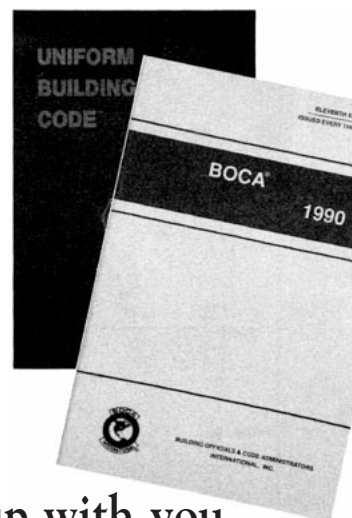




Builder's Guide to Common Code Violations

by Michael Stevens



Catch these routine mistakes before they catch up with you

I don't believe there is anything in the building process that is under as much time pressure as the final inspection. Nearly everyone is always in a rush. Typically the moving van is on the way, and if the inspector finds a code violation, frantic phone calls to the client are just plain too late.

Much of the time, trouble can be traced to a sub or an inexperienced employee. But whatever the cause, it is the responsibility of the general contractor to fix the problem, and soon. So you end up canceling a fishing trip — anything to get the certificate of occupancy.

Here are ten of the biggest headaches likely to turn up during the final inspection, drawn from my

years both as a builder and building inspector. Some are not difficult to fix; others require major remodeling work. But in all cases, they may keep the owners from moving in, and create the possibility of your client living in your spare room for a week.

All of the codes and technical data cited are from the Uniform Building Code, Uniform Mechanical Code, and National Electrical Code (see table, page 43). If your area has adopted other model codes, they should address the same basic requirements, but you ought to check for differences. For those of you who live under a jurisdiction that has made up their own code, good luck. That problem is number ten on my list.

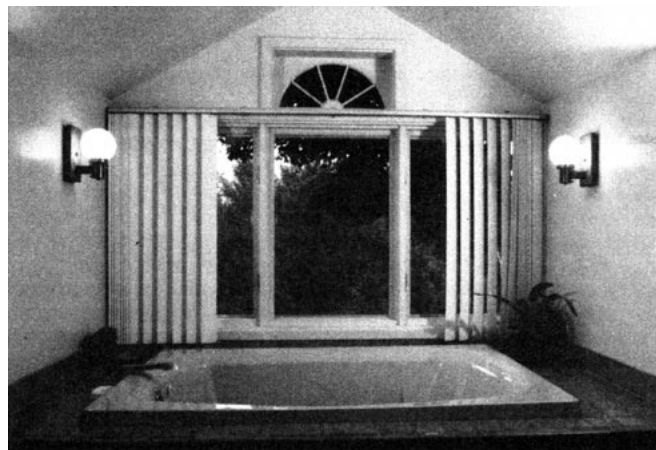


Figure 2. Windows in shower and bath enclosures must have safety glass because of the risk of someone's falling against them. Receptacles and lights must be protected by GFCIs.

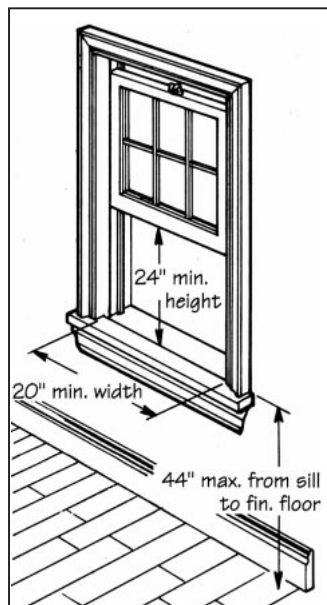


Figure 1. Because bedroom windows may act as emergency exits in a fire, they must be large enough and low enough to meet egress requirements.

1. Bedroom Window Requirements

Bedroom windows act as emergency exits in case of fire. This is especially important for second story windows, in case the stairway doesn't hold. They all need a minimum clear opening 20 inches wide and 24 inches high, and the maximum height of the sill from the finished floor is 44 inches (See Figure 1).

It never fails. Somewhere along the line, someone decides they want two double-hung windows instead of the horizontal slider shown on the plans. If the opening is large enough to meet code, this kind of problem is easy to fix by just changing out the window. Most of the time, however, the egress requirements are forgotten altogether. Then you must remove trim, drywall, and framing to meet the code.

Solution: Run all window changes through a design review process, checking window egress conditions, and light and ventilation requirements.

2. Safety Glass at Tub And Shower Enclosures

I don't know why it is, but most people today want to look out and see what's going on in the neighborhood while taking a bath. Windows in shower and bath enclosures must have safety glass installed for protection from "human impact" (see Figure 2). Even when the glass is specified and delivered correctly, they can get switched with windows in the dining room or some other location.

Solution: Make a note on the window framing (bare studs) with a magic marker that the window installed at that location must have safety glass. This way, the workers shouldn't miss it while installing the window.

3. Electrical Hazards Around Spas

This problem crops up when designers don't give close attention to the electrical code, and the electrician wires the house exactly as the

plans show. Indoors, code requires a receptacle no closer than 5 feet and no farther than 10 feet from a hot tub or spa, protected by a GFCI. Receptacles and wall switches within 5 feet of the inside surface of the tub are forbidden. Overhead lighting must be protected by a GFCI out to 5 feet from the inside tub surface. The GFCI requirements usually can be met by changing the receptacles or breakers. Changing wall switches or fixture types or locations requires a lot more work.

Solution: Check the plans prior to construction and consult with your electrical sub.

4. Closet Lights

Most homes today are built with the convenience of lights in the closets, or with large, walk-in closets in the master bedroom. They can be very elaborate, with custom shelves and even built-in drawers. Incandescent lights are not permitted within 12 inches horizontally from the near-

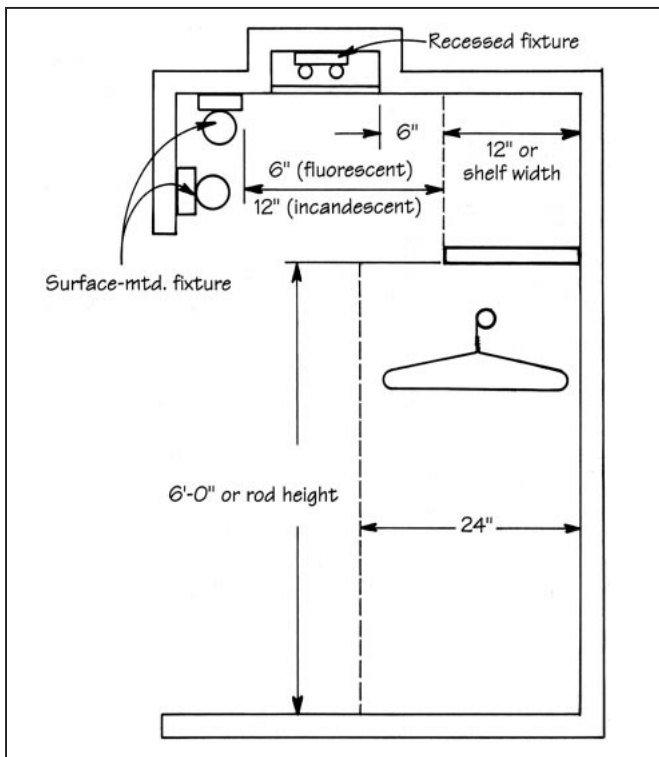


Figure 3. Lights in closets must be carefully placed to meet code clearances. Fluorescent fixtures above the door header give greatest flexibility.

est edge of the storage area (see Figure 3). This horizontal clearance does not change no matter where the light is installed in the vertical dimension. Fluorescent fixtures or recessed incandescent lights with completely enclosed lamps must be at least 6 inches horizontally from the boundary of the storage space.

Except in the case of recessed housings, the building official cannot catch this problem during the rough-in inspection because he usually doesn't know what type of light will eventually be installed.

Solution: Check the plans and change all wall-mounted lights to fluorescent fixtures installed on the wall above the door header.

5. Hearth Extensions On Fireplaces

This problem is creeping back with remarkable consistency. It's directly tied to changes in personal tastes, as more people want tile floors and veneer on fireplaces. It's obvious the hearth must be constructed of noncombustible material, but it's easy to forget it must also be plainly distinguishable from the surrounding surface. This may require the installation of different shades or textures of tile for the hearth.

Solution: Consult with the owners and floor covering people to select the appropriate materials (especially if floor covering is not part of your contract).

6. Combustion Air for Gas-Fired Appliances

This can be a real hassle to fix

once the appliances have been installed. Each gas appliance must be supplied with sufficient fresh air (both upper and lower openings) for combustion and to prevent buildup of carbon monoxide. This is one of those problems that pops up when the owner switches to gas from electric heat or hot water.

Solution: Add combustion air requirements to your framing inspection checklist.

7. Handrails For Stairs

This violation is also returning more often as we are employed to build our client's dream tree house. I think some designers and architects also believe that handrails interrupt the sweeping curves and lines in their buildings. Handrails are required for both interior and exterior stairs that have four or more risers. They must be installed on at least one side, and can make for a tight fit if the stairway is the minimum 30-inch width.

Solution: Make a note on the plans (most plans don't show handrails) and consult with the designer if it looks like it will be a problem. Or ask the architect for an elevation drawing.

8. Drainage Around Structure

As we are forced to build on increasingly marginal lots, it becomes harder to shape the lot to avoid erosion and ponding of surface water. Code requires that surface water flow away from the structure at a slope of 1/2 inch per foot. Additional grading may be needed on steeply sloping lots.

Model Code References

Several model codes are currently in force throughout the country, so you will need to determine which one applies to your area. The item numbers in the chart below refer to the particular problems discussed in this article, followed by the model code abbreviation and section reference. Information on the organizations that publish the model codes is provided following the

Item	Code Reference			
1	UBC-1024	CABO-R-210.2	NBC-809.4	SBC-1104.4
2	UBC-5406	CABO-R-208.3	NBC-2203	SBC-2703.1
3	NEC-680-41			
4	NEC-410-8			
5	UBC-3707	CABO-R-903.5		SBC-804.1.3
6	UMC-607	CABO-M-1201-11	NMC-1000	SMC-305
7	UBC-3306	CABO-R-214.1	NBC-817.7	SBC-1112.5
8	UBC-2905f	CABO-R-301.3	NBC-1224.7	SBC-1702.1
9	NEC-110-22			
	UBC-513			
	UBC-503d			

chart.

UBC: *Uniform Building Code*
 UMC: *Uniform Mechanical Code*
 International Conference of Building Officials (ICBO)
 5360 South Workman Mill Road
 Whittier, CA 90601

CABO *One and Two Family Dwelling Code*
 The Council of American Building Officials (CABO)
 5203 Leesburg Pike
 Falls Church, VA 22041

NBC: *National Building Code*
 NMC: *National Mechanical Code*
 Building Officials & Code Administrators International, Inc. (BOCA)
 4051 W. Flossmoor Road
 Country Club Hills, IL 60478-5795

SBC: *Standard Building Code*
 SMC: *Standard Mechanical Code*
 Southern Building Code Congress International, Inc. (SBCCI)
 900 Montclair Road
 Birmingham, AL 35213-1206

NEC: *National Electrical Code*
 National Fire Protection Association (NFPA)
 Batterymarch Park

Solution: Consult with the excavator to make sure you and he understand what the site requires. Make arrangements for any additional material that must be removed or added.

9. Labels, Identification, And Door Closers

Three small items that have come up most often in my experience are *failure to identify electrical panel breakers, missing house numbers, and no closer on the door between the garage and the house*. Little things can add up quickly, and the more the inspector finds, the harder he looks. They will almost certainly delay your certificate of occupancy, and, in some jurisdictions, keep the owners from moving in.

Solution: These require less time to fix than it takes to read this, but wouldn't happen in the first place if they were added to a continually updated final inspection checklist.

10. Code Amendments

These requirements always turned

my eyeballs white when I was building in an unfamiliar jurisdiction. I knew the building code fairly well, but occasionally, odd amendments would pop up and ruin my day. Sometimes these changes are buried in the city charter. Or else they're pet requirements by government employees long retired, but whose legacy still haunts the contractor. A builder I know had his permit held up because the coverplate on the garbage disposal switch wasn't electrically isolated with plastic screws.

Solution: Ask the building department for a booklet containing any code amendments. If this is not available, the next best thing when working in a new location is to have a talk with the inspector ahead of time. Ask him what always trips up the new contractors.

And if he says "Where do you want to start?" bid the job high. ■

Michael Stevens has been a building contractor and, most recently, the Engineering Design Supervisor for Coconino County, Sedona, Ariz.