premises is required to be located at each service equipment location or at an approved readily visible location. The plaque or directory shall denote the location of each power source disconnecting means for the building or structure. The plaques or directory shall be marked with the
- **Supply Side Source Connections**-This is a new section splitting out line side taps from load connections of interconnected power sources and has new requirements for conductor size, overcurrent protection, connections, and ground fault protection.
- **Power Control Systems**- New section pertaining to PSC's that limit the current on conductors and bus bars and the requirements for monitoring, settings, Overcurrent protection, and access to settings
- **Disconnecting Means, Source**-This section combines what was 705.20, 705.21, and 705.22 into one sections for the disconnecting means and all the requirements they must comply with.
- **Wiring Methods**-New section outlining the wiring methods that can be used (A) General, (B) Flexible Cords and Cables, (C) Multi-conductor Cable Assemblies.
- **Circuit Sizing and Current**-New section and requirements for determining (A) Maximum Circuit Current, (B) Conductor Ampacity, (C) Neutral conductors.