

Receptacle

By BRUCE BARKER, ACI

ONCE AGAIN, The Word invites you to travel into the dark realm of terms that often are misused or misunderstood in home inspection reports. The Word hopes you will find this trip informative and maybe a little entertaining.

The Word's term today is receptacle. The Word finds this term interesting because there is so much more to inspecting these ubiquitous devices than inserting a three-light tester.

What's in a name?

Receptacles often are called outlets. A receptacle is one type of electrical outlet, but it's not the only type. An electrical outlet is any connection from which electricity is drawn for use. An outlet could be a receptacle, but it also could be a light fixture box or a junction box for a built-in oven connection. It's not wrong to call a receptacle an outlet, and it may be a term clients understand. You should know the difference; however, because next we'll discuss limits on multi-outlet branch circuits.

Let's briefly discuss two other terminology issues. Don't call a receptacle a plug. That's something you insert into a receptacle. The common duplex receptacle is not a single receptacle. It's really two receptacles. This distinction can be important in some cases.

How many receptacles on a circuit?

This is a trick question; sorry. The answer for residential branch circuits is no limit exists on the quantity of receptacles on a branch circuit. As usual, there are exceptions. Loads on the branch circuits should be reasonably evenly distributed, but rarely will you get into that during an inspection. A single plug-and-cord

device may not exceed 80 percent of a multi-outlet branch circuit amperage rating. Ever wonder why plug-in appliances like vacuum cleaners usually max out at 12 amps? Twelve amps is 80 percent of 15 amps; that's why. A single fixed device may not exceed 50 percent of a multi-outlet branch circuit amperage rating. That's why many devices, such as plug-and-cord-connected microwave ovens, often require a dedicated branch circuit.

In commercial occupancies, around 10 receptacles may be the limit on a 15-amp branch circuit and 13 receptacles on a 20-amp branch circuit. These limits are not required in residential occupancies; however, you might find them a useful (but inexact) guideline.

Where may you install receptacles?

Inside a home, the answer is just about anywhere. You may install them in the floor (in an approved floor box), on the ceiling and anywhere in between. You may not install required receptacles, such as wall receptacles in a living area or in a bedroom, more than 66 inches above the finished floor. Receptacles above 66 inches are ok; they just aren't counted among the required receptacles.

Receptacles around water need special attention, for obvious reasons. You may not install a receptacle inside or directly above a bathtub or a shower. Watch those receptacles for televisions above whirlpool tubs. You may not install a receptacle face up on a counter top or similar work surface in a kitchen or bathroom. While not prohibited, any receptacle installed face up where it may be exposed to liquids, such as near a wet bar

or a laundry sink, is questionable from a safety perspective.

Outside, the most common receptacle location limitation is near swimming pools and hot tubs. The pre-2009 IRC rule was no general-purpose receptacles within 10 feet of

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pools and spas. The current IRC rule is no general-purpose receptacles within 6 feet of pools and spas.

Where must you install receptacles?

This discussion applies to new construction and major remodeling and is not a complete list of all required receptacle locations.

In living areas and bedrooms, no wall space should be more than 6 feet from a receptacle. Wall spaces include fixed-door panels such as the fixed panel of a sliding glass door. Wall spaces also include the areas along partial-height walls and along guard rails where furniture could be placed. Closet interiors, fireplaces and operable doors are not considered wall spaces for receptacle spacing.

Along kitchen counter tops, no wall space should be more than 2 feet from a GFCI-protected receptacle. Wall spaces include counter tops at least 12 inches wide, counter tops at least 12 inches deep behind sinks and cooking appliances, and counter tops at least 18 inches deep behind sinks and cooking appliances mounted in a corner-base cabinet.

In a simpler time, most kitchen islands needed only one receptacle. Now, kitchen islands are treated similarly to other kitchen counter tops, as shown in the illustration.

In bathrooms, at least one GFCI-protected receptacle must be located within 36 inches from each sink bowl. It's okay to locate one receptacle between the sinks if the 36-inch distance requirement is satisfied. A light-fixture receptacle does not count as a receptacle for this requirement.

Outside, at least one GFCI receptacle must be located at the back and front of the home, accessible from finished grade, and located within 78 inches above finished grade. A receptacle also is required within the perimeter of a permanent deck, porch or balcony that is accessible from within the home and has an area of at least 20 square feet.

Other required receptacle locations include the laundry area, an unfinished basement, near HVAC equipment, in an attached garage and between 6 and 20 feet from a swimming pool or spa.

Receptacle installation

Two of the most important receptacle installation requirements involve receptacle movement and potential contact with energized parts. Receptacles should not move when a plug (or your tester) is inserted. Receptacles mounted behind mirrors frequently are guilty of movement. Movement can damage the wires and/or the receptacle, resulting in arcing and fire. The receptacle faceplate should completely cover the receptacle and its opening in the wall, and the faceplate should be flush against the wall. No gaps may exist between the receptacle and its faceplate, and between the faceplate and the wall.

Receptacles in damp locations should have a cover that closes when there is no plug in the receptacle. Damp locations include covered exterior spaces such as porches and can include damp basements. Receptacles in wet locations should have a cover that closes when a plug is inserted in the receptacle. Wet locations include any area that may be exposed to liquid water.

A common problem, at least in The Word's world, involves receptacles (and switches) installed in boxes supported by conduit. This can be a movement issue. You should support boxes containing switches and receptacles with at least two separate pieces of rigid conduit (not tubing) secured within 18 inches of the box and secured wrench-tight to the box using the box's threaded connection or hubs.

The bottom line

With all we have to inspect, it's easy just to stick your tester in a receptacle and move on. Perhaps now you have a little more respect for some of the complexities involved with these ubiquitous devices.

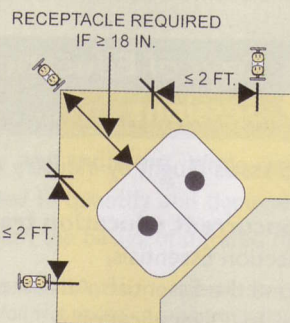
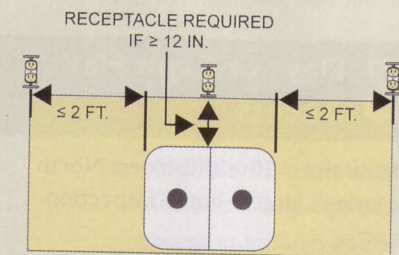
Memo to the electrical gods: The Word does not reside on Mt. Olympus (just at its base) and welcomes other viewpoints. Send your lightning bolts or e-mails to inspectorbruce@cox.net. The thoughts contained herein are those of The Word. They are not ASHI standards or policies. ■



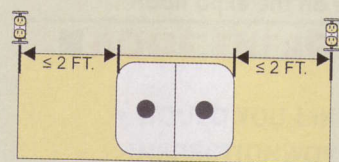
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Receptacle Spacing Near Sinks and Cook Tops

BASE CABINETS SEPARATED BY SINK OR COOKING APPLIANCE
APPLIES TO CABINETS ALONG WALLS AND TO ISLANDS AND PENINSULAS



ISLAND SEPARATED BY
SINK OR COOKING APPLIANCE



COUNTER TOP RECEPTACLES
UNDER OVERHANG

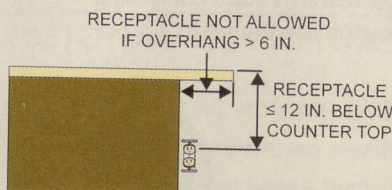


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